
Cycling
BRIDGE COURSE - REGISTER
DEPT OF PUBLIC ADMN
FOREST SAFE

Bridge Course 2019-20

INTER

GROUP

Sl No	NAME	GROUP	
	A. Manasa	MPC	E.P.P
	V. Ushapriya	BIPC	E.P.A
	I. Sureetha Reddy	MPC	H.E.P.A

1. Introduction to theories of public Administration
2. Basic features of Indian administration
3. Evolution of Indian administration
4. Comparative & Development administration
5. Local Self Government

B-Coge Course 2020 - 21 classmate

Date: Sep 2020

Sl. No	NAME	R.No	I.Year Group	BA Group
1.	B. Abinaya	2001-1085-156002	MPC	HPP
2.	D. SANA	005	MPC	HPP
3	G. ARUNA	006	MPC	HPP
4	K. SURAVANTHI	009	MPC	HPP
5	M. USHA	011	MPC	HPP
6	M. Sriya Reddy	014	MPC	HPP
7.	G. NIKITHA	015	MPC	HPP
8	R. VARSHA	016	MPC	HPP
9	S. padhma	018	BPC	HPP
10	S. Soumya	019	MPC	HPP
11	T. Amulya	021	BiPC	HPP
12	V. Swetha	022	MPC	HPP
13.	G. Sravani	2001-1085-366002	MPC	HEPA
14	P. Sushmitha	004	MPC	HEPA

① Introduction to concepts, principles and theories of public admn

② Meaning and Importance of P.Ad

③ Evolution of public Admn

④ Social Justice theories by Ambedkar, phule.

Dr. G. NARSIMULU
Assistant Professor of Public Administration
Govt. Degree College for Women (Autonomous)
Begumpet, HYDERABAD-500 016

DEPT OF COMMERCE & B.ADMN

BRIDGE COURSE

REGISTER

Government Degree College For Women Begumpet.

DEPARTMENT OF COMMERCE

BRIDGE COURSE (2016-17)

It is proposed to conduct bridge course. classes to the Non-Commerce students like Vocational group and Science groups in Intermediate. As they don't have any Knowledge about the subjects taught in commerce.

Therefore, intensive coaching is to be given to the students in Basic concepts of commerce & Accountanc from 1/8/2016 to 31/8/2016.

SYLLABUS

Paper : (BC 104) : FINANCIAL ACCOUNTING - I

Paper: BC104
THPW: 5 Hrs
Credits : 5

Max. Marks: 50
Exam Duration: 3 Hrs

Objective: *to acquire conceptual knowledge of basics of accounting and preparation of final accounts of sole trader.*

UNIT-I: ACCOUNTING PROCESS:
Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB – Accounting System- Types of Accounts – Accounting Cycle- Journal- Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:
Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:
Meaning – Need - Reasons for differences between cash book and pass book balances – Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:
Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation - Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:
Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems

SUGGESTED READINGS:

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7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

TIME TABLE

Aug - 2016.

Sno	Name of Lecturer	Days Alloted	Time.
1.	B.A. Rajinikala	1, 3, 5, 8, 10.	9:00 - 10:00
2.	C.P. Uma	12, 17, 19, 22, 23	9:00 - 10:00
3.	S. Praveena.	25, 27, 29, 30, 31	9:00 - 10:00.

Sno

10

List of Non- Commerce Students.

S.No	Roll number	Student name	Group in Inter	Sign
1.	160110854010 18	A. Shirisha	MPC	Sirisha.
2	160110854010 42	K. Swetha	BIPC	Swetha
3	160110854010 58	M. Jyothi	MPC.	Jyothi
4	160110854010 91	S. Kavitha	BIPC	Kavitha
5	160110854011 03	S. Kalyani	BIPC.	Kalyani
6	160110854010 80	P. V. Anisha	MPC	P. V Anisha
7	160110854011 17	Vyas Megha	BIPC	V. Megha
8	160110840150 3	B. Sravani	MPC	B. Sravani

Signed

AUGUST (2016-17)

	1	3	5	8	10	12	17	19	22	23	25	27	29	30	31
A. Shirisha	1	2	3	~~A~~	4	5	6	7	~~A~~	8	9	10	~~A~~	11	12
K Swetha	1	2	3	4	~~A~~	~~A~~	5	6	7	8	~~A~~	9	10	11	12
M. Jyothi	1	2	3	4	5	6	~~A~~	7	8	9	10	~~A~~	~~A~~	11	12
S. Kavitha	~~A~~	1	2	3	4	~~A~~	~~A~~	5	6	7	8	~~A~~	9	10	11
S. Kalyani	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P.V. Anisha	1	~~A~~	2	3	4	5	~~A~~	6	7	8	9	10	11	12	13
V. Megha	1	2	3	4	~~A~~	5	6	7	8	~~A~~	9	10	11	12	13
B. Sravani	~~A~~	1	2	3	4	5	6	7	~~A~~	8	9	10	11	12	13

Sno

Government Degree College for women begumpet.

DEPARTMENT OF COMMERCE.

BRIDGE COURSE (2017-18)

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Sree

SYLLABUS

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Paper: BC104
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Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including proble

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7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

TIME TABLE

Sep - 2017

Sno	Name of Lecturer	Days Alloted	Time.
1.	B.A. Rajinikala	1, 2, 4, 5, 6	9:00 - 10:00
2.	C. P. Uma.	7, 8, 11, 13, 15	9:00 - 10:00
3.	S. Praveena	18, 20, 22, 26, 28.	9:00 - 10:00

Sno

List of Non- Commerce students

S.No	Roll number	Student Name	Group in Inter	Sign.
1	170110854010 28	Chimala Priyanka	BIPC.	Priyanka
2	170110854015 02	Apisa Myna	MPC.	myna
3	170110854330 16	Kausalya puttam	MPC.	Kausalya
4	170110854015 40	Pakala Kalyani	BIPC.	p. kalyani
5	170110854330 36	V. Veena	MPC.	Veena
6	170110854015 16	Gattu Manisha	MPC.	G. Manisha
7	170110854015 20.	Ganti Deepthi	BIPC	G. Deepthi
8	170110854015 23.	J. Divya	MPC.	J. Divya

SEPTEMBER (2017)

	1	2	4	5	6	7	8	11	13	15	18	20	22	26	28
C. Priyanka	1	2	3	4	A	5	6	7	8	A	9	10	11	12	13
A. Myna	1	2	3	4	A	5	6	7	8	9	10	A	11	12	13
K. Puttam	1	2	A	3	4	A	5	6	A	7	8	9	A	10	11
P. Kalyani	A	1	2	3	A	4	5	6	7	8	9	A	10	11	12
V. Veena	1	2	3	4	A	5	6	7	8	A	9	10	11	12	13
G. Manisha	A	1	2	3	4	5	6	7	A	8	9	A	10	11	A
G Deepthi	1	2	3	4	5	A	6	7	A	8	A	9	10	11	12
J. Divya	A	1	2	3	4	5	6	7	A	8	9	A	10	A	11

Sign

Government Degree College For Women Begumpet.

DEPARTMENT OF COMMERCE.

Bridge Course (2018-19)

It is proposed to conduct bridge course. Classes to the Non-Commerce students like Vocational grou and Science groups as they don't have any knowledge about the subjects taught in Commerce. Therefore, intensive coaching is to be given to the above students in basic concepts of Commerce & Accountancy from 1/8/2018 to 30/9/2018.

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TIME TABLE.

Sep- 2018

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1.	C. Uma Maheshwari	1, 3, 5, 7, 10	9:00 - 10:00
2.	Dr. Sajida Begum	12, 14, 18, 19, 20	9:00 - 10:00
3.	Dr. M.J. Eliat	21, 22, 24, 26, 28	9:00 - 10:00

Sno

List of Non- Commerce students

S.No	Roll number	Student name	Group in Inter	Sign
1	180110 85401036	D. Shailaja.	BIPC.	Shailaja
2	180110 85401041	Gade Sreeja	MPC	Sreeja
3	180110854 01087	N. Bhargavi	MPC	Bhargavi
4	180110 85401096	P. Shruthi	BIPC	Shruthi
5	180110854 01119	V. Mounika	BIPC.	Mounika
6	180110 85405054	Chitti Devi	MPC	Devi
7	180110854 05103	Khaza Bee	BIPC.	Khaza
8	180110 85405150	N. sumalatha	MPC.	Sumi

SEPTEMBER (2018)

	3	5	7	11	13	14	16	18	20	21	23	25	27	28	30
D. Shailaja	1	A	2	3	A	4	5	A	6	7	8	9	10	11	12
G. Sreeja	1	2	A	3	4	A	5	6	A	7	8	9	10	11	12
N. Bhargavi	1	2	3	4	5	6	A	7	8	A	9	A	10	11	12
P. Shruthi	1	2	3	A	4	5	A	6	7	A	8	9	A	A	10
Y. Mounika	1	2	A	3	4	A	5	6	A	7	8	9	A	10	11
C. Devi	1	2	3	A	4	5	A	6	7	A	8	9	10	A	11
Khaza Bee	1	2	3	4	A	5	6	A	7	8	9	A	10	A	11
N. Sumalat -ha.	1	2	3	4	A	5	6	7	A	8	9	A	10	11	12

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TIME TABLE.

Sep 2019

S.No	Name of Lecturer	Days Alloted	Timings.
1.	C. Uma Maheshwari	3, 5, 7, 11, 13	9:00 - 10:00
2	Dr. K. Praneetha	14, 16, 18, 20, 21	9:00 - 10:00
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Sign

List of Non- Commerce students.

S.No	Roll number	Student Name	Group in Inter	Sign
1	190110854050 43	B. Sushma.	MPC.	Sushma
2	190110854050 65	C.S. Liketha	BIPC.	liketha
3	190110854051 22	Jadala Nandini	MPC.	Nandini
4	190110854051 73	Lakshmi	MPC.	Lakshmi
5	190110854052 11	M. Rohini	BIPC	Rohini
6	190110854053 00	S. Anagha	MPC.	Anagha
7	190110854053 51	V. Kalyani	BIPC	Kalyani
8	190110854053 57	Y. Chandrika	MPC	Chandri

SEPTEMBER (2019)

	3	5	7	11	13	14	16	18	20	21	23	25	27	28	30
B. Sushma	1	A	2	3	A	4	5	A	6	7	8	9	10	11	12
C.S. Liketha	1	2	3	4	A	5	6	7	A	8	A	9	A	10	11
J. Nandini	1	2	3	4	5	A	6	A	7	A	8	A	9	10	11
Lakshmi	1	A	2	3	A	4	5	6	A	7	8	9	10	11	12
M. Rohini	1	2	3	A	4	5	A	6	7	A	8	9	A	10	11
S. Anagha	1	2	3	4	A	5	6	A	7	8	A	9	10	11	12
V. Kalyani	1	2	3	4	A	5	6	A	7	8	A	9	10	A	11
Y. Chandrika	1	2	A	3	4	5	6	7	8	9	10	11	12	13	14

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TIME-TABLE.

Sep 2020

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.	M.J. Eliat	1, 2, 3, 4, 6	9:00-10:0
.	C. Uma Maheshwari	9, 13, 16, 17, 18	9:00-10:0
3.	Dr. Sajida Begum	20, 23, 24, 27, 28	9:00-10:0

List of Non-Commerce students.

Sno	Roll number	Student name	Group in Inter	Sign.
1	200110854050O5	Afsha Jabeen	MPC	Jabeen
2	200110854050G1	B. Radhika	BIPC.	Radhika
3	200110854051 11	G. Aditi	MPC.	Aditi
4	200110854051S6	J. Nandini	BIPC.	J. Nandini
5	200110854053 21	Sajidha	MPC	Sajidha
6	200110854053 37	Shireen	BIPC.	Shireen
7	200110854050 01	A. Shirisha	MPC.	A. Shirisha
8	200110854330 16	K. Radhika	BIPC	K. Radhika

Sno

SEPTEMBER (2020).

	1	2	3	4	6	9	13	16	17	18	20	23	24	27	28
Afsha Jabeen	1	2	3	4	A	5	6	7	8	9	10	11	12	13	14
B. Radhika	1	A	2	3	4	5	6	A	7	8	9	10	11	12	13
G. Aditi	1	2	3	A	4	5	6	7	8	A	9	A	10	11	A
J. Nandini	1	2	A	3	4	5	A	6	7	8	9	10	11	12	A
Sajidha	1	2	A	3	4	5	A	6	7	8	9	10	A	11	1
Shireen	1	2	3	A	4	5	6	7	A	8	9	10	11	12	1
A. Shirisha	1	2	3	4	5	6	7	8	9	10	11	A	12	13	
K. Radhika	1	2	3	4	5	6	7	8	9	A	10	A	11	A	

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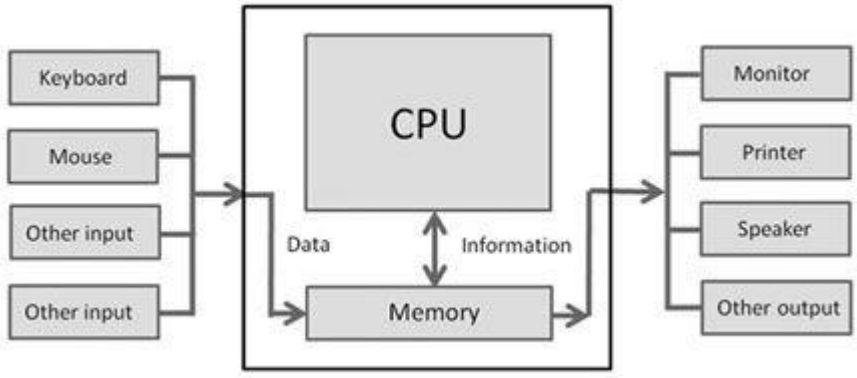
GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET - HYDERABAD
DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
BRIDGE COURSE FOR THE YEAR 2016 – 2017

Bridge Course was organized by the Department of Computers for all the first year students of BA,B.COM,B.Sc . Computer faculty have explained computer basics and provided the material for all the students .

1.Computer : Computer is an electronic device that is designed to work with Information. *The term computer is derived from the Latin term* '**computare**', this means to *calculate* or *programmable machine*. **Computer can not do anything without a Program**.

Charles Babbage is called the " Father" of the computer. The First mechanical computer designed by Charles Babbage was called **Analytical Engine.** It uses read-only memory in the form of punch cards.

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) and gives the result (output) and saves output for the future use. It can process both numerical and non-numerical (arithmetic and logical) calculations.



Digital Computer Definition

The basic components of a modern digital computer are: Input Device, Output Device, Central Processor Unit (CPU), mass storage device and memory. A Typical modern computer uses LSI Chips. Four Functions about computer are:

accepts data	Input
processes data	Processing
produces output	Output
stores results	Storage

Input (Data):

Input is the raw information entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

Process:

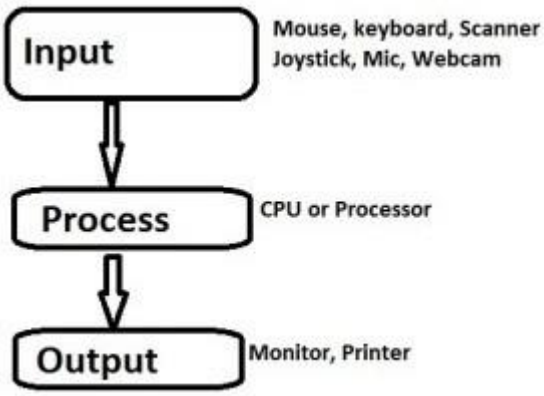
Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output:

Output is the processed data given by computer after data processing. Output is also called as Result. We can save these results in the storage devices for the future use.

Block Diagram of Computer and its Various Components

Computer – The word "computer "comes from the word "compute "which means to calculate. So a computer is normally considered to be a calculating device that performs arithmetic operations at enormous speed. A computer is an electronic device which is used to perform operation on raw data as per instruction given by user.



Various Components of Computer

Computer is an electronic device which performs tasks given by user with extremely fast speed and accuracy. Like any other device or machine, a computer system has also a number of parts. A computer system can be blocked into mainly three parts:

1. Input Unit
2. Central Processing Unit
3. Output Unit

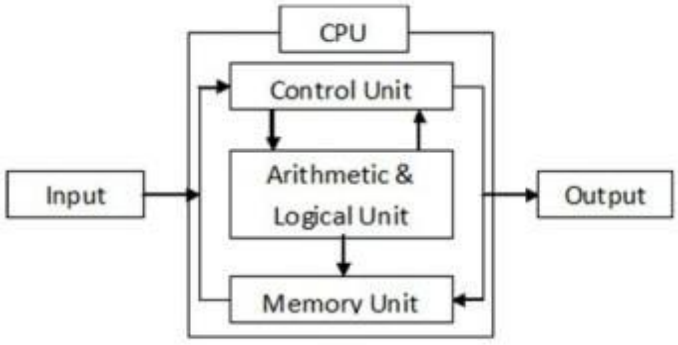


Fig. Block Diagram of Computer

1. Input unit – Input unit is a unit that accepts any input device. The input device is used to input data into the computer system.
Function of input unit:

1. It converts inputted data into binary codes.
2. It sends data to main memory of computer .

2. Central Processing Unit (CUP) – CPU is called the brain of a computer. An electronic circuitry that carries out the instruction given by a computer program. CPU can be sub classified into three parts.

i .Control unit (CU)

ii. Arithmetic & Logic unit (ALU)

iii.Memory Unit (MU)

i. Control unit (CU)- the control unit manages the various components of the computer. It reads instructions from memory and interpretation and changes in a series of signals to activate other parts of the computer. It controls and co-ordinate is input output memory and all other units.
ii. Arithmetic & Logic unit (ALU) – The arithmetic logic unit (ALU), which performs simple arithmetic operation such as +,-, *, / and logical operation such as >, <, =<, <= etc.
iii. Memory Unit (MU)- Memory is used to store data and instructions before and after processing. Memory is also called Primary memory or internal memory. It is used to store data temporary or permanently.
Function of CPU-

1. It controls all the parts and software and data flow of computer.
2. It performs all operations.
3. It accepts data from input device.
4. It sends information to output device.

5. Executing programs stored in memory
6. It stores data either temporarily or permanent basis.
7. It performs arithmetical and logical operations.

3. Output Unit –Output unit is a unit that constituents a number of output device. An output device is used to show the result of processing.
Function of Output unit:

1. it accepts data or information sends from main memory of computer
2. It converts binary coded information into HLL or inputted languages.

2.Characteristics of Computers:

Basic characteristics about computer are:

1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete.

Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: - It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.

5. Power of Remembering: - Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.

6. No IQ: - Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.

7. No Feeling: - It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.

8. Storage: - The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

4.Applications of computers

Education : .Research shows that computers can significantly enhance performance in learning. Students exposed to the internet say they think the web has helped them improve the quality of their academic research and of their written work. One revolution in education is the advent of distance learning. This offers a variety of internet and video-based online courses.

Health and Medicine :

Computer technology is radically changing the tools of medicine. All medical information can now be digitized. Software is now able to computer the risk of a disease. Mental health researchers are using computers to screen troubled teenagers in need of psychotherapy. A patient paralyzed by a stroke has received an implant that allows communication between his brain and a computer; as a result, he can move a cursor across a screen by brainpower and convey simple messages.

Science :

Scientists have long been users of it. A new adventure among scientists is the idea of a "collaboratory", an internet based collaborative laboratory, in which researchers all over the world can work easily together even at a distance. An example is space physics where space physicists are allowed to band together to measure the earth's ionosphere from instruments on four parts of the world.

Business :

Business clearly see the interest as a way to enhance productivity and competitiveness. Some areas of business that are undergoing rapid changes are sales and marketing, retailing, banking, stock trading, etc. Sales representatives not

only need to be better educated and more knowledgeable about their customer's businesses, but also must be comfortable with computer technology. The internet has become a popular marketing tool. The world of cybercash has come to banking – not only smart cards but internet banking, electronic deposit, bill paying, online stock and bond trading, etc.

Recreation and Entertainment:

Our entertainment and pleasure-time have also been affected by computerization. For example:

• In movies, computer generated graphics give freedom to designers so that special effects and even imaginary characters can play a part in making movies, videos, and commercials.

• In sports, computers compile statistics, sell tickets, create training programs and diets for athletes, and suggest game plan strategies based on the competitor's past performance.

• In restaurants, almost every one has eaten food where the clerk enters an order by indicating choices on a rather unusual looking cash register; the device directly enters the actual data into a computer, and calculates the cost and then prints a receipt.

Government:

Various departments of the Government use computer for their planning, control and law enforcement activities. To name a few – Traffic, Tourism, Information & Broadcasting, Education, Aviation and many others.

Defence:

There are many uses computers in Defence such as:

• Controlling UAV or unmanned air-crafts an example is Predator. If you have cable I would recommend watching the shows "Future Weapons" and "Modern Marvels". The show future weapon gives an entire hour to the predator.

• They are also used on Intercontinental Ballistic Missiles (ICBMs) that uses GPS and Computers to help the missile get to the target.

• Computers are used to track incoming missiles and help slew weapons systems onto the incoming target to destroy them.

• Computers are used in helping the military find out where all their assets are (Situational Awareness) and in Communications/Battle Management Systems.

• Computers are used in the logistic and ordering functions of getting equipments to and around the battlefield.
• Computers are used in tanks and planes and ships to target enemy forces, help run the platform and more recently to help diagnose any problems with the platforms.
• Computers help design and test new systems.

Sports:

In today's technologically growing society, computers are being used in nearly every activity.

Recording Information

Official statistics keepers and some scouts use computers to record statistics, take notes and chat online while attending and working at a sports event.

Analyzing Movements

The best athletes pay close attention to detail. Computers can slow recorded video and allow people to study their specific movements to try to improve their tendencies and repair poor habits.

Writers

Many sportswriters attend several sporting events a week, and they take their computers with them to write during the game or shortly after while their thoughts are fresh in their mind.

Scoreboard

While some scoreboards are manually updated, most professional sports venues have very modern scoreboards that are programmed to update statistics and information immediately after the information is entered into the computer.

Safety

Computers have aided in the design of safety equipment in sports such as football helmets to shoes to mouth guards

5.Limitation or Drawback of Computer

1. **No I.Q. :** Computer is not a magical device. It performs only those works which man can does but the main difference is that computer can work those operations with very high speed and reliable accuracy. It has no any intelligence quality or thinking power

2. **No Feeling:** Because computer is only a machine, it has no feeling like human being. It has no brain for thinking as man can does. Man had successes to make computer memory be different inventions of technology but he couldn't make heart.
3. **Data Machine Readable :** Computer data is read by machine, meaning data obtained from the computer can be read by the computer itself.
4. It required power to operate.
5. Problem may occur due to system breakdown.

INPUT DEVICES

Following are some of the important input devices which are used in a computer −

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

Keyboard is the most common and very popular input device which helps to input data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

The keys on the keyboard are as follows −

S.No	Keys & Description
1	**Typing Keys** These keys include the letter keys (A-Z) and digit keys (09) which generally give the same layout as that of typewriters.
2	**Numeric Keypad** It is used to enter the numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machines and calculators.
3	**Function Keys** The twelve function keys are present on the keyboard which are arranged in a row at the top of the keyboard. Each function key has a unique meaning and is used for some specific purpose.
4	**Control keys** These keys provide cursor and screen control. It includes four directional arrow keys. Control keys also include Home, End, Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).

5	**Special Purpose Keys** Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse

Mouse is the most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base, which senses the movement of the mouse and sends corresponding signals to the CPU when the mouse buttons are pressed.

Generally, it has two buttons called the left and the right button and a wheel is present between the buttons. A mouse can be used to control the position of the cursor on the screen, but it cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of the keyboard.

Joystick

Joystick is also a pointing device, which is used to move the cursor position on a monitor screen. It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket. The joystick can be moved in all four directions.

The function of the joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

Light pen is a pointing device similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.

When the tip of a light pen is moved over the monitor screen and the pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball

Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on the ball, the pointer can be moved.

Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button, or a square.

Scanner

Scanner is an input device, which works more like a photocopy machine. It is used when some information is available on paper and it is to be transferred to the hard disk of the computer for further manipulation.

Scanner captures images from the source which are then converted into a digital form that can be stored on the disk. These images can be edited before they are printed.

Digitizer

Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Microphone

Microphone is an input device to input sound that is then stored in a digital form.

The microphone is used for various applications such as adding sound to a multimedia presentation or for mixing music.

Magnetic Ink Card Reader (MICR)

MICR input device is generally used in banks as there are large number of cheques to be processed every day. The bank's code number and cheque number

are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.

This reading process is called Magnetic Ink Character Recognition (MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader (OCR)

OCR is an input device used to read a printed text.

OCR scans the text optically, character by character, converts them into a machine readable code, and stores the text on the system memory.

Bar Code Readers

Bar Code Reader is a device used for reading bar coded data (data in the form of light and dark lines). Bar coded data is generally used in labelling goods,

numbering the books, etc. It may be a handheld scanner or may be embedded in a stationary scanner.

Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

Optical Mark Reader (OMR)

OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked.

It is specially used for checking the answer sheets of examinations having multiple choice questions.

What is an Operating system

The Operating System is a program with the following features −

- An operating system is a program that acts as an interface between the software and the computer hardware.
- It is an integrated set of specialized programs used to manage overall resources and operations of the computer.

- It is a specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

wop51EF.tmpoleObject0.bin

Objectives of Operating System

The objectives of the operating system are −

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

Characteristics of Operating System

Here is a list of some of the most prominent characteristic features of Operating Systems

- **Memory Management** − Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** − Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** − Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** − Allocates and de-allocates the resources and decides who gets the resources.
- **Security** − Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** − Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** − Records delays between the request for a service and from the system.
- **Interaction with the Operators** − Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** − Production of dumps, traces, error messages, and other debugging and error-detecting methods.
- **Coordination Between Other Software and Users** − Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

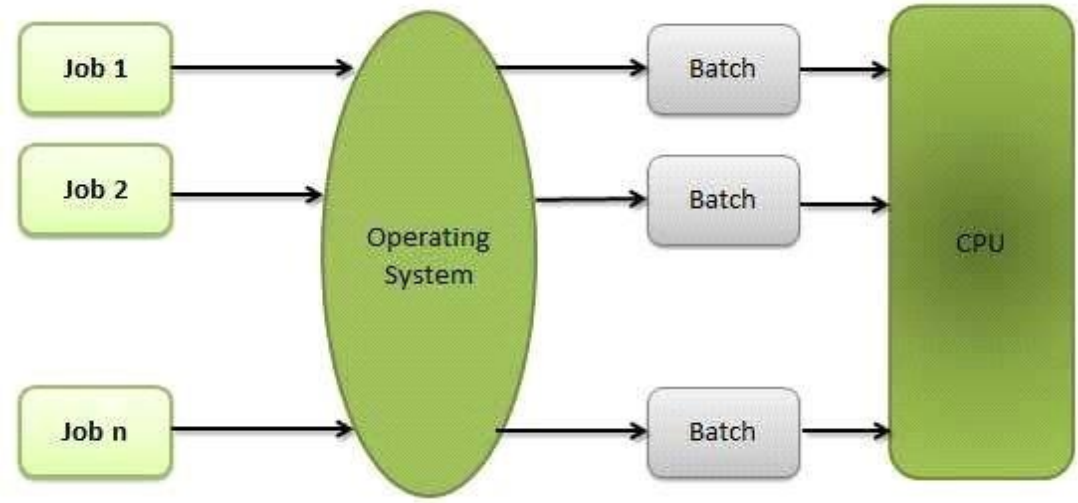
Operating system types

Following are some of the most widely used types of Operating system.

Batch processing

Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. An operating system does the following activities related to batch processing −

- The OS defines a job which has predefined sequence of commands, programs and data as a single unit.
- The OS keeps a number a jobs in memory and executes them without any manual information.
- Jobs are processed in the order of submission, i.e., first come first served fashion.
- When a job completes its execution, its memory is released and the output for the job gets copied into an output spool for later printing or processing.



Advantages

- Batch processing takes much of the work of the operator to the computer.
- Increased performance as a new job get started as soon as the previous job is finished, without any manual intervention.

Disadvantages

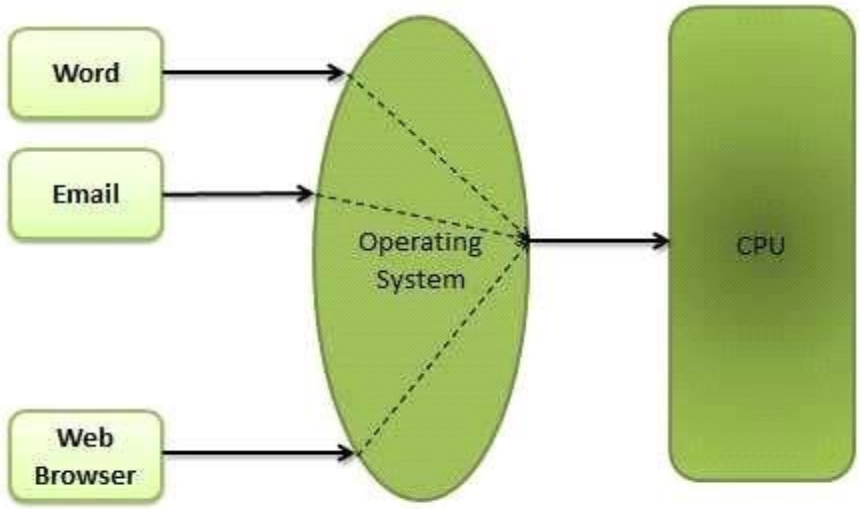
- Difficult to debug program.
- A job could enter an infinite loop.
- Due to lack of protection scheme, one batch job can affect pending jobs.

2.Multitasking

Multitasking is when multiple jobs are executed by the CPU simultaneously by switching between them. Switches occur so frequently that the users may interact with each program while it is running. An OS does the following activities related to multitasking −

- The user gives instructions to the operating system or to a program directly, and receives an immediate response.
- The OS handles multitasking in the way that it can handle multiple operations/executes multiple programs at a time.

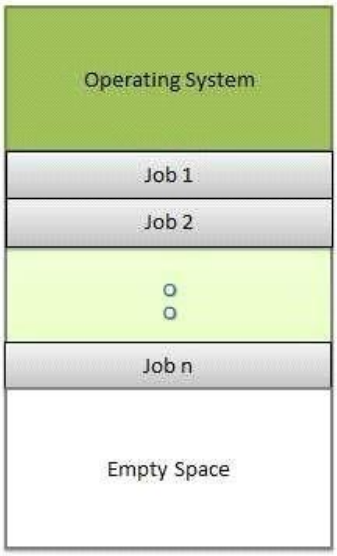
- Multitasking Operating Systems are also known as Time-sharing systems.
- These Operating Systems were developed to provide interactive use of a computer system at a reasonable cost.
- A program that is loaded into memory and is executing is commonly referred to as a **process**.
- When a process executes, it typically executes for only a very short time before it either finishes or needs to perform I/O.



3.<u>Multiprogramming</u>

Sharing the processor, when two or more programs reside in memory at the same time, is referred as **multiprogramming**. Multiprogramming assumes a single shared processor. Multiprogramming increases CPU utilization by organizing jobs so that the CPU always has one to execute.

The following figure shows the memory layout for a multiprogramming system.



Advantages

- High and efficient CPU utilization.

- User feels that many programs are allotted CPU almost simultaneously.

Disadvantages

- CPU scheduling is required.
- To accommodate many jobs in memory, memory management is required.

4. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.

wopADEF.tmpoleObject4.bin

Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

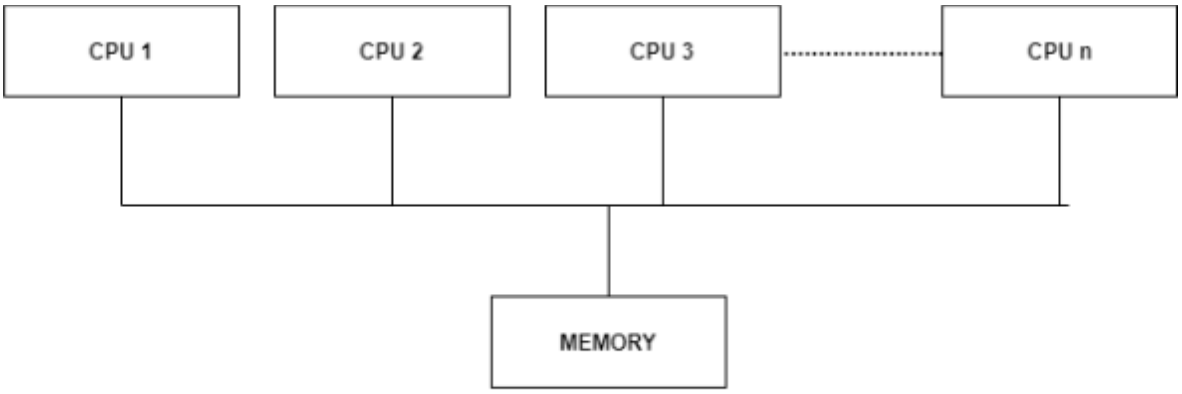
Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

Multiprocessing operating system

computer systems are single processor systems i.e they only have one processor. However, multiprocessor or parallel systems are increasing in importance nowadays. These systems have multiple processors working in parallel that share the computer clock, memory, bus, peripheral devices etc. An image demonstrating the multiprocessor architecture is:



Multiprocessing Architecture

Types of Multiprocessors

There are mainly two types of multiprocessors i.e. symmetric and asymmetric multiprocessors. Details about them are as follows:

Symmetric Multiprocessors

In these types of systems, each processor contains a similar copy of the operating system and they all communicate with each other. All the processors are in a peer to peer relationship i.e. no master - slave relationship exists between them.

An example of the symmetric multiprocessing system is the Encore version of Unix for the Multimax Computer.

Asymmetric Multiprocessors

In asymmetric systems, each processor is given a predefined task. There is a master processor that gives instruction to all the other processors. Asymmetric multiprocessor system contains a master slave relationship.

Asymmetric multiprocessor was the only type of multiprocessor available before symmetric multiprocessors were created. Now also, this is the cheaper option.

Advantages of Multiprocessor Systems

There are multiple advantages to multiprocessor systems. Some of these are:

- More reliable Systems
- Enhanced Throughput
- More Economic Systems

Disadvantages of Multiprocessor Systems

There are some disadvantages as well to multiprocessor systems. Some of these are:

- Increased Expense
- Complicated Operating System Required
- Large Main Memory Required

INTERNET

- Internet is a global network of inter-connected computers, where one computer can be connected to any other computer (or computerized device) in any portion of the world.

- Internet uses various internet protocol technologies. The recent introduction of mobile internet have been equally successful.
- Internet surfing is very easy. Internet is available in all major villages, towns, cities of almost every country. It is possible to surf through Internet with the help of internet browsers such as Windows explorer, Google chrome, etc.
- The organization that provides the Internet service to end-users are known as an Internet Services Providers (ISP). The major internet companies of India are BSNL, Vodafone, Airtel, Idea, and Aircel.

Uses of Internet

Large volume of Information: Internet can be used to collect information from around the world. This information could relate to education, medicine, literature, software, computers, business, entertainment, friendship, tourism, and leisure.

News and Journals: All the newspapers, magazines and journals of the world are available on the Internet. With the introduction of broadband and advanced mobile telecommunication technologies such as 3G (third generation) and 4G (fourth generation), the speed of internet service has increased tremendously. A person can get the latest news about the world in a matter of few seconds.

Electronic Mode of Communication: Internet has given the most exciting mode of communication to all. We can send an E-mail (the short form of Electronic Mailing System) to all the corners of the world.

Chatting: There are many chatting software that can be used to send and receive real-time messages over the internet. We can chat with our friend and relatives using any one of the chatting software.

Online Banking (Net-Banking): The use of internet can also be seen in the field of banking transactions. Many banks such as HSBC, SBI, Axis Bank, Hdfc Bank, etc. offers online banking facilities to its customers. They can transfer funds from one account to another using the net-banking facility.

E-commerce: Internet is also used for carrying out business operations and that set of operations is known as Electronic Commerce (E-commerce). Flipkart is the largest e-commerce company in India. The rival, Amazon, is giving stiff competition to Flipkart.

NETWORK

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data. An excellent example of a network is the Internet, which connects millions of people all over the world. To the right is an example image of a home network with multiple computers and other network devices all connected.

Examples of network devices

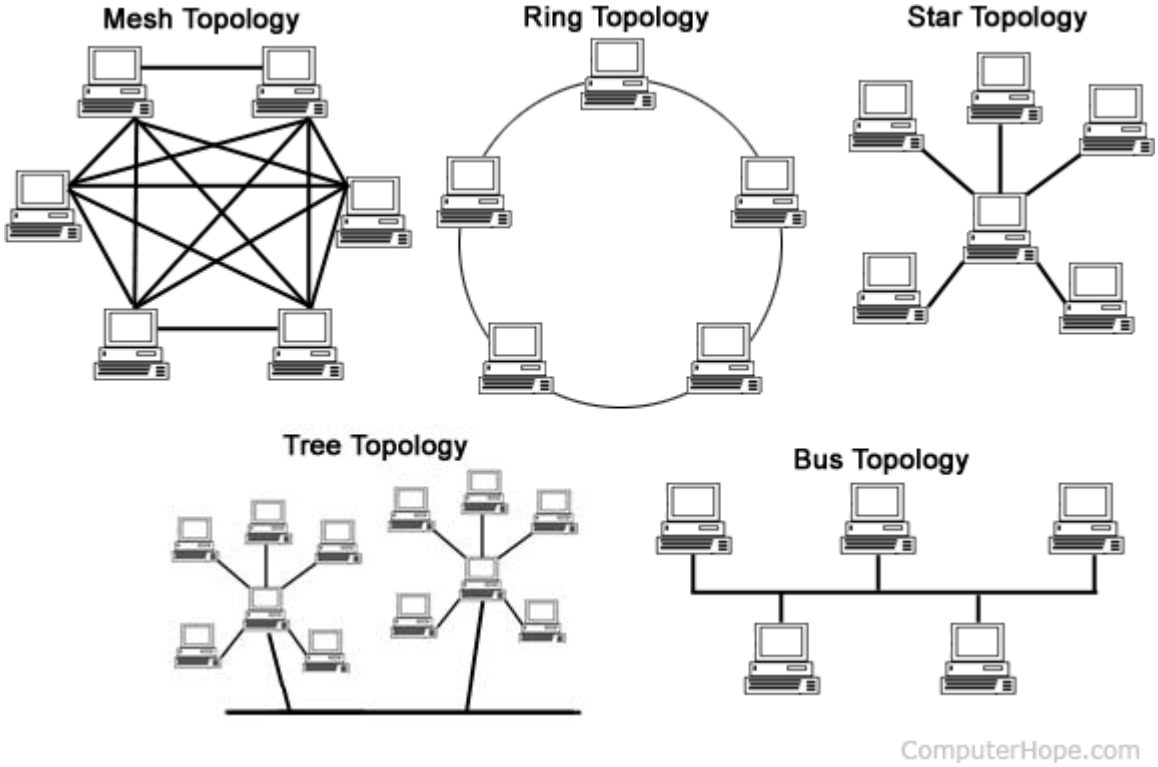
- Desktop computers, laptops, mainframes, and servers.
- Consoles and thin clients.
- Firewalls
- Bridges
- Repeaters

- Network Interface cards
- Switches, hubs, modems, and routers.
- Smartphones and tablets.
- Webcams

Network topologies and types of networks

The term network topology describes the relationship of connected devices in terms of a geometric graph. Devices are represented as vertices, and their connections are represented as edges on the graph. It describes how many connections each device has, in what order, and it what sort of hierarchy.

Typical network configurations include the bus topology, mesh topology, ring topology, star topology, tree topology and hybrid topology.



Most home networks are configured in a tree topology that is connected to the Internet. Corporate networks often use tree topologies, but they also often incorporate star topologies, and an Intranet.

BROWSER

web browser or Internet browser, a browser is a software program to present and explore content on the World Wide Web. These pieces of content, including pictures, videos, and web pages, are connected using hyperlinks and classified with URIs (Uniform Resource Identifiers). This page is an example of a web page that can be viewed using a browser.

There have been many different web browsers that have come and gone over the years. The first, named WorldWideWeb (later changed to Nexus), was invented by Tim Berners-Lee in 1990. However, the first graphical browser and widely used browser that help bring popularity to the Internet was NCSA Mosaic.

List of current Internet browsers

- Google Chrome
- Microsoft Edge
- Microsoft Internet Explorer
- Mozilla Firefox
- Opera
- Apple Safari
- Amazon Silk

Microsoft Excel

Microsoft Excel is a spreadsheet program that is used to record and analyse numerical data. Think of a spreadsheet as a collection of columns and rows that form a table. Alphabetical letters are usually assigned to columns and numbers are usually assigned to rows. The point where a column and a row meet is called a cell. The address of a cell is given by the letter representing the column and the number representing a row.

Features of Microsoft Excel

1. Add Header and Footer

MS Excel allows us to keep the header and footer in our spreadsheet document.

2. Find and Replace Command

MS Excel allows us to find the needed data (text and numbers) in the workbook and also replace the existing data with a new one.

3. Password Protection

It allows the user to protect their workbooks by using a password from unauthorized access to their information.

4. Data Filtering

Filtering is a quick and easy way to find and work with a subset of data in a range. A filtered range displays only the rows that meet the criteria you specify for a column. MS Excel provides two commands for filtering ranges:

- AutoFilter; which includes filter by selection, for simple criteria
- Advanced Filter; for more complex criteria

5. Data Sorting

Data sorting is the process of arranging data in some logical order. MS Excel allows us to sort data either in ascending or descending order.

6. Built-in formulae

MS Excel has got many built-in formulae for sum, average, minimum, etc. We can use those formulae as per our needs.

7. Create different charts (Pivot Table Report)

MS Excel allows us to create different charts such as bar graph, pie- charts, line graphs, etc. This helps us to analyze and compare data very easily.

8. Automatically edits the result

MS Excel automatically edits the result if any changes are made in any of the cells.

FUNCTIONS:

1 Count and Sum: The most used functions in Excel are the functions that count and sum. You can count and sum based on one criteria or multiple criteria.

2 Logical: Learn how to use Excel's logical functions, such as IF, AND, OR and NOT.

3 Cell References: Cell references in Excel are very important. Understand the difference between relative, absolute and mixed reference, and you are on your way to success.

4 Date & Time: To enter a date in Excel, use the "/" or "-" characters. To enter a time, use the ":" (colon).
5 Text: Excel has many functions to offer when it comes to manipulating text strings.
6 Lookup & Reference: Learn all about Excel's lookup & reference functions, such as VLOOKUP, HLOOKUP, MATCH, INDEX and CHOOSE.
7 Financial: This chapter illustrates Excel's most popular financial functions.
8 Statistical: An overview of some very useful statistical functions in Excel.
9 Round: This chapter illustrates three functions to round numbers in Excel. ROUND, ROUNDUP and ROUNDDOWN.
10 Formula Errors: This chapter teaches you how to deal with some common formula errors in Excel.
11 Array Formulas: This chapter helps you understand array formulas in Excel. Single cell array formulas perform multiple calculations in one cell.

Bridge Course (2016-17)

Dept of computers organized Bridge Course for all I st year BA, B.Com, B.Sc to give awareness on computer fundamentals.

The following topics are discussed.

1. Computer - features, Applications, history Advantages, Disadvantages.
2. Input & output devices
3. Memory, Types of Memory
4. Operating System, Types & functions of OS
5. Networking
6. Internet.

Computer fundamentals

B.Sc I year (2016-17).

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5.	005	Manisha	Manisha
6.	006	Madhavi	Madhu
7.	007	M. Soujanya.	M. Soujanya
8.	008	Kalpana.	P. Kalpana
9.	009	Meraj begum	Meraj
10	010	S. Chandana	chandana
11.	011	M. Manjula	M. manjula
12	012	S. Veramma	S. Veramma
13.	013	V. Srimukhi	V. Srimukhi
14.	014	Madiha Fathima	Madiha
15.	015	Nahed sultana	Nahed.
16	016	Muskan Butul	Muskan Butul
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18	018	Kaveri. M	Kaveri. M
19	019	B. Geetha	B. Geetha
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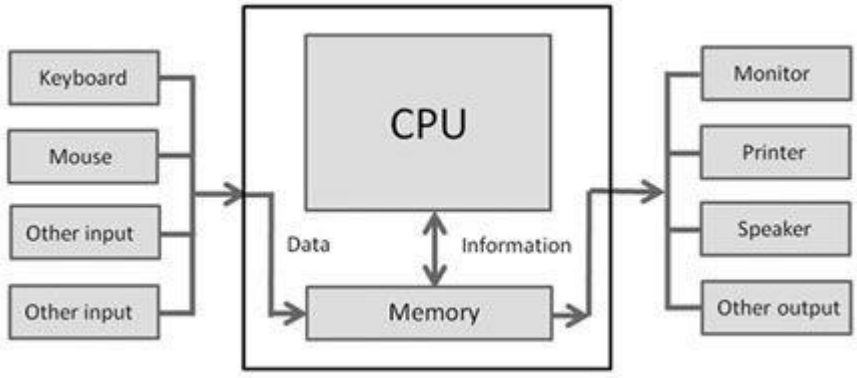
GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET - HYDERABAD
DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
BRIDGE COURSE FOR THE YEAR 2017 – 2018

Bridge Course was organized by the Department of Computers for all the first year students of BA,B.COM,B.Sc . Computer faculty have explained computer basics and provided the material for all the students .

1.Computer : Computer is an electronic device that is designed to work with Information. *The term computer is derived from the Latin term* '**computare**', this means to *calculate* or *programmable machine*. **Computer can not do anything without a Program**.

Charles Babbage is called the " Father" of the computer. The First mechanical computer designed by Charles Babbage was called **Analytical Engine.** It uses read-only memory in the form of punch cards.

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) and gives the result (output) and saves output for the future use. It can process both numerical and non-numerical (arithmetic and logical) calculations.



Digital Computer Definition

The basic components of a modern digital computer are: Input Device, Output Device, Central Processor Unit (CPU), mass storage device and memory. A Typical modern computer uses LSI Chips. Four Functions about computer are:

accepts data	Input
processes data	Processing
produces output	Output
stores results	Storage

Input (Data):

Input is the raw information entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

Process:

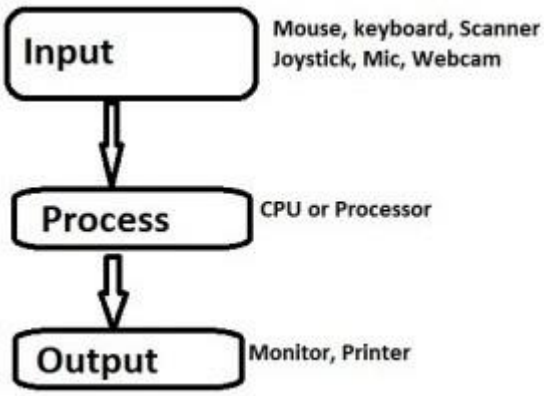
Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output:

Output is the processed data given by computer after data processing. Output is also called as Result. We can save these results in the storage devices for the future use.

Block Diagram of Computer and its Various Components

Computer – The word "computer "comes from the word "compute "which means to calculate. So a computer is normally considered to be a calculating device that performs arithmetic operations at enormous speed. A computer is an electronic device which is used to perform operation on raw data as per instruction given by user.



Various Components of Computer

Computer is an electronic device which performs tasks given by user with extremely fast speed and accuracy. Like any other device or machine, a computer system has also a number of parts. A computer system can be blocked into mainly three parts:

1. Input Unit
2. Central Processing Unit
3. Output Unit

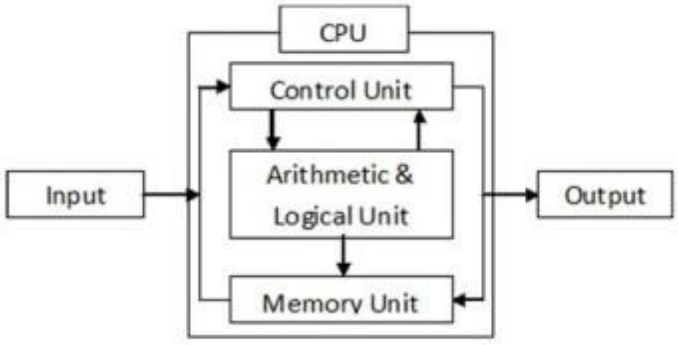


Fig. Block Diagram of Computer

1. Input unit – Input unit is a unit that accepts any input device. The input device is used to input data into the computer system.
Function of input unit:

1. It converts inputted data into binary codes.
2. It sends data to main memory of computer .

2. Central Processing Unit (CUP) – CPU is called the brain of a computer. An electronic circuitry that carries out the instruction given by a computer program. CPU can be sub classified into three parts.

i .Control unit (CU)

ii. Arithmetic & Logic unit (ALU)

iii.Memory Unit (MU)

i. Control unit (CU)- the control unit manages the various components of the computer. It reads instructions from memory and interpretation and changes in a series of signals to activate other parts of the computer. It controls and co-ordinate is input output memory and all other units.
ii. Arithmetic & Logic unit (ALU) – The arithmetic logic unit (ALU), which performs simple arithmetic operation such as +,-, *, / and logical operation such as >, <, =<, <= etc.
iii. Memory Unit (MU)- Memory is used to store data and instructions before and after processing. Memory is also called Primary memory or internal memory. It is used to store data temporary or permanently.
Function of CPU-

1. It controls all the parts and software and data flow of computer.
2. It performs all operations.
3. It accepts data from input device.
4. It sends information to output device.

5. Executing programs stored in memory
6. It stores data either temporarily or permanent basis.
7. It performs arithmetical and logical operations.

3. Output Unit –Output unit is a unit that constituents a number of output device. An output device is used to show the result of processing.
Function of Output unit:

1. it accepts data or information sends from main memory of computer
2. It converts binary coded information into HLL or inputted languages.

2.Characteristics of Computers:

Basic characteristics about computer are:

1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete.

Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: - It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.

5. Power of Remembering: - Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.

6. No IQ: - Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.

7. No Feeling: - It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.

8. Storage: - The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

4.Applications of computers

Education : .Research shows that computers can significantly enhance performance in learning. Students exposed to the internet say they think the web has helped them improve the quality of their academic research and of their written work. One revolution in education is the advent of distance learning. This offers a variety of internet and video-based online courses.

Health and Medicine :

Computer technology is radically changing the tools of medicine. All medical information can now be digitized. Software is now able to computer the risk of a disease. Mental health researchers are using computers to screen troubled teenagers in need of psychotherapy. A patient paralyzed by a stroke has received an implant that allows communication between his brain and a computer; as a result, he can move a cursor across a screen by brainpower and convey simple messages.

Science :

Scientists have long been users of it. A new adventure among scientists is the idea of a "collaboratory", an internet based collaborative laboratory, in which researchers all over the world can work easily together even at a distance. An example is space physics where space physicists are allowed to band together to measure the earth's ionosphere from instruments on four parts of the world.

Business :

Business clearly see the interest as a way to enhance productivity and competitiveness. Some areas of business that are undergoing rapid changes are sales and marketing, retailing, banking, stock trading, etc. Sales representatives not

only need to be better educated and more knowledgeable about their customer's businesses, but also must be comfortable with computer technology. The internet has become a popular marketing tool. The world of cybercash has come to banking – not only smart cards but internet banking, electronic deposit, bill paying, online stock and bond trading, etc.

Recreation and Entertainment:

Our entertainment and pleasure-time have also been affected by computerization. For example:

• In movies, computer generated graphics give freedom to designers so that special effects and even imaginary characters can play a part in making movies, videos, and commercials.

• In sports, computers compile statistics, sell tickets, create training programs and diets for athletes, and suggest game plan strategies based on the competitor's past performance.

• In restaurants, almost every one has eaten food where the clerk enters an order by indicating choices on a rather unusual looking cash register; the device directly enters the actual data into a computer, and calculates the cost and then prints a receipt.

Government:

Various departments of the Government use computer for their planning, control and law enforcement activities. To name a few – Traffic, Tourism, Information & Broadcasting, Education, Aviation and many others.

Defence:

There are many uses computers in Defence such as:

• Controlling UAV or unmanned air-crafts an example is Predator. If you have cable I would recommend watching the shows "Future Weapons" and "Modern Marvels". The show future weapon gives an entire hour to the predator.

• They are also used on Intercontinental Ballistic Missiles (ICBMs) that uses GPS and Computers to help the missile get to the target.

• Computers are used to track incoming missiles and help slew weapons systems onto the incoming target to destroy them.

• Computers are used in helping the military find out where all their assets are (Situational Awareness) and in Communications/Battle Management Systems.

• Computers are used in the logistic and ordering functions of getting equipments to and around the battlefield.
• Computers are used in tanks and planes and ships to target enemy forces, help run the platform and more recently to help diagnose any problems with the platforms.
• Computers help design and test new systems.

Sports:

In today's technologically growing society, computers are being used in nearly every activity.

Recording Information

Official statistics keepers and some scouts use computers to record statistics, take notes and chat online while attending and working at a sports event.

Analyzing Movements

The best athletes pay close attention to detail. Computers can slow recorded video and allow people to study their specific movements to try to improve their tendencies and repair poor habits.

Writers

Many sportswriters attend several sporting events a week, and they take their computers with them to write during the game or shortly after while their thoughts are fresh in their mind.

Scoreboard

While some scoreboards are manually updated, most professional sports venues have very modern scoreboards that are programmed to update statistics and information immediately after the information is entered into the computer.

Safety

Computers have aided in the design of safety equipment in sports such as football helmets to shoes to mouth guards

5.Limitation or Drawback of Computer

1. **No I.Q. :** Computer is not a magical device. It performs only those works which man can does but the main difference is that computer can work those operations with very high speed and reliable accuracy. It has no any intelligence quality or thinking power

2. **No Feeling:** Because computer is only a machine, it has no feeling like human being. It has no brain for thinking as man can does. Man had successes to make computer memory be different inventions of technology but he couldn't make heart.
3. **Data Machine Readable :** Computer data is read by machine, meaning data obtained from the computer can be read by the computer itself.
4. It required power to operate.
5. Problem may occur due to system breakdown.

INPUT DEVICES

Following are some of the important input devices which are used in a computer −

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

Keyboard is the most common and very popular input device which helps to input data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

The keys on the keyboard are as follows −

S.No	Keys & Description
1	**Typing Keys** These keys include the letter keys (A-Z) and digit keys (09) which generally give the same layout as that of typewriters.
2	**Numeric Keypad** It is used to enter the numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machines and calculators.
3	**Function Keys** The twelve function keys are present on the keyboard which are arranged in a row at the top of the keyboard. Each function key has a unique meaning and is used for some specific purpose.
4	**Control keys** These keys provide cursor and screen control. It includes four directional arrow keys. Control keys also include Home, End, Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).

5	**Special Purpose Keys** Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse

Mouse is the most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base, which senses the movement of the mouse and sends corresponding signals to the CPU when the mouse buttons are pressed.

Generally, it has two buttons called the left and the right button and a wheel is present between the buttons. A mouse can be used to control the position of the cursor on the screen, but it cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of the keyboard.

Joystick

Joystick is also a pointing device, which is used to move the cursor position on a monitor screen. It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket. The joystick can be moved in all four directions.

The function of the joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

Light pen is a pointing device similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.

When the tip of a light pen is moved over the monitor screen and the pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball

Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on the ball, the pointer can be moved.

Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button, or a square.

Scanner

Scanner is an input device, which works more like a photocopy machine. It is used when some information is available on paper and it is to be transferred to the hard disk of the computer for further manipulation.

Scanner captures images from the source which are then converted into a digital form that can be stored on the disk. These images can be edited before they are printed.

Digitizer

Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Microphone

Microphone is an input device to input sound that is then stored in a digital form.

The microphone is used for various applications such as adding sound to a multimedia presentation or for mixing music.

Magnetic Ink Card Reader (MICR)

MICR input device is generally used in banks as there are large number of cheques to be processed every day. The bank's code number and cheque number

are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.

This reading process is called Magnetic Ink Character Recognition (MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader (OCR)

OCR is an input device used to read a printed text.

OCR scans the text optically, character by character, converts them into a machine readable code, and stores the text on the system memory.

Bar Code Readers

Bar Code Reader is a device used for reading bar coded data (data in the form of light and dark lines). Bar coded data is generally used in labelling goods,

numbering the books, etc. It may be a handheld scanner or may be embedded in a stationary scanner.

Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

Optical Mark Reader (OMR)

OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked.

It is specially used for checking the answer sheets of examinations having multiple choice questions.

What is an Operating system

The Operating System is a program with the following features −

- An operating system is a program that acts as an interface between the software and the computer hardware.
- It is an integrated set of specialized programs used to manage overall resources and operations of the computer.

- It is a specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

wop51EF.tmpoleObject0.bin

Objectives of Operating System

The objectives of the operating system are −

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

Characteristics of Operating System

Here is a list of some of the most prominent characteristic features of Operating Systems

- **Memory Management** − Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** − Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** − Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** − Allocates and de-allocates the resources and decides who gets the resources.
- **Security** − Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** − Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** − Records delays between the request for a service and from the system.
- **Interaction with the Operators** − Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** − Production of dumps, traces, error messages, and other debugging and error-detecting methods.
- **Coordination Between Other Software and Users** − Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

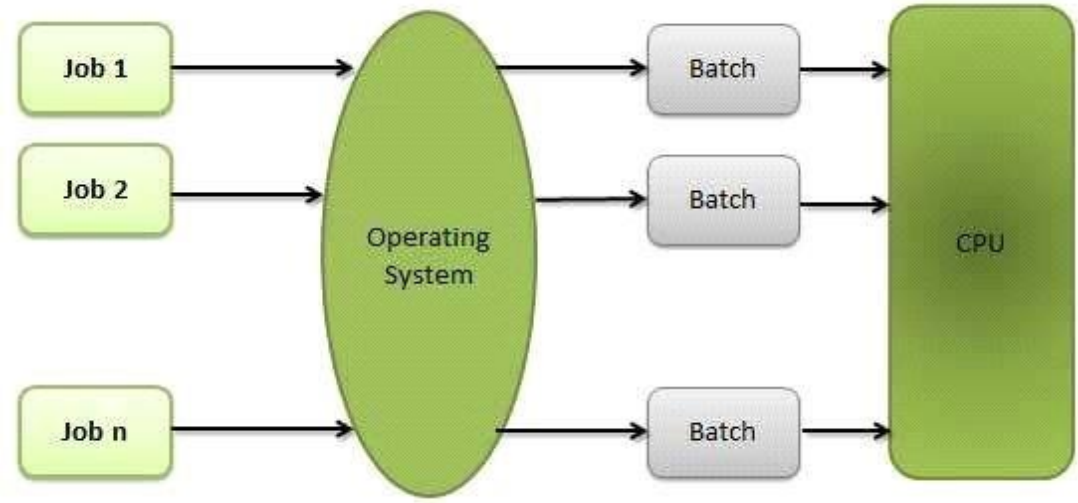
Operating system types

Following are some of the most widely used types of Operating system.

Batch processing

Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. An operating system does the following activities related to batch processing −

- The OS defines a job which has predefined sequence of commands, programs and data as a single unit.
- The OS keeps a number a jobs in memory and executes them without any manual information.
- Jobs are processed in the order of submission, i.e., first come first served fashion.
- When a job completes its execution, its memory is released and the output for the job gets copied into an output spool for later printing or processing.



Advantages

- Batch processing takes much of the work of the operator to the computer.
- Increased performance as a new job get started as soon as the previous job is finished, without any manual intervention.

Disadvantages

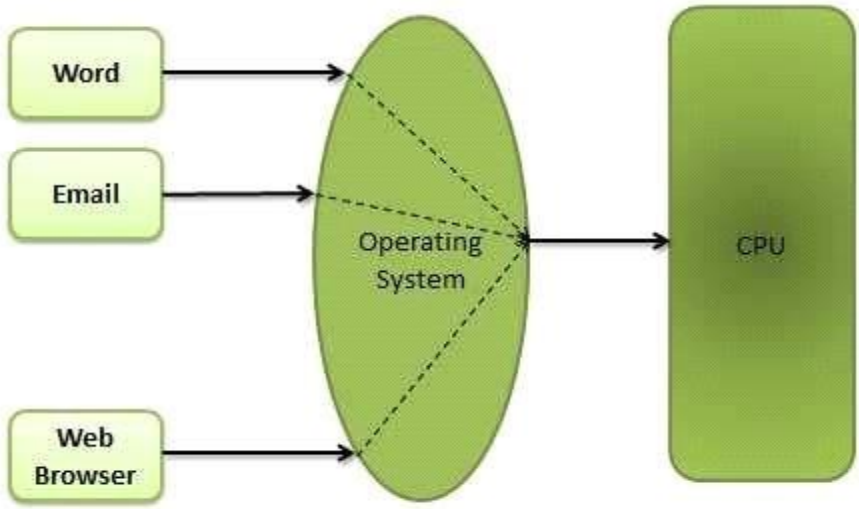
- Difficult to debug program.
- A job could enter an infinite loop.
- Due to lack of protection scheme, one batch job can affect pending jobs.

2.Multitasking

Multitasking is when multiple jobs are executed by the CPU simultaneously by switching between them. Switches occur so frequently that the users may interact with each program while it is running. An OS does the following activities related to multitasking −

- The user gives instructions to the operating system or to a program directly, and receives an immediate response.
- The OS handles multitasking in the way that it can handle multiple operations/executes multiple programs at a time.

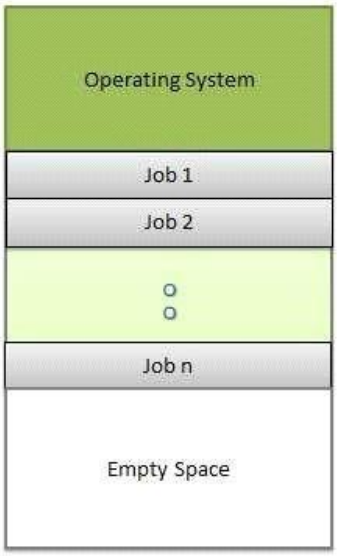
- Multitasking Operating Systems are also known as Time-sharing systems.
- These Operating Systems were developed to provide interactive use of a computer system at a reasonable cost.
- A program that is loaded into memory and is executing is commonly referred to as a **process**.
- When a process executes, it typically executes for only a very short time before it either finishes or needs to perform I/O.



3.<u>Multiprogramming</u>

Sharing the processor, when two or more programs reside in memory at the same time, is referred as **multiprogramming**. Multiprogramming assumes a single shared processor. Multiprogramming increases CPU utilization by organizing jobs so that the CPU always has one to execute.

The following figure shows the memory layout for a multiprogramming system.



Advantages

- High and efficient CPU utilization.

- User feels that many programs are allotted CPU almost simultaneously.

Disadvantages

- CPU scheduling is required.
- To accommodate many jobs in memory, memory management is required.

4. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.

wopADEF.tmpoleObject4.bin

Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

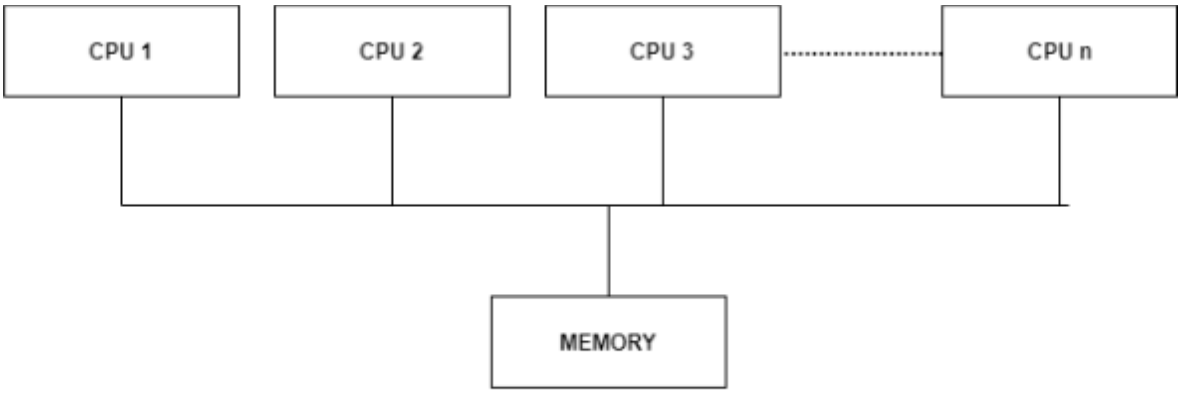
Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

Multiprocessing operating system

computer systems are single processor systems i.e they only have one processor. However, multiprocessor or parallel systems are increasing in importance nowadays. These systems have multiple processors working in parallel that share the computer clock, memory, bus, peripheral devices etc. An image demonstrating the multiprocessor architecture is:



Multiprocessing Architecture

Types of Multiprocessors

There are mainly two types of multiprocessors i.e. symmetric and asymmetric multiprocessors. Details about them are as follows:

Symmetric Multiprocessors

In these types of systems, each processor contains a similar copy of the operating system and they all communicate with each other. All the processors are in a peer to peer relationship i.e. no master - slave relationship exists between them.

An example of the symmetric multiprocessing system is the Encore version of Unix for the Multimax Computer.

Asymmetric Multiprocessors

In asymmetric systems, each processor is given a predefined task. There is a master processor that gives instruction to all the other processors. Asymmetric multiprocessor system contains a master slave relationship.

Asymmetric multiprocessor was the only type of multiprocessor available before symmetric multiprocessors were created. Now also, this is the cheaper option.

Advantages of Multiprocessor Systems

There are multiple advantages to multiprocessor systems. Some of these are:

- More reliable Systems
- Enhanced Throughput
- More Economic Systems

Disadvantages of Multiprocessor Systems

There are some disadvantages as well to multiprocessor systems. Some of these are:

- Increased Expense
- Complicated Operating System Required
- Large Main Memory Required

INTERNET

- Internet is a global network of inter-connected computers, where one computer can be connected to any other computer (or computerized device) in any portion of the world.

- Internet uses various internet protocol technologies. The recent introduction of mobile internet have been equally successful.
- Internet surfing is very easy. Internet is available in all major villages, towns, cities of almost every country. It is possible to surf through Internet with the help of internet browsers such as Windows explorer, Google chrome, etc.
- The organization that provides the Internet service to end-users are known as an Internet Services Providers (ISP). The major internet companies of India are BSNL, Vodafone, Airtel, Idea, and Aircel.

Uses of Internet

Large volume of Information: Internet can be used to collect information from around the world. This information could relate to education, medicine, literature, software, computers, business, entertainment, friendship, tourism, and leisure.

News and Journals: All the newspapers, magazines and journals of the world are available on the Internet. With the introduction of broadband and advanced mobile telecommunication technologies such as 3G (third generation) and 4G (fourth generation), the speed of internet service has increased tremendously. A person can get the latest news about the world in a matter of few seconds.

Electronic Mode of Communication: Internet has given the most exciting mode of communication to all. We can send an E-mail (the short form of Electronic Mailing System) to all the corners of the world.

Chatting: There are many chatting software that can be used to send and receive real-time messages over the internet. We can chat with our friend and relatives using any one of the chatting software.

Online Banking (Net-Banking): The use of internet can also be seen in the field of banking transactions. Many banks such as HSBC, SBI, Axis Bank, Hdfc Bank, etc. offers online banking facilities to its customers. They can transfer funds from one account to another using the net-banking facility.

E-commerce: Internet is also used for carrying out business operations and that set of operations is known as Electronic Commerce (E-commerce). Flipkart is the largest e-commerce company in India. The rival, Amazon, is giving stiff competition to Flipkart.

NETWORK

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data. An excellent example of a network is the Internet, which connects millions of people all over the world. To the right is an example image of a home network with multiple computers and other network devices all connected.

Examples of network devices

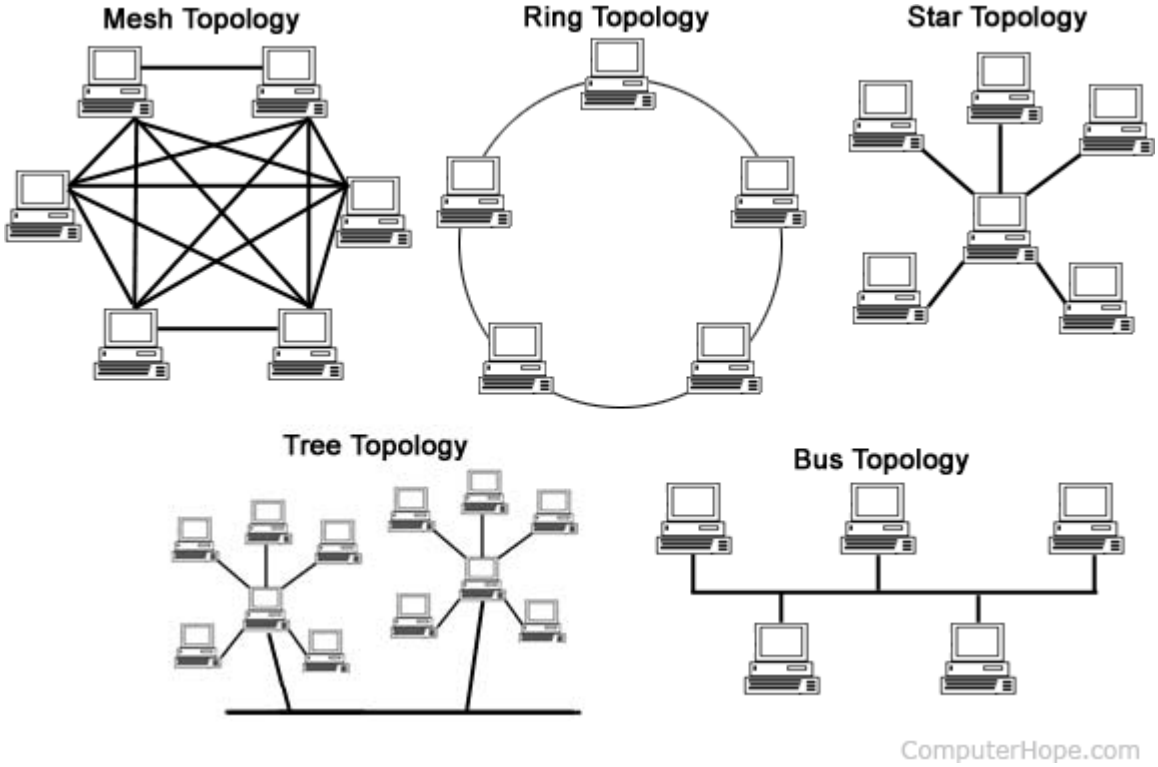
- Desktop computers, laptops, mainframes, and servers.
- Consoles and thin clients.
- Firewalls
- Bridges
- Repeaters

- Network Interface cards
- Switches, hubs, modems, and routers.
- Smartphones and tablets.
- Webcams

Network topologies and types of networks

The term network topology describes the relationship of connected devices in terms of a geometric graph. Devices are represented as vertices, and their connections are represented as edges on the graph. It describes how many connections each device has, in what order, and it what sort of hierarchy.

Typical network configurations include the bus topology, mesh topology, ring topology, star topology, tree topology and hybrid topology.



Most home networks are configured in a tree topology that is connected to the Internet. Corporate networks often use tree topologies, but they also often incorporate star topologies, and an Intranet.

BROWSER

web browser or Internet browser, a browser is a software program to present and explore content on the World Wide Web. These pieces of content, including pictures, videos, and web pages, are connected using hyperlinks and classified with URIs (Uniform Resource Identifiers). This page is an example of a web page that can be viewed using a browser.

There have been many different web browsers that have come and gone over the years. The first, named WorldWideWeb (later changed to Nexus), was invented by Tim Berners-Lee in 1990. However, the first graphical browser and widely used browser that help bring popularity to the Internet was NCSA Mosaic.

List of current Internet browsers

- Google Chrome
- Microsoft Edge
- Microsoft Internet Explorer
- Mozilla Firefox
- Opera
- Apple Safari
- Amazon Silk

Microsoft Excel

Microsoft Excel is a spreadsheet program that is used to record and analyse numerical data. Think of a spreadsheet as a collection of columns and rows that form a table. Alphabetical letters are usually assigned to columns and numbers are usually assigned to rows. The point where a column and a row meet is called a cell. The address of a cell is given by the letter representing the column and the number representing a row.

Features of Microsoft Excel

1. Add Header and Footer

MS Excel allows us to keep the header and footer in our spreadsheet document.

2. Find and Replace Command

MS Excel allows us to find the needed data (text and numbers) in the workbook and also replace the existing data with a new one.

3. Password Protection

It allows the user to protect their workbooks by using a password from unauthorized access to their information.

4. Data Filtering

Filtering is a quick and easy way to find and work with a subset of data in a range. A filtered range displays only the rows that meet the criteria you specify for a column. MS Excel provides two commands for filtering ranges:

- AutoFilter; which includes filter by selection, for simple criteria
- Advanced Filter; for more complex criteria

5. Data Sorting

Data sorting is the process of arranging data in some logical order. MS Excel allows us to sort data either in ascending or descending order.

6. Built-in formulae

MS Excel has got many built-in formulae for sum, average, minimum, etc. We can use those formulae as per our needs.

7. Create different charts (Pivot Table Report)

MS Excel allows us to create different charts such as bar graph, pie- charts, line graphs, etc. This helps us to analyze and compare data very easily.

8. Automatically edits the result

MS Excel automatically edits the result if any changes are made in any of the cells.

FUNCTIONS:

1 Count and Sum: The most used functions in Excel are the functions that count and sum. You can count and sum based on one criteria or multiple criteria.

2 Logical: Learn how to use Excel's logical functions, such as IF, AND, OR and NOT.

3 Cell References: Cell references in Excel are very important. Understand the difference between relative, absolute and mixed reference, and you are on your way to success.

4 Date & Time: To enter a date in Excel, use the "/" or "-" characters. To enter a time, use the ":" (colon).
5 Text: Excel has many functions to offer when it comes to manipulating text strings.
6 Lookup & Reference: Learn all about Excel's lookup & reference functions, such as VLOOKUP, HLOOKUP, MATCH, INDEX and CHOOSE.
7 Financial: This chapter illustrates Excel's most popular financial functions.
8 Statistical: An overview of some very useful statistical functions in Excel.
9 Round: This chapter illustrates three functions to round numbers in Excel. ROUND, ROUNDUP and ROUNDDOWN.
10 Formula Errors: This chapter teaches you how to deal with some common formula errors in Excel.
11 Array Formulas: This chapter helps you understand array formulas in Excel. Single cell array formulas perform multiple calculations in one cell.

Computer fundamentals

Academic Year 2017-18

S.NO	Name of the student	class	signature
1	D. Mounika	Bsc (MSCS) II nd year	D. Mounika
2	Singam Sahithya	Bsc (MSCS) II nd year	S. Sahithya
3	N. Swapna	BSC (MSCS) II nd year	N. Swapna
4.	R. Pooja	Bsc (MSCS) II nd year	R. Pooja.
5.	E Laxmi	Bsc (MSCS) II nd year	E. Laxmi
6.	G. sony	Bsc (MSCS) II nd year	G. Sony
7.	Pooja Patwari	Bsc (MSCS) II nd year	P. Pooja
8.	Tyochana	Bsc (MSCS) II nd year	T. yochana.
9.	B. Deepika	Bsc (MSCS) II nd year	Deepika.
10.	V. jyothi	Bsc (MSCS) II nd year	V. Jyothi
11	D. Swathi	Bsc (MSCS) II nd year	Swathi
12	Yasmeen	Bsc (MSCS) II nd year	Yasmeen
13.	B. Aparna	Bsc (MSCS) II nd year	Aparna
14.	A. Nagamani	Bsc (MSCS) II nd year	A. Nagamani
15.	K. Pushpalatha	Bsc (MSCS) II nd year	K. pushpa
16.	S. Samyuktha	Bsc (MSCS) II nd year	S. samyuktha
17.	S. Akhila	Bsc (MSCS) II nd year	S. Akhila
18.	E. Babitha	BSC (MSCS) II nd year	E. Babitha
19.	Ch. Rama	Bsc (MSCS) II nd year	Ch. Rama
20.	K. Chandana	Bsc (MSCS) II nd year	K. Chandana
21.	K. Rajitha	Bsc (MSCS) II nd year	K. Rajitha
22.	M. Mounika	Bsc (MSCS) II nd year	M. mounika
23.	G. Shivani	Bsc (MSCS) II nd year	G. Shivani
24.	Y. Kanikaram	Bsc (MSCS) II nd year	Y. Kanikaram
25.	A. Renuka	Bsc (MSCS) II nd year	A. Renuka
26.	P. Aishwarya	Bsc (MSCS) II nd year	P. Aishwarya
27.	S. Keerthi	Bsc (MSCS) II nd year	S. Keerthi
28.	S. Anuradha	Bsc (MSCS) II nd year	Anuradha
29.	S. Srilatha	Bsc (MSCS) II nd year	S. Srilatha.
30.	G. Teja	Bsc (MSCS) II nd year	G. Teja
31	V. Revathi	Bsc (MSCS) II nd year	V. Revathi

S.No	Name of the student	Class	Signature
32.	A. Sakshi	BSc (MSCS) II nd year	A. Sakshi
33.	S. Lahari	BSc (MSCS) II nd year	
34.	K. Bhavani	BSc (MSCS) II nd year	Bhavani
35.	S. Pooja	BSc (MSCS) II nd year	S Pooja
36.	M. Usha	BSc (MSCS) II nd year	M. Usha.
37.	P. Deepika	BSc (MSCS) II nd year	P. Deepika
38.	P. Sravani	BSc (MSCS) II nd year	Sravani
39.	SR. Bhargavi	BSc (MSCS) II nd year	S.R. Bhargavi

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1.	S Amrutha Sai	Bsc(MPCs) IInd year	S Amrutha Sai
2.	S. Sunanda	Bsc(MPCs) IInd year	S Sunanda
3.	G. Jyothsna	Bsc(MPCs) IInd year	G Jyothsna
4.	M. Anusha	Bsc (MPCs) IInd year	M Anusha
5.	Y.A Ramya	Bsc (MPCs) IInd year	Y.A Ramya
6.	K. Shravani	Bsc (MPCs) IInd year	K. Shravani
7.	P Durga Sri	Bsc (MPCs) IInd year	P. Durga Sri
8.	S. Rajitha	Bsc (MPCs) IInd year	S. Rajitha
9.	B Deepika	Bsc (MPCs) IInd year	B Deepika
10.	N. Uma	Bsc (MPCs) IInd year	N Uma
11.	~~Shravani~~ P. prathyusha	Bsc (MPCs) IInd year	P prathyusha
12.	B. padma	Bsc (MPCs) IInd year	B Padma
13.	d Krishna veni	Bsc (MPCs) IInd year	D. Krishnaveni

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GDCWM, Begumpet Hyd-16

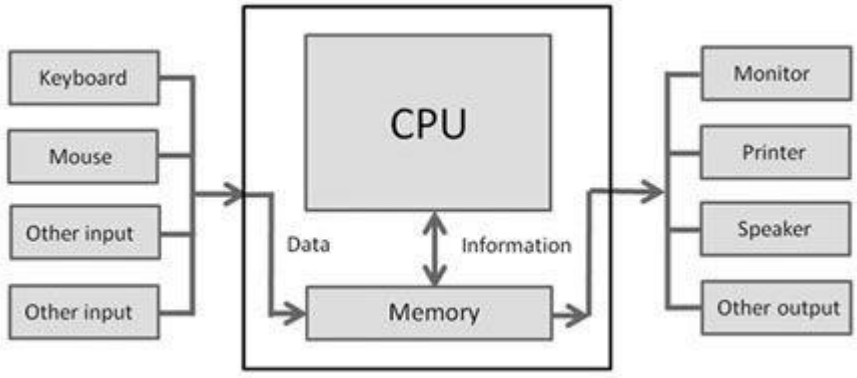
GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET - HYDERABAD
DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
BRIDGE COURSE FOR THE YEAR 2018 – 2019

Bridge Course was organized by the Department of Computers for all the first year students of BA,B.COM,B.Sc . Computer faculty have explained computer basics and provided the material for all the students .

1.Computer : Computer is an electronic device that is designed to work with Information. *The term computer is derived from the Latin term* '**computare**', this means to *calculate* or *programmable machine*. **Computer can not do anything without a Program**.

Charles Babbage is called the " Father" of the computer. The First mechanical computer designed by Charles Babbage was called **Analytical Engine.** It uses read-only memory in the form of punch cards.

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) and gives the result (output) and saves output for the future use. It can process both numerical and non-numerical (arithmetic and logical) calculations.



Digital Computer Definition

The basic components of a modern digital computer are: Input Device, Output Device, Central Processor Unit (CPU), mass storage device and memory. A Typical modern computer uses LSI Chips. Four Functions about computer are:

accepts data	Input
processes data	Processing
produces output	Output
stores results	Storage

Input (Data):

Input is the raw information entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

Process:

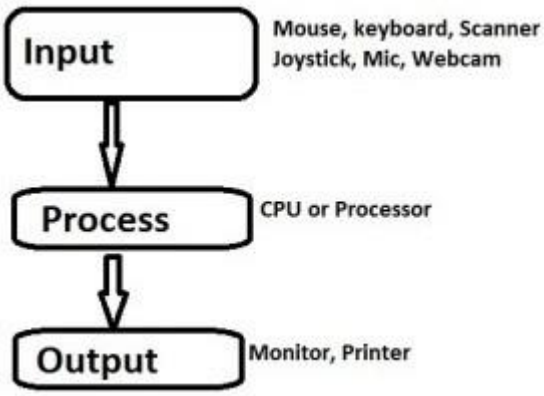
Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output:

Output is the processed data given by computer after data processing. Output is also called as Result. We can save these results in the storage devices for the future use.

Block Diagram of Computer and its Various Components

Computer – The word "computer "comes from the word "compute "which means to calculate. So a computer is normally considered to be a calculating device that performs arithmetic operations at enormous speed. A computer is an electronic device which is used to perform operation on raw data as per instruction given by user.



Various Components of Computer

Computer is an electronic device which performs tasks given by user with extremely fast speed and accuracy. Like any other device or machine, a computer system has also a number of parts. A computer system can be blocked into mainly three parts:

1. Input Unit
2. Central Processing Unit
3. Output Unit

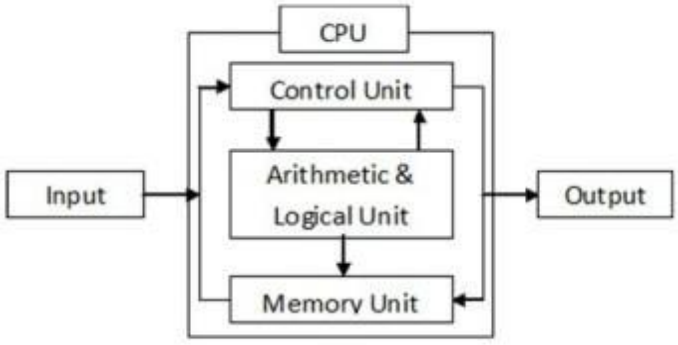


Fig. Block Diagram of Computer

1. Input unit – Input unit is a unit that accepts any input device. The input device is used to input data into the computer system.
Function of input unit:

1. It converts inputted data into binary codes.
2. It sends data to main memory of computer .

2. Central Processing Unit (CUP) – CPU is called the brain of a computer. An electronic circuitry that carries out the instruction given by a computer program. CPU can be sub classified into three parts.

i .Control unit (CU)

ii. Arithmetic & Logic unit (ALU)

iii.Memory Unit (MU)

i. Control unit (CU)- the control unit manages the various components of the computer. It reads instructions from memory and interpretation and changes in a series of signals to activate other parts of the computer. It controls and co-ordinate is input output memory and all other units.
ii. Arithmetic & Logic unit (ALU) – The arithmetic logic unit (ALU), which performs simple arithmetic operation such as +,-, *, / and logical operation such as >, <, =<, <= etc.
iii. Memory Unit (MU)- Memory is used to store data and instructions before and after processing. Memory is also called Primary memory or internal memory. It is used to store data temporary or permanently.
Function of CPU-

1. It controls all the parts and software and data flow of computer.
2. It performs all operations.
3. It accepts data from input device.
4. It sends information to output device.

5. Executing programs stored in memory
6. It stores data either temporarily or permanent basis.
7. It performs arithmetical and logical operations.

3. Output Unit –Output unit is a unit that constituents a number of output device. An output device is used to show the result of processing.
Function of Output unit:

1. it accepts data or information sends from main memory of computer
2. It converts binary coded information into HLL or inputted languages.

2.Characteristics of Computers:

Basic characteristics about computer are:

1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete.

Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: - It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.

5. Power of Remembering: - Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.

6. No IQ: - Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.

7. No Feeling: - It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.

8. Storage: - The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

4.Applications of computers

Education : .Research shows that computers can significantly enhance performance in learning. Students exposed to the internet say they think the web has helped them improve the quality of their academic research and of their written work. One revolution in education is the advent of distance learning. This offers a variety of internet and video-based online courses.

Health and Medicine :

Computer technology is radically changing the tools of medicine. All medical information can now be digitized. Software is now able to computer the risk of a disease. Mental health researchers are using computers to screen troubled teenagers in need of psychotherapy. A patient paralyzed by a stroke has received an implant that allows communication between his brain and a computer; as a result, he can move a cursor across a screen by brainpower and convey simple messages.

Science :

Scientists have long been users of it. A new adventure among scientists is the idea of a "collaboratory", an internet based collaborative laboratory, in which researchers all over the world can work easily together even at a distance. An example is space physics where space physicists are allowed to band together to measure the earth's ionosphere from instruments on four parts of the world.

Business :

Business clearly see the interest as a way to enhance productivity and competitiveness. Some areas of business that are undergoing rapid changes are sales and marketing, retailing, banking, stock trading, etc. Sales representatives not

only need to be better educated and more knowledgeable about their customer's businesses, but also must be comfortable with computer technology. The internet has become a popular marketing tool. The world of cybercash has come to banking – not only smart cards but internet banking, electronic deposit, bill paying, online stock and bond trading, etc.

Recreation and Entertainment:

Our entertainment and pleasure-time have also been affected by computerization. For example:

• In movies, computer generated graphics give freedom to designers so that special effects and even imaginary characters can play a part in making movies, videos, and commercials.

• In sports, computers compile statistics, sell tickets, create training programs and diets for athletes, and suggest game plan strategies based on the competitor's past performance.

• In restaurants, almost every one has eaten food where the clerk enters an order by indicating choices on a rather unusual looking cash register; the device directly enters the actual data into a computer, and calculates the cost and then prints a receipt.

Government:

Various departments of the Government use computer for their planning, control and law enforcement activities. To name a few – Traffic, Tourism, Information & Broadcasting, Education, Aviation and many others.

Defence:

There are many uses computers in Defence such as:

• Controlling UAV or unmanned air-crafts an example is Predator. If you have cable I would recommend watching the shows "Future Weapons" and "Modern Marvels". The show future weapon gives an entire hour to the predator.

• They are also used on Intercontinental Ballistic Missiles (ICBMs) that uses GPS and Computers to help the missile get to the target.

• Computers are used to track incoming missiles and help slew weapons systems onto the incoming target to destroy them.

• Computers are used in helping the military find out where all their assets are (Situational Awareness) and in Communications/Battle Management Systems.

• Computers are used in the logistic and ordering functions of getting equipments to and around the battlefield.
• Computers are used in tanks and planes and ships to target enemy forces, help run the platform and more recently to help diagnose any problems with the platforms.
• Computers help design and test new systems.

Sports:

In today's technologically growing society, computers are being used in nearly every activity.

Recording Information

Official statistics keepers and some scouts use computers to record statistics, take notes and chat online while attending and working at a sports event.

Analyzing Movements

The best athletes pay close attention to detail. Computers can slow recorded video and allow people to study their specific movements to try to improve their tendencies and repair poor habits.

Writers

Many sportswriters attend several sporting events a week, and they take their computers with them to write during the game or shortly after while their thoughts are fresh in their mind.

Scoreboard

While some scoreboards are manually updated, most professional sports venues have very modern scoreboards that are programmed to update statistics and information immediately after the information is entered into the computer.

Safety

Computers have aided in the design of safety equipment in sports such as football helmets to shoes to mouth guards

5.Limitation or Drawback of Computer

1. **No I.Q. :** Computer is not a magical device. It performs only those works which man can does but the main difference is that computer can work those operations with very high speed and reliable accuracy. It has no any intelligence quality or thinking power

2. **No Feeling:** Because computer is only a machine, it has no feeling like human being. It has no brain for thinking as man can does. Man had successes to make computer memory be different inventions of technology but he couldn't make heart.
3. **Data Machine Readable :** Computer data is read by machine, meaning data obtained from the computer can be read by the computer itself.
4. It required power to operate.
5. Problem may occur due to system breakdown.

INPUT DEVICES

Following are some of the important input devices which are used in a computer −

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

Keyboard is the most common and very popular input device which helps to input data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

The keys on the keyboard are as follows −

S.No	Keys & Description
1	**Typing Keys** These keys include the letter keys (A-Z) and digit keys (09) which generally give the same layout as that of typewriters.
2	**Numeric Keypad** It is used to enter the numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machines and calculators.
3	**Function Keys** The twelve function keys are present on the keyboard which are arranged in a row at the top of the keyboard. Each function key has a unique meaning and is used for some specific purpose.
4	**Control keys** These keys provide cursor and screen control. It includes four directional arrow keys. Control keys also include Home, End, Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).

5	**Special Purpose Keys** Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse

Mouse is the most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base, which senses the movement of the mouse and sends corresponding signals to the CPU when the mouse buttons are pressed.

Generally, it has two buttons called the left and the right button and a wheel is present between the buttons. A mouse can be used to control the position of the cursor on the screen, but it cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of the keyboard.

Joystick

Joystick is also a pointing device, which is used to move the cursor position on a monitor screen. It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket. The joystick can be moved in all four directions.

The function of the joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

Light pen is a pointing device similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.

When the tip of a light pen is moved over the monitor screen and the pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball

Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on the ball, the pointer can be moved.

Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button, or a square.

Scanner

Scanner is an input device, which works more like a photocopy machine. It is used when some information is available on paper and it is to be transferred to the hard disk of the computer for further manipulation.

Scanner captures images from the source which are then converted into a digital form that can be stored on the disk. These images can be edited before they are printed.

Digitizer

Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Microphone

Microphone is an input device to input sound that is then stored in a digital form.

The microphone is used for various applications such as adding sound to a multimedia presentation or for mixing music.

Magnetic Ink Card Reader (MICR)

MICR input device is generally used in banks as there are large number of cheques to be processed every day. The bank's code number and cheque number

are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.

This reading process is called Magnetic Ink Character Recognition (MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader (OCR)

OCR is an input device used to read a printed text.

OCR scans the text optically, character by character, converts them into a machine readable code, and stores the text on the system memory.

Bar Code Readers

Bar Code Reader is a device used for reading bar coded data (data in the form of light and dark lines). Bar coded data is generally used in labelling goods,

numbering the books, etc. It may be a handheld scanner or may be embedded in a stationary scanner.

Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

Optical Mark Reader (OMR)

OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked.

It is specially used for checking the answer sheets of examinations having multiple choice questions.

What is an Operating system

The Operating System is a program with the following features −

- An operating system is a program that acts as an interface between the software and the computer hardware.
- It is an integrated set of specialized programs used to manage overall resources and operations of the computer.

- It is a specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

wop51EF.tmpoleObject0.bin

Objectives of Operating System

The objectives of the operating system are −

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

Characteristics of Operating System

Here is a list of some of the most prominent characteristic features of Operating Systems

- **Memory Management** − Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** − Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** − Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** − Allocates and de-allocates the resources and decides who gets the resources.
- **Security** − Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** − Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** − Records delays between the request for a service and from the system.
- **Interaction with the Operators** − Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** − Production of dumps, traces, error messages, and other debugging and error-detecting methods.
- **Coordination Between Other Software and Users** − Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

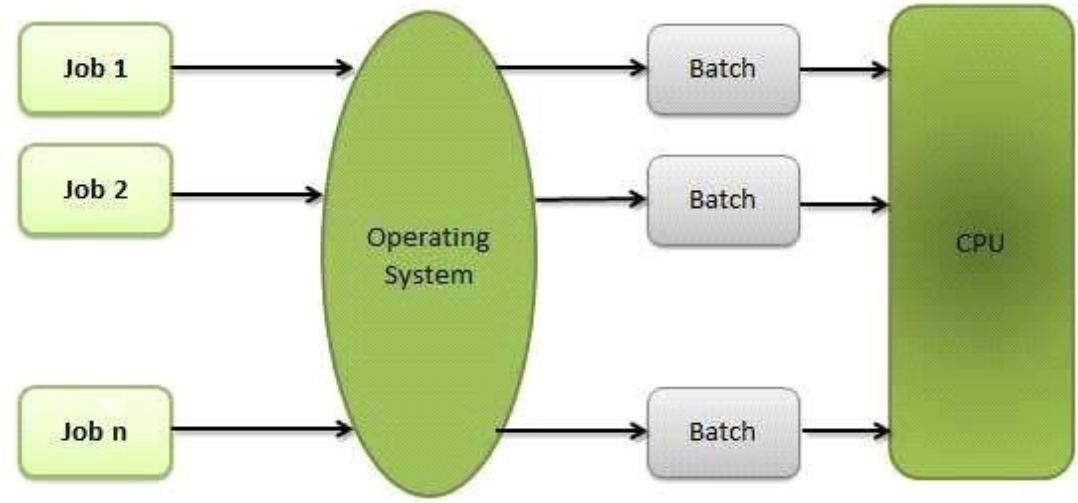
Operating system types

Following are some of the most widely used types of Operating system.

Batch processing

Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. An operating system does the following activities related to batch processing −

- The OS defines a job which has predefined sequence of commands, programs and data as a single unit.
- The OS keeps a number a jobs in memory and executes them without any manual information.
- Jobs are processed in the order of submission, i.e., first come first served fashion.
- When a job completes its execution, its memory is released and the output for the job gets copied into an output spool for later printing or processing.



Advantages

- Batch processing takes much of the work of the operator to the computer.
- Increased performance as a new job get started as soon as the previous job is finished, without any manual intervention.

Disadvantages

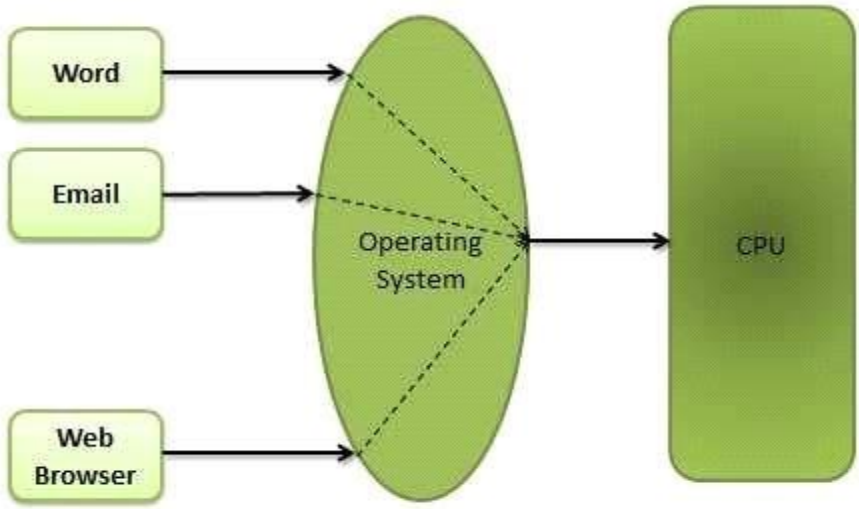
- Difficult to debug program.
- A job could enter an infinite loop.
- Due to lack of protection scheme, one batch job can affect pending jobs.

2.Multitasking

Multitasking is when multiple jobs are executed by the CPU simultaneously by switching between them. Switches occur so frequently that the users may interact with each program while it is running. An OS does the following activities related to multitasking −

- The user gives instructions to the operating system or to a program directly, and receives an immediate response.
- The OS handles multitasking in the way that it can handle multiple operations/executes multiple programs at a time.

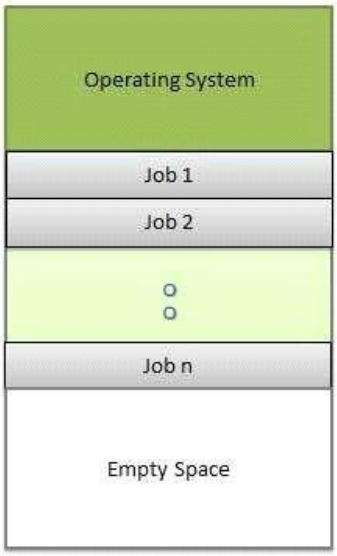
- Multitasking Operating Systems are also known as Time-sharing systems.
- These Operating Systems were developed to provide interactive use of a computer system at a reasonable cost.
- A program that is loaded into memory and is executing is commonly referred to as a **process**.
- When a process executes, it typically executes for only a very short time before it either finishes or needs to perform I/O.



3.<u>Multiprogramming</u>

Sharing the processor, when two or more programs reside in memory at the same time, is referred as **multiprogramming**. Multiprogramming assumes a single shared processor. Multiprogramming increases CPU utilization by organizing jobs so that the CPU always has one to execute.

The following figure shows the memory layout for a multiprogramming system.



Advantages

- High and efficient CPU utilization.

- User feels that many programs are allotted CPU almost simultaneously.

Disadvantages

- CPU scheduling is required.
- To accommodate many jobs in memory, memory management is required.

4. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.

wopADEF.tmpoleObject4.bin

Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

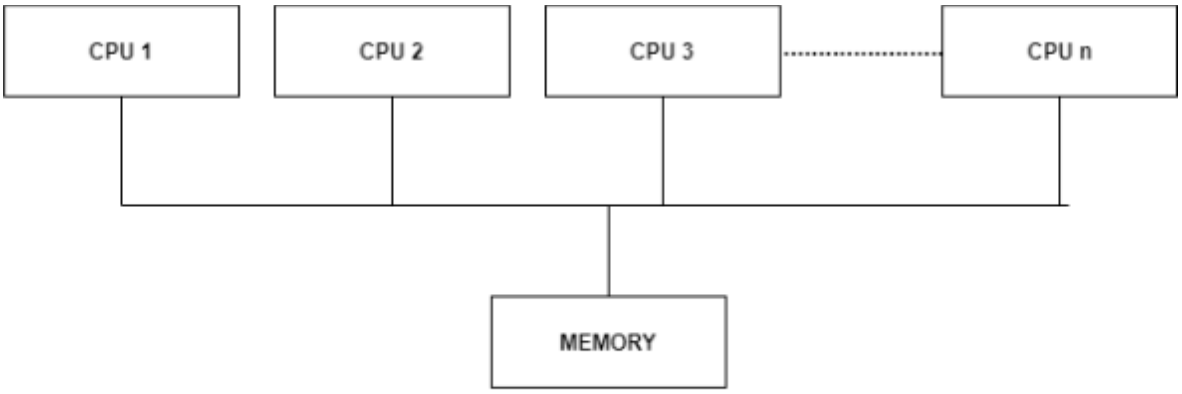
Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

Multiprocessing operating system

computer systems are single processor systems i.e they only have one processor. However, multiprocessor or parallel systems are increasing in importance nowadays. These systems have multiple processors working in parallel that share the computer clock, memory, bus, peripheral devices etc. An image demonstrating the multiprocessor architecture is:



Multiprocessing Architecture

Types of Multiprocessors

There are mainly two types of multiprocessors i.e. symmetric and asymmetric multiprocessors. Details about them are as follows:

Symmetric Multiprocessors

In these types of systems, each processor contains a similar copy of the operating system and they all communicate with each other. All the processors are in a peer to peer relationship i.e. no master - slave relationship exists between them.

An example of the symmetric multiprocessing system is the Encore version of Unix for the Multimax Computer.

Asymmetric Multiprocessors

In asymmetric systems, each processor is given a predefined task. There is a master processor that gives instruction to all the other processors. Asymmetric multiprocessor system contains a master slave relationship.

Asymmetric multiprocessor was the only type of multiprocessor available before symmetric multiprocessors were created. Now also, this is the cheaper option.

Advantages of Multiprocessor Systems

There are multiple advantages to multiprocessor systems. Some of these are:

- More reliable Systems
- Enhanced Throughput
- More Economic Systems

Disadvantages of Multiprocessor Systems

There are some disadvantages as well to multiprocessor systems. Some of these are:

- Increased Expense
- Complicated Operating System Required
- Large Main Memory Required

INTERNET

- Internet is a global network of inter-connected computers, where one computer can be connected to any other computer (or computerized device) in any portion of the world.

- Internet uses various internet protocol technologies. The recent introduction of mobile internet have been equally successful.
- Internet surfing is very easy. Internet is available in all major villages, towns, cities of almost every country. It is possible to surf through Internet with the help of internet browsers such as Windows explorer, Google chrome, etc.
- The organization that provides the Internet service to end-users are known as an Internet Services Providers (ISP). The major internet companies of India are BSNL, Vodafone, Airtel, Idea, and Aircel.

Uses of Internet

Large volume of Information: Internet can be used to collect information from around the world. This information could relate to education, medicine, literature, software, computers, business, entertainment, friendship, tourism, and leisure.

News and Journals: All the newspapers, magazines and journals of the world are available on the Internet. With the introduction of broadband and advanced mobile telecommunication technologies such as 3G (third generation) and 4G (fourth generation), the speed of internet service has increased tremendously. A person can get the latest news about the world in a matter of few seconds.

Electronic Mode of Communication: Internet has given the most exciting mode of communication to all. We can send an E-mail (the short form of Electronic Mailing System) to all the corners of the world.

Chatting: There are many chatting software that can be used to send and receive real-time messages over the internet. We can chat with our friend and relatives using any one of the chatting software.

Online Banking (Net-Banking): The use of internet can also be seen in the field of banking transactions. Many banks such as HSBC, SBI, Axis Bank, Hdfc Bank, etc. offers online banking facilities to its customers. They can transfer funds from one account to another using the net-banking facility.

E-commerce: Internet is also used for carrying out business operations and that set of operations is known as Electronic Commerce (E-commerce). Flipkart is the largest e-commerce company in India. The rival, Amazon, is giving stiff competition to Flipkart.

NETWORK

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data. An excellent example of a network is the Internet, which connects millions of people all over the world. To the right is an example image of a home network with multiple computers and other network devices all connected.

Examples of network devices

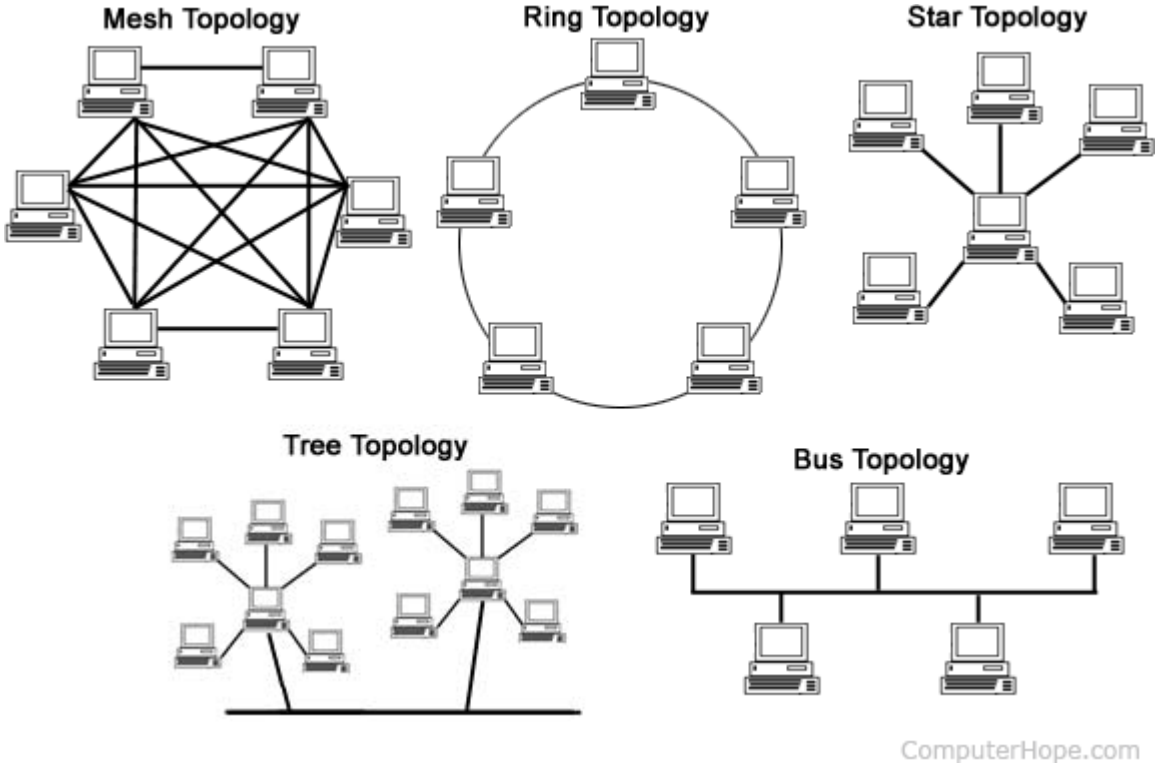
- Desktop computers, laptops, mainframes, and servers.
- Consoles and thin clients.
- Firewalls
- Bridges
- Repeaters

- Network Interface cards
- Switches, hubs, modems, and routers.
- Smartphones and tablets.
- Webcams

Network topologies and types of networks

The term network topology describes the relationship of connected devices in terms of a geometric graph. Devices are represented as vertices, and their connections are represented as edges on the graph. It describes how many connections each device has, in what order, and it what sort of hierarchy.

Typical network configurations include the bus topology, mesh topology, ring topology, star topology, tree topology and hybrid topology.



Most home networks are configured in a tree topology that is connected to the Internet. Corporate networks often use tree topologies, but they also often incorporate star topologies, and an Intranet.

BROWSER

web browser or Internet browser, a browser is a software program to present and explore content on the World Wide Web. These pieces of content, including pictures, videos, and web pages, are connected using hyperlinks and classified with URIs (Uniform Resource Identifiers). This page is an example of a web page that can be viewed using a browser.

There have been many different web browsers that have come and gone over the years. The first, named WorldWideWeb (later changed to Nexus), was invented by Tim Berners-Lee in 1990. However, the first graphical browser and widely used browser that help bring popularity to the Internet was NCSA Mosaic.

List of current Internet browsers

- Google Chrome
- Microsoft Edge
- Microsoft Internet Explorer
- Mozilla Firefox
- Opera
- Apple Safari
- Amazon Silk

Microsoft Excel

Microsoft Excel is a spreadsheet program that is used to record and analyse numerical data. Think of a spreadsheet as a collection of columns and rows that form a table. Alphabetical letters are usually assigned to columns and numbers are usually assigned to rows. The point where a column and a row meet is called a cell. The address of a cell is given by the letter representing the column and the number representing a row.

Features of Microsoft Excel

1. Add Header and Footer

MS Excel allows us to keep the header and footer in our spreadsheet document.

2. Find and Replace Command

MS Excel allows us to find the needed data (text and numbers) in the workbook and also replace the existing data with a new one.

3. Password Protection

It allows the user to protect their workbooks by using a password from unauthorized access to their information.

4. Data Filtering

Filtering is a quick and easy way to find and work with a subset of data in a range. A filtered range displays only the rows that meet the criteria you specify for a column. MS Excel provides two commands for filtering ranges:

- AutoFilter; which includes filter by selection, for simple criteria
- Advanced Filter; for more complex criteria

5. Data Sorting

Data sorting is the process of arranging data in some logical order. MS Excel allows us to sort data either in ascending or descending order.

6. Built-in formulae

MS Excel has got many built-in formulae for sum, average, minimum, etc. We can use those formulae as per our needs.

7. Create different charts (Pivot Table Report)

MS Excel allows us to create different charts such as bar graph, pie- charts, line graphs, etc. This helps us to analyze and compare data very easily.

8. Automatically edits the result

MS Excel automatically edits the result if any changes are made in any of the cells.

FUNCTIONS:

1 Count and Sum: The most used functions in Excel are the functions that count and sum. You can count and sum based on one criteria or multiple criteria.

2 Logical: Learn how to use Excel's logical functions, such as IF, AND, OR and NOT.

3 Cell References: Cell references in Excel are very important. Understand the difference between relative, absolute and mixed reference, and you are on your way to success.

4 Date & Time: To enter a date in Excel, use the "/" or "-" characters. To enter a time, use the ":" (colon).
5 Text: Excel has many functions to offer when it comes to manipulating text strings.
6 Lookup & Reference: Learn all about Excel's lookup & reference functions, such as VLOOKUP, HLOOKUP, MATCH, INDEX and CHOOSE.
7 Financial: This chapter illustrates Excel's most popular financial functions.
8 Statistical: An overview of some very useful statistical functions in Excel.
9 Round: This chapter illustrates three functions to round numbers in Excel. ROUND, ROUNDUP and ROUNDDOWN.
10 Formula Errors: This chapter teaches you how to deal with some common formula errors in Excel.
11 Array Formulas: This chapter helps you understand array formulas in Excel. Single cell array formulas perform multiple calculations in one cell.

Bridge Course (2018-19)

Dept. of Computers Organized Bridge Course for all I^st year BA, B.Com, B.Sc to give awareness on Computer fundamentals

The following topics are discussed.

1. Languages
2. Packages
3. Computer – Block diagram, features, Application, history, Advantages & disadvantages
4. Input & output devices.
5. Memory, Types of Memory
6. operating syten, Types & functions of os

Computer fundamentals

Academic year 2018-19

SNO	ROLL NO	Student Name	course	signature
1	108518467075	Iqra Tabbassom	Bsc(mscs)3rd yr	Iqra
2.	108518467042	Ch. Akshitha	BSC(MSCS)III yr	Akshitha
3.	108518467043	Ch. Sravya	B.Sc(MSCS) III yr	Ch. Sravya
4.	108518467076	J. Divya	BSc(mscs)3rd	J. Divya
5.	108518467077	J. Nikitha	BSc(MSCS)3rd	J. Nikitha
6.	108518467044	D. Hemalatha	Bsc(mscs)3rd	D. Hemalatha
7	108518467045	D. Swarna lalitha	Bsc(mscs)3rd	D. Swarnalalitha
8.	108518467078	K. Ruchitha	BSC(MSCS)3rd yr	K. Ruchitha
9	108518467079	Kadari Priyanka	BSC(MSCS)3rd	K Priyanka
10)	108518467046	Devanaka Rajasree	BSC(MSCS)3rd yr	D. Rajasree
11)	108518467080	K. Harshini	Bsc(mscs)3rd yr	K. Harshini
12)	108518467047	D. Bhargavi	"	D. Bhargavi
13)	108518467048	D. Shreya	"	D. Shreya
14)	108518467081	K. Haritha	BSC(MSCS)3rd yr	K. Haritha
15.	108518467049	D. Uma	BSC(MSCS)	D. Uma
16	108518467056	E. Bhargavi	BSC(MSCS)	E. Bhargavi
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18.	108518467054	D. Santoshikumari	Bsc(MSCS)	D. Santoshikumari
19.	108518467053	D. Manasa	BSc(MSCS)	D. Manasa
20	108518467052	D. Bhuvaneshwari	BSC(MSCS)	D. Bhuvaneshwari
21	108518467051	D. Sajanya	BSC(MSCS)	Sajanya
22	108518467050	D. Prathibha Laxmi	BSC(MSCS)	Prathibha
23	108518467057	E. Ruchitha Patel	BSC(MSCS)	Ruchitha
24	108518467058	E. Bhuvana	BSC(MSCS)	E. Bhuvana
25	108518467059	Farhana Afreen	BSC(MSCS)	Farhana
26	108518467060	Gangapuram Akhila	BSC(MSCS)	G. Akhila
27	108518467061	Gangasani soumya	BSC(MSCS)	G. Soumya
28.	108518467062	Ganji. Alikitha	BSC(MSCS)	Ganji

S.NO	Roll No	Name	Course	Signature
29	108518467063	Gannu Nishitha	BSC[MSCS]	G.Nishitha
30	108518467064	Gayatri	Bsc[MSCS]	Gayatri
31	108518467066	Gontala Manisha	BSC(MSCS)	G. Manisha
32	108518467067	Gorla Nandini	Bsc [MSCS]	G. Nandini
33	108518467068	Gorukanti Meghana	Bsc [MSCS]	G. Megh
34	108518467069	Guduru Swetha Reddy	BSC(MSCS)	Swetha
35.	108518467070	Gujjula Sripriya	BSC(MSCS)	G. Sripriya
36.	108518467065	Geethni Annapurna	BSC(MSCS)	G. Annapurna
37.	108518467071	Gulla Lanni	BSC [MSCS]	G. Lanni
38	108518467072	Gundekari Saumya	Bsc [MSCS]	G Saumya
39.	108518467074	G. Mounika	Bsc(MSCS)	G. Mounika
40	108518467001	Afreen Begum	BSC (MSCS)	Afreen Begum
41	108518467034	C. Nikitha	BSC (MSCS)	Nikitha
42	108518467002	A. Pavani	BSC [MSCS]	A. Pavani
43	108518467035	Chandravadana	BSC (MSCS)	Chandravadana
44	108518467036	CH. PRIYANKA	BSC (MSCS)	Priyanka
45	108518467003	A. Samatha	BSC (MSCS)	A. Samatha
46.	108518467004	A. Mamatha	B. SC[MSCS]	A. Mamatha
47.	108518467005	A. Maheshwari	B.S.C (MSCS)	A. Maheshwari
48.	108518467006	A. Deepika	Bsc [MSCS]	A. Deepika
49.	108518467007	Anju Kumary	BSC (MSCS)	Anju Kumary
50.	108518467008	Annyanalu Nikitha	BSC (MSCS)	A. Nikitha
51	108518467041	ch Anusha	BSC (MSCS)	ch Anusha
52	108518467040	C. Sravani	Bsc (MSCS)	C. Sravani
53.	108518467016	B. Navya	BSC (MSCS)	B. Navya
54.	108518467015	B. Mounika	Bsc [MSCS]	B. Mounika
55.	108518467014	B. Pooja	Bsc [MSCS]	B. Pooja
56	108518467039	Ch. Mounika	BSC (MSCS)	Ch. Mounika
57.	108518467013	B. Sravani	BSC [MSCS]	B. Sravani
58.	108518467037	ch. Geetha Rani	Bsc (MSCS)	ch. Geetha Rani
59	108518467012	Badikolu Vineetha	B.Sc[MSCS]	Badikolu

S.No	Roll No	Name	Course	Signature
60	108518467011	A. Sree Navya	BSC (MSCS)	A. Sree Navya
61	108518467010	Arshiya Begum	BSc (MSCS)	Arshiya
62	108518467007	A. Devamani	BS (MSCS)	A. Devamani
63	108518467018	B. Pallavi	BSc (MSCS)	B. Pallavi
64	108518467019	B. Sindhuja	BSC (MSCS)	B. Sindhuja
65	108518467020	B. Sirisha	BSc (MSCS)	B. Sirisha
66	108518467021	B. Jyothi	BSC (MSCS)	B. Jyothi
67	108518467022	Bhavani Madas	BSc (MSCS)	Bhavani
68	108518467023	Bhutharaju Bhavani	BSc (MSCS)	Bhavani
69	108518467024	B. Indira	BSc (MSCS)	Indira
70	108518467025	B. Renuka	BSc (MSCS)	B. Renuka
71	108518467027	B. Sirisha	BSC (MSCS)	B. Sirisha
72	108518467028	B. Harichandana	BSc (MSCS)	B. Harichandana
73	108518467029	B. Lavanya	BSc (MSCS)	B. Lavanya
74	108518467030	B. Pavithra	BSc (MSCS)	B. Pavithra
75	108518467031	B. Sandhya	BSC (MSCS)	B. Sandhya
76	108518467032	Bushra Begum	BSc (MSCS)	Bushra Begum
77	108518467033	C. Lavanya	BSC (MSCS)	C. Lavanya

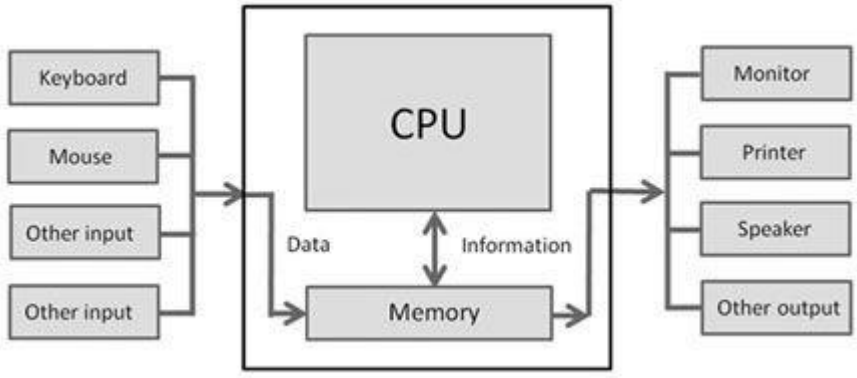
GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET - HYDERABAD
DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
BRIDGE COURSE FOR THE YEAR 2019 – 2020

Bridge Course was organized by the Department of Computers for all the first year students of BA,B.COM,B.Sc . Computer faculty have explained computer basics and provided the material for all the students .

1.Computer : Computer is an electronic device that is designed to work with Information. *The term computer is derived from the Latin term* '**computare**', this means to *calculate* or *programmable machine*. **Computer can not do anything without a Program**.

Charles Babbage is called the " Father" of the computer. The First mechanical computer designed by Charles Babbage was called **Analytical Engine.** It uses read-only memory in the form of punch cards.

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) and gives the result (output) and saves output for the future use. It can process both numerical and non-numerical (arithmetic and logical) calculations.



Digital Computer Definition

The basic components of a modern digital computer are: Input Device, Output Device, Central Processor Unit (CPU), mass storage device and memory. A Typical modern computer uses LSI Chips. Four Functions about computer are:

accepts data	Input
processes data	Processing
produces output	Output
stores results	Storage

Input (Data):

Input is the raw information entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

Process:

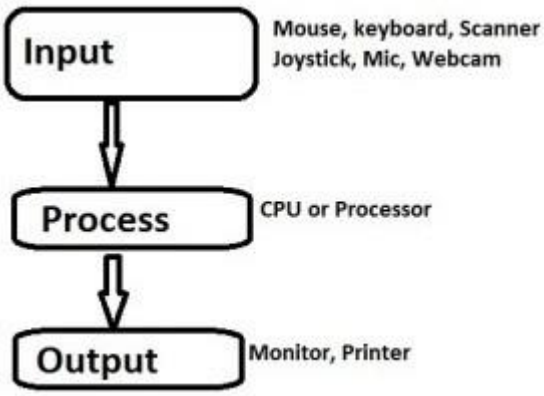
Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output:

Output is the processed data given by computer after data processing. Output is also called as Result. We can save these results in the storage devices for the future use.

Block Diagram of Computer and its Various Components

Computer – The word "computer "comes from the word "compute "which means to calculate. So a computer is normally considered to be a calculating device that performs arithmetic operations at enormous speed. A computer is an electronic device which is used to perform operation on raw data as per instruction given by user.



Various Components of Computer

Computer is an electronic device which performs tasks given by user with extremely fast speed and accuracy. Like any other device or machine, a computer system has also a number of parts. A computer system can be blocked into mainly three parts:

1. Input Unit
2. Central Processing Unit
3. Output Unit

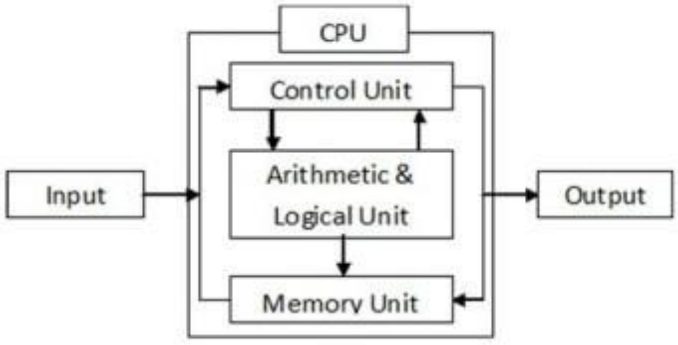


Fig. Block Diagram of Computer

1. Input unit – Input unit is a unit that accepts any input device. The input device is used to input data into the computer system.
Function of input unit:

1. It converts inputted data into binary codes.
2. It sends data to main memory of computer .

2. Central Processing Unit (CUP) – CPU is called the brain of a computer. An electronic circuitry that carries out the instruction given by a computer program. CPU can be sub classified into three parts.

i .Control unit (CU)

ii. Arithmetic & Logic unit (ALU)

iii.Memory Unit (MU)

i. Control unit (CU)- the control unit manages the various components of the computer. It reads instructions from memory and interpretation and changes in a series of signals to activate other parts of the computer. It controls and co-ordinate is input output memory and all other units.
ii. Arithmetic & Logic unit (ALU) – The arithmetic logic unit (ALU), which performs simple arithmetic operation such as +,-, *, / and logical operation such as >, <, =<, <= etc.
iii. Memory Unit (MU)- Memory is used to store data and instructions before and after processing. Memory is also called Primary memory or internal memory. It is used to store data temporary or permanently.
Function of CPU-

1. It controls all the parts and software and data flow of computer.
2. It performs all operations.
3. It accepts data from input device.
4. It sends information to output device.

5. Executing programs stored in memory
6. It stores data either temporarily or permanent basis.
7. It performs arithmetical and logical operations.

3. Output Unit –Output unit is a unit that constituents a number of output device. An output device is used to show the result of processing.
Function of Output unit:

1. it accepts data or information sends from main memory of computer
2. It converts binary coded information into HLL or inputted languages.

2.Characteristics of Computers:

Basic characteristics about computer are:

1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete.

Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: - It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.

5. Power of Remembering: - Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.

6. No IQ: - Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.

7. No Feeling: - It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.

8. Storage: - The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

4.Applications of computers

Education : .Research shows that computers can significantly enhance performance in learning. Students exposed to the internet say they think the web has helped them improve the quality of their academic research and of their written work. One revolution in education is the advent of distance learning. This offers a variety of internet and video-based online courses.

Health and Medicine :

Computer technology is radically changing the tools of medicine. All medical information can now be digitized. Software is now able to computer the risk of a disease. Mental health researchers are using computers to screen troubled teenagers in need of psychotherapy. A patient paralyzed by a stroke has received an implant that allows communication between his brain and a computer; as a result, he can move a cursor across a screen by brainpower and convey simple messages.

Science :

Scientists have long been users of it. A new adventure among scientists is the idea of a "collaboratory", an internet based collaborative laboratory, in which researchers all over the world can work easily together even at a distance. An example is space physics where space physicists are allowed to band together to measure the earth's ionosphere from instruments on four parts of the world.

Business :

Business clearly see the interest as a way to enhance productivity and competitiveness. Some areas of business that are undergoing rapid changes are sales and marketing, retailing, banking, stock trading, etc. Sales representatives not

only need to be better educated and more knowledgeable about their customer's businesses, but also must be comfortable with computer technology. The internet has become a popular marketing tool. The world of cybercash has come to banking – not only smart cards but internet banking, electronic deposit, bill paying, online stock and bond trading, etc.

Recreation and Entertainment:

Our entertainment and pleasure-time have also been affected by computerization. For example:

• In movies, computer generated graphics give freedom to designers so that special effects and even imaginary characters can play a part in making movies, videos, and commercials.

• In sports, computers compile statistics, sell tickets, create training programs and diets for athletes, and suggest game plan strategies based on the competitor's past performance.

• In restaurants, almost every one has eaten food where the clerk enters an order by indicating choices on a rather unusual looking cash register; the device directly enters the actual data into a computer, and calculates the cost and then prints a receipt.

Government:

Various departments of the Government use computer for their planning, control and law enforcement activities. To name a few – Traffic, Tourism, Information & Broadcasting, Education, Aviation and many others.

Defence:

There are many uses computers in Defence such as:

• Controlling UAV or unmanned air-crafts an example is Predator. If you have cable I would recommend watching the shows "Future Weapons" and "Modern Marvels". The show future weapon gives an entire hour to the predator.

• They are also used on Intercontinental Ballistic Missiles (ICBMs) that uses GPS and Computers to help the missile get to the target.

• Computers are used to track incoming missiles and help slew weapons systems onto the incoming target to destroy them.

• Computers are used in helping the military find out where all their assets are (Situational Awareness) and in Communications/Battle Management Systems.

• Computers are used in the logistic and ordering functions of getting equipments to and around the battlefield.
• Computers are used in tanks and planes and ships to target enemy forces, help run the platform and more recently to help diagnose any problems with the platforms.
• Computers help design and test new systems.

Sports:

In today's technologically growing society, computers are being used in nearly every activity.

Recording Information

Official statistics keepers and some scouts use computers to record statistics, take notes and chat online while attending and working at a sports event.

Analyzing Movements

The best athletes pay close attention to detail. Computers can slow recorded video and allow people to study their specific movements to try to improve their tendencies and repair poor habits.

Writers

Many sportswriters attend several sporting events a week, and they take their computers with them to write during the game or shortly after while their thoughts are fresh in their mind.

Scoreboard

While some scoreboards are manually updated, most professional sports venues have very modern scoreboards that are programmed to update statistics and information immediately after the information is entered into the computer.

Safety

Computers have aided in the design of safety equipment in sports such as football helmets to shoes to mouth guards

5.Limitation or Drawback of Computer

1. **No I.Q. :** Computer is not a magical device. It performs only those works which man can does but the main difference is that computer can work those operations with very high speed and reliable accuracy. It has no any intelligence quality or thinking power

2. **No Feeling:** Because computer is only a machine, it has no feeling like human being. It has no brain for thinking as man can does. Man had successes to make computer memory be different inventions of technology but he couldn't make heart.
3. **Data Machine Readable :** Computer data is read by machine, meaning data obtained from the computer can be read by the computer itself.
4. It required power to operate.
5. Problem may occur due to system breakdown.

INPUT DEVICES

Following are some of the important input devices which are used in a computer −

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

Keyboard is the most common and very popular input device which helps to input data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

The keys on the keyboard are as follows −

S.No	Keys & Description
1	**Typing Keys** These keys include the letter keys (A-Z) and digit keys (09) which generally give the same layout as that of typewriters.
2	**Numeric Keypad** It is used to enter the numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machines and calculators.
3	**Function Keys** The twelve function keys are present on the keyboard which are arranged in a row at the top of the keyboard. Each function key has a unique meaning and is used for some specific purpose.
4	**Control keys** These keys provide cursor and screen control. It includes four directional arrow keys. Control keys also include Home, End, Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).

5	**Special Purpose Keys** Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse

Mouse is the most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base, which senses the movement of the mouse and sends corresponding signals to the CPU when the mouse buttons are pressed.

Generally, it has two buttons called the left and the right button and a wheel is present between the buttons. A mouse can be used to control the position of the cursor on the screen, but it cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of the keyboard.

Joystick

Joystick is also a pointing device, which is used to move the cursor position on a monitor screen. It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket. The joystick can be moved in all four directions.

The function of the joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

Light pen is a pointing device similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.

When the tip of a light pen is moved over the monitor screen and the pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball

Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on the ball, the pointer can be moved.

Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button, or a square.

Scanner

Scanner is an input device, which works more like a photocopy machine. It is used when some information is available on paper and it is to be transferred to the hard disk of the computer for further manipulation.

Scanner captures images from the source which are then converted into a digital form that can be stored on the disk. These images can be edited before they are printed.

Digitizer

Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Microphone

Microphone is an input device to input sound that is then stored in a digital form.

The microphone is used for various applications such as adding sound to a multimedia presentation or for mixing music.

Magnetic Ink Card Reader (MICR)

MICR input device is generally used in banks as there are large number of cheques to be processed every day. The bank's code number and cheque number

are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.

This reading process is called Magnetic Ink Character Recognition (MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader (OCR)

OCR is an input device used to read a printed text.

OCR scans the text optically, character by character, converts them into a machine readable code, and stores the text on the system memory.

Bar Code Readers

Bar Code Reader is a device used for reading bar coded data (data in the form of light and dark lines). Bar coded data is generally used in labelling goods,

numbering the books, etc. It may be a handheld scanner or may be embedded in a stationary scanner.

Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

Optical Mark Reader (OMR)

OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked.

It is specially used for checking the answer sheets of examinations having multiple choice questions.

What is an Operating system

The Operating System is a program with the following features −

- An operating system is a program that acts as an interface between the software and the computer hardware.
- It is an integrated set of specialized programs used to manage overall resources and operations of the computer.

- It is a specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

wop51EF.tmpoleObject0.bin

Objectives of Operating System

The objectives of the operating system are −

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

Characteristics of Operating System

Here is a list of some of the most prominent characteristic features of Operating Systems

- **Memory Management** − Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** − Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** − Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** − Allocates and de-allocates the resources and decides who gets the resources.
- **Security** − Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** − Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** − Records delays between the request for a service and from the system.
- **Interaction with the Operators** − Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** − Production of dumps, traces, error messages, and other debugging and error-detecting methods.
- **Coordination Between Other Software and Users** − Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

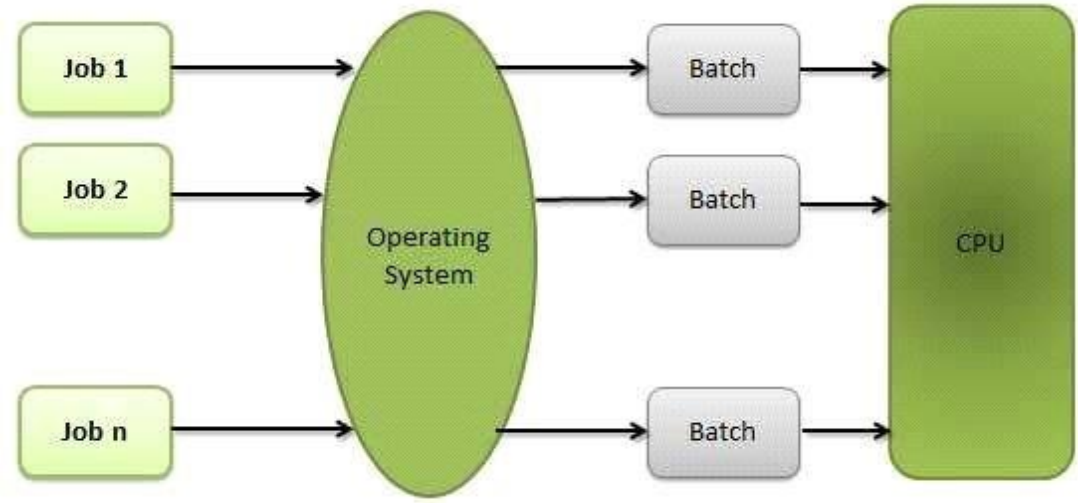
Operating system types

Following are some of the most widely used types of Operating system.

Batch processing

Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. An operating system does the following activities related to batch processing −

- The OS defines a job which has predefined sequence of commands, programs and data as a single unit.
- The OS keeps a number a jobs in memory and executes them without any manual information.
- Jobs are processed in the order of submission, i.e., first come first served fashion.
- When a job completes its execution, its memory is released and the output for the job gets copied into an output spool for later printing or processing.



Advantages

- Batch processing takes much of the work of the operator to the computer.
- Increased performance as a new job get started as soon as the previous job is finished, without any manual intervention.

Disadvantages

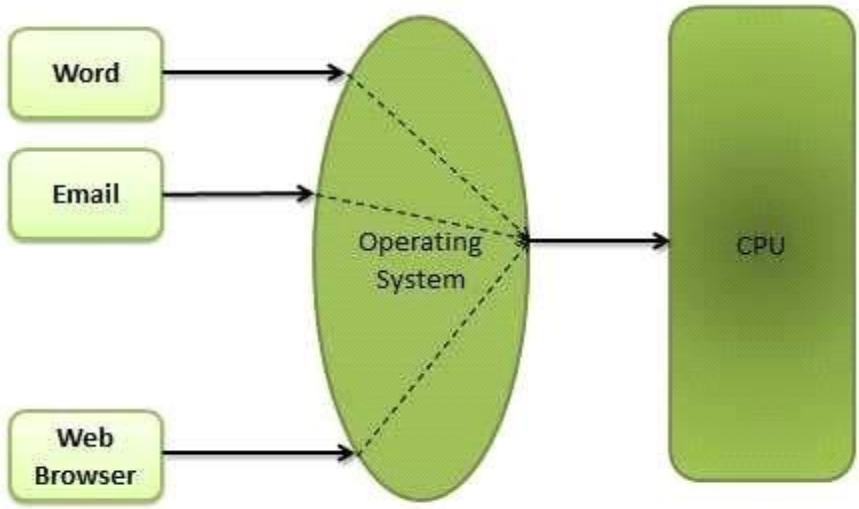
- Difficult to debug program.
- A job could enter an infinite loop.
- Due to lack of protection scheme, one batch job can affect pending jobs.

2.Multitasking

Multitasking is when multiple jobs are executed by the CPU simultaneously by switching between them. Switches occur so frequently that the users may interact with each program while it is running. An OS does the following activities related to multitasking −

- The user gives instructions to the operating system or to a program directly, and receives an immediate response.
- The OS handles multitasking in the way that it can handle multiple operations/executes multiple programs at a time.

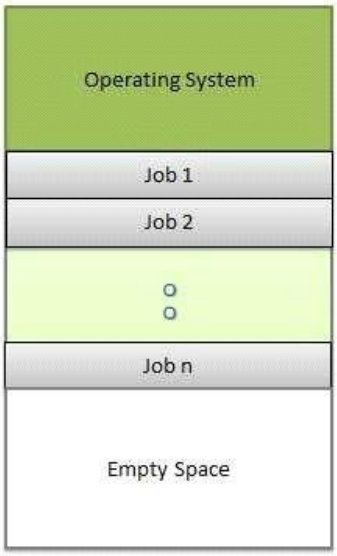
- Multitasking Operating Systems are also known as Time-sharing systems.
- These Operating Systems were developed to provide interactive use of a computer system at a reasonable cost.
- A program that is loaded into memory and is executing is commonly referred to as a **process**.
- When a process executes, it typically executes for only a very short time before it either finishes or needs to perform I/O.



3.<u>Multiprogramming</u>

Sharing the processor, when two or more programs reside in memory at the same time, is referred as **multiprogramming**. Multiprogramming assumes a single shared processor. Multiprogramming increases CPU utilization by organizing jobs so that the CPU always has one to execute.

The following figure shows the memory layout for a multiprogramming system.



Advantages

- High and efficient CPU utilization.

- User feels that many programs are allotted CPU almost simultaneously.

Disadvantages

- CPU scheduling is required.
- To accommodate many jobs in memory, memory management is required.

4. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.

wopADEF.tmpoleObject4.bin

Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

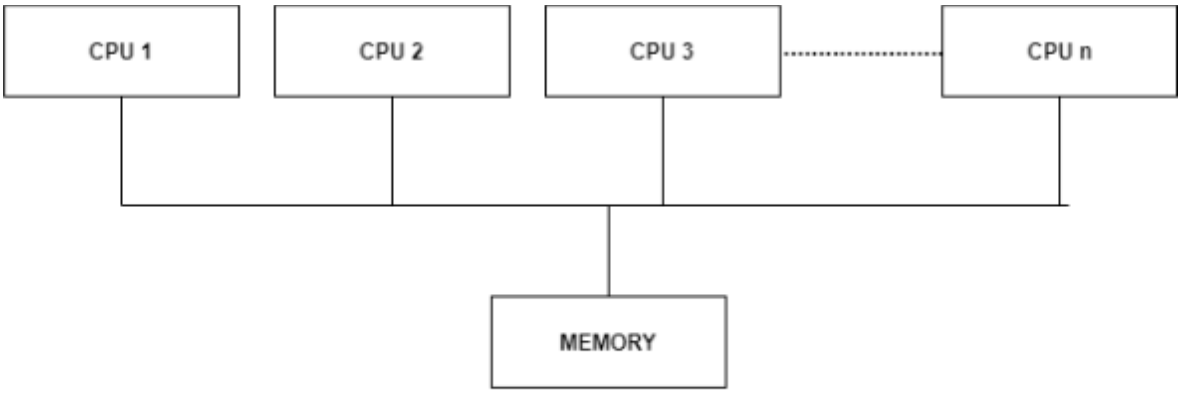
Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

Multiprocessing operating system

computer systems are single processor systems i.e they only have one processor. However, multiprocessor or parallel systems are increasing in importance nowadays. These systems have multiple processors working in parallel that share the computer clock, memory, bus, peripheral devices etc. An image demonstrating the multiprocessor architecture is:



Multiprocessing Architecture

Types of Multiprocessors

There are mainly two types of multiprocessors i.e. symmetric and asymmetric multiprocessors. Details about them are as follows:

Symmetric Multiprocessors

In these types of systems, each processor contains a similar copy of the operating system and they all communicate with each other. All the processors are in a peer to peer relationship i.e. no master - slave relationship exists between them.

An example of the symmetric multiprocessing system is the Encore version of Unix for the Multimax Computer.

Asymmetric Multiprocessors

In asymmetric systems, each processor is given a predefined task. There is a master processor that gives instruction to all the other processors. Asymmetric multiprocessor system contains a master slave relationship.

Asymmetric multiprocessor was the only type of multiprocessor available before symmetric multiprocessors were created. Now also, this is the cheaper option.

Advantages of Multiprocessor Systems

There are multiple advantages to multiprocessor systems. Some of these are:

- More reliable Systems
- Enhanced Throughput
- More Economic Systems

Disadvantages of Multiprocessor Systems

There are some disadvantages as well to multiprocessor systems. Some of these are:

- Increased Expense
- Complicated Operating System Required
- Large Main Memory Required

INTERNET

- Internet is a global network of inter-connected computers, where one computer can be connected to any other computer (or computerized device) in any portion of the world.

- Internet uses various internet protocol technologies. The recent introduction of mobile internet have been equally successful.
- Internet surfing is very easy. Internet is available in all major villages, towns, cities of almost every country. It is possible to surf through Internet with the help of internet browsers such as Windows explorer, Google chrome, etc.
- The organization that provides the Internet service to end-users are known as an Internet Services Providers (ISP). The major internet companies of India are BSNL, Vodafone, Airtel, Idea, and Aircel.

Uses of Internet

Large volume of Information: Internet can be used to collect information from around the world. This information could relate to education, medicine, literature, software, computers, business, entertainment, friendship, tourism, and leisure.

News and Journals: All the newspapers, magazines and journals of the world are available on the Internet. With the introduction of broadband and advanced mobile telecommunication technologies such as 3G (third generation) and 4G (fourth generation), the speed of internet service has increased tremendously. A person can get the latest news about the world in a matter of few seconds.

Electronic Mode of Communication: Internet has given the most exciting mode of communication to all. We can send an E-mail (the short form of Electronic Mailing System) to all the corners of the world.

Chatting: There are many chatting software that can be used to send and receive real-time messages over the internet. We can chat with our friend and relatives using any one of the chatting software.

Online Banking (Net-Banking): The use of internet can also be seen in the field of banking transactions. Many banks such as HSBC, SBI, Axis Bank, Hdfc Bank, etc. offers online banking facilities to its customers. They can transfer funds from one account to another using the net-banking facility.

E-commerce: Internet is also used for carrying out business operations and that set of operations is known as Electronic Commerce (E-commerce). Flipkart is the largest e-commerce company in India. The rival, Amazon, is giving stiff competition to Flipkart.

NETWORK

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data. An excellent example of a network is the Internet, which connects millions of people all over the world. To the right is an example image of a home network with multiple computers and other network devices all connected.

Examples of network devices

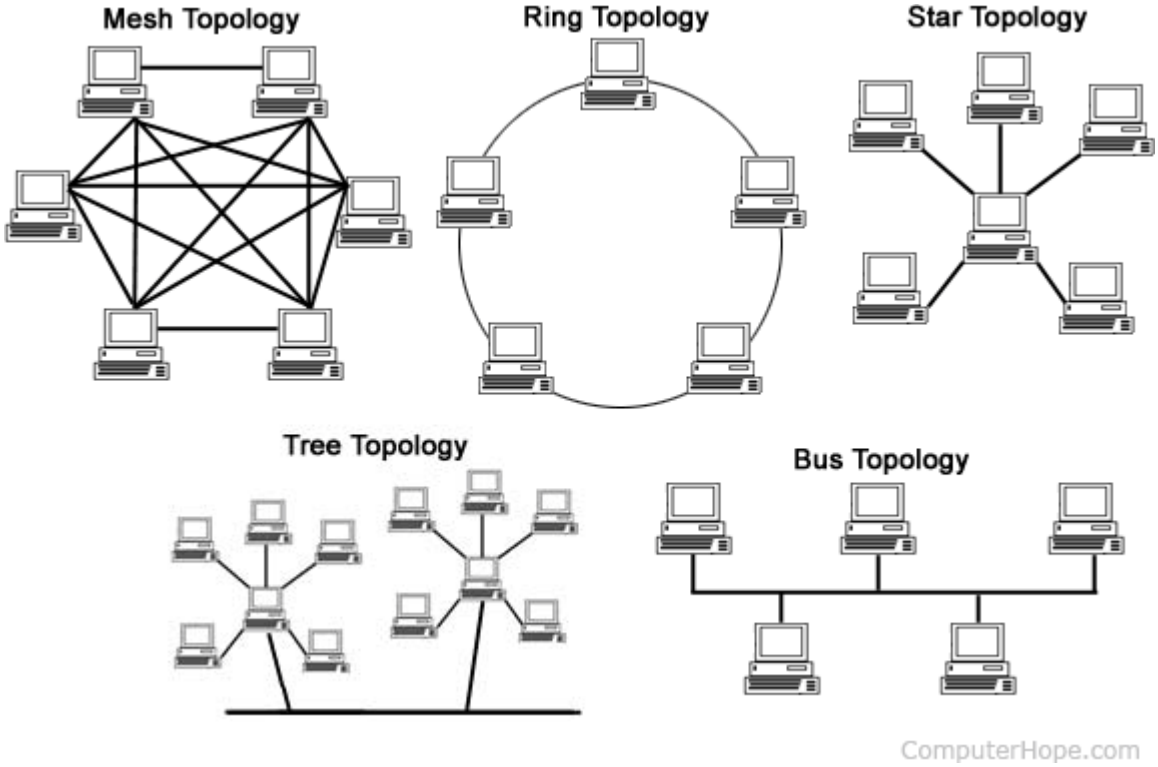
- Desktop computers, laptops, mainframes, and servers.
- Consoles and thin clients.
- Firewalls
- Bridges
- Repeaters

- Network Interface cards
- Switches, hubs, modems, and routers.
- Smartphones and tablets.
- Webcams

Network topologies and types of networks

The term network topology describes the relationship of connected devices in terms of a geometric graph. Devices are represented as vertices, and their connections are represented as edges on the graph. It describes how many connections each device has, in what order, and it what sort of hierarchy.

Typical network configurations include the bus topology, mesh topology, ring topology, star topology, tree topology and hybrid topology.



Most home networks are configured in a tree topology that is connected to the Internet. Corporate networks often use tree topologies, but they also often incorporate star topologies, and an Intranet.

BROWSER

web browser or Internet browser, a browser is a software program to present and explore content on the World Wide Web. These pieces of content, including pictures, videos, and web pages, are connected using hyperlinks and classified with URIs (Uniform Resource Identifiers). This page is an example of a web page that can be viewed using a browser.

There have been many different web browsers that have come and gone over the years. The first, named WorldWideWeb (later changed to Nexus), was invented by Tim Berners-Lee in 1990. However, the first graphical browser and widely used browser that help bring popularity to the Internet was NCSA Mosaic.

List of current Internet browsers

- Google Chrome
- Microsoft Edge
- Microsoft Internet Explorer
- Mozilla Firefox
- Opera
- Apple Safari
- Amazon Silk

Microsoft Excel

Microsoft Excel is a spreadsheet program that is used to record and analyse numerical data. Think of a spreadsheet as a collection of columns and rows that form a table. Alphabetical letters are usually assigned to columns and numbers are usually assigned to rows. The point where a column and a row meet is called a cell. The address of a cell is given by the letter representing the column and the number representing a row.

Features of Microsoft Excel

1. Add Header and Footer

MS Excel allows us to keep the header and footer in our spreadsheet document.

2. Find and Replace Command

MS Excel allows us to find the needed data (text and numbers) in the workbook and also replace the existing data with a new one.

3. Password Protection

It allows the user to protect their workbooks by using a password from unauthorized access to their information.

4. Data Filtering

Filtering is a quick and easy way to find and work with a subset of data in a range. A filtered range displays only the rows that meet the criteria you specify for a column. MS Excel provides two commands for filtering ranges:

- AutoFilter; which includes filter by selection, for simple criteria
- Advanced Filter; for more complex criteria

5. Data Sorting

Data sorting is the process of arranging data in some logical order. MS Excel allows us to sort data either in ascending or descending order.

6. Built-in formulae

MS Excel has got many built-in formulae for sum, average, minimum, etc. We can use those formulae as per our needs.

7. Create different charts (Pivot Table Report)

MS Excel allows us to create different charts such as bar graph, pie- charts, line graphs, etc. This helps us to analyze and compare data very easily.

8. Automatically edits the result

MS Excel automatically edits the result if any changes are made in any of the cells.

FUNCTIONS:

1 Count and Sum: The most used functions in Excel are the functions that count and sum. You can count and sum based on one criteria or multiple criteria.

2 Logical: Learn how to use Excel's logical functions, such as IF, AND, OR and NOT.

3 Cell References: Cell references in Excel are very important. Understand the difference between relative, absolute and mixed reference, and you are on your way to success.

4 Date & Time: To enter a date in Excel, use the "/" or "-" characters. To enter a time, use the ":" (colon).
5 Text: Excel has many functions to offer when it comes to manipulating text strings.
6 Lookup & Reference: Learn all about Excel's lookup & reference functions, such as VLOOKUP, HLOOKUP, MATCH, INDEX and CHOOSE.
7 Financial: This chapter illustrates Excel's most popular financial functions.
8 Statistical: An overview of some very useful statistical functions in Excel.
9 Round: This chapter illustrates three functions to round numbers in Excel. ROUND, ROUNDUP and ROUNDDOWN.
10 Formula Errors: This chapter teaches you how to deal with some common formula errors in Excel.
11 Array Formulas: This chapter helps you understand array formulas in Excel. Single cell array formulas perform multiple calculations in one cell.

Computer Fundamentals

U.D Academic year 2019-20

S.NO	Roll NO	Name	Course	Signature
1.	108518468167	U. Shireesha	BSC [M.P.Cs]	U. Shireesha
2.	108518468126	P. Rameshwari	B.Sc(MPCs)	P. Rameshwari
3.	108518468127	L. Priyanka	B.Sc [MPCs]	L. Priyanka
4.	108518468165	T. Srija	B.SC[MPCs)	T. Srija
5	108518468166	T. Usha Rani	B.SC[MPCs]	T. Usha Rani
6.	108518468128	P. Preethi	B.Sc [MPCs]	Preethi Patel
7.	108518468168	U. Akhila	B.SC [MPCs]	U. Akhila
8	108518468129	P. Vinitha	B.Sc (MPCs)	P. Vinitha
9.	108518468130	P. Vijayalaxmi	Bsc(MPCs)	P. Vijayalaxmi
10.	10.8518468169	U. priyanka	B.SC[MPCs]	Priya
11.	108518468170	V. Vennela	B.Sc (MPCs)	V. Vennela
12.	108518468132	R. Anusha	Bsc (MPCs)	R. Anusha
13.	108518468133	Rabila Begum	Bsc (MPCs)	
14.	108518468171	V. Divyasri	Bsc [MPCs]	Divya
15.	108518468172	V. Sneha	BSC(MPCs)	V. Sneha
16.	108518468134	R. Dillamma	B.Sc [MPCs]	R. Dillamma
17.	108518468143	S. Mounika	BSC (MPCs]	S. Mounika
18.	108518468142	S. Suraksha	Bsc [MPCs]	S. Suraksha
19.	108518468141	S. Rama Mounika	BSC (MPC's)	Rama Mounika
20.	108518468140	S. Namratha	Bsc (MPCs)	Namratha
21	108518468138	R. Sarala	Bsc (MPCs)	R. Sarala
22.	108518468137	Rizwana Begum	BSC (MPCs)	Rizwana Begum
23	108518468136	R. Ruchitha	Bsc (MPCs)	R. Ruchitha
24	108518468135	R. Gouthami	Bsc (MPCs)	R. Gouthami
25.	108517441027	MD. Reshma	BSC(MPC)	Reshma
26.	108518468144	Sana fathima	BSC MPCs	Sana fathima
27.	108518468147	S. Bhavani	BSC (MPCs)	S. Bhavani
28.	108518468146	Saniya Begum	Bsc (MPC's)	Saniya
29	108518468148	SARDHA SREE CHA	BSC (MPCs)	
30	1085-18-468-149	Serikar Savitha	Bsc (MPCs)	
31	1085-18-468-150	S. Radha	BSC(MPCs)	
32	1085-18-468-151	S. Smitha	BSC (MPCs)	S. Smitha

NO	Roll NO	Name	Course	Signature
33	1085-18-468-152	S. Akhila	B.Sc (MPCs) III 3rd year	
34.	1085-18-468-162	T. pranitha	B.Sc (MPCs) III yr	
35.	1085-18-468-161	T. Vandana	B.Sc (MPCs) III 3rd yr	T. Vandana
36.	1085-18-468-160	T. Devika	B.Sc (MPCs) III Year	T. Devika
37	1085-18-468-159	T. Nagalakshmi	B.Sc (MPCs) III year	T. Nagalakshmi
38	1085-18-468-158	S. Divya	B.Sc [MPCs] III Year	
39	1085-18-468-157	S. Madhavi	B.Sc (MPCs) III year	S. Madhavi
40	1085-18-468-156	S. Pranitha	B.Sc [MPCs] III Year	S. Pranitha
41	1085-18-468-155	S. Kavya	Bsc [MPCs] III year	S. Kavya
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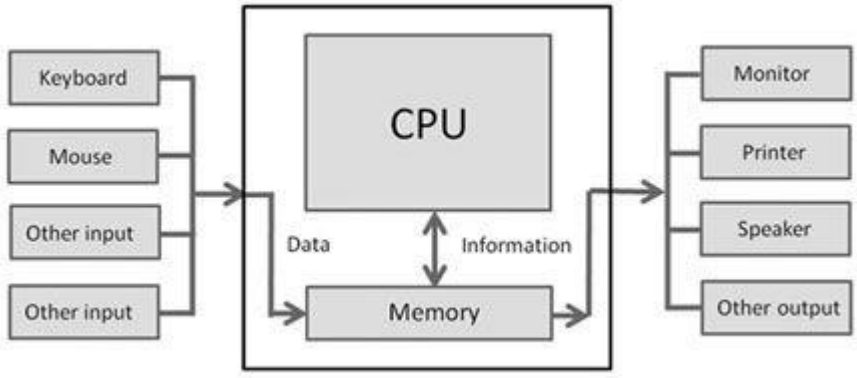
GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET - HYDERABAD
DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
BRIDGE COURSE FOR THE YEAR 2020 – 2021

Bridge Course was organized by the Department of Computers for all the first year students of BA,B.COM,B.Sc . Computer faculty have explained computer basics and provided the material for all the students .

1.Computer : Computer is an electronic device that is designed to work with Information. *The term computer is derived from the Latin term* '**computare**', this means to *calculate* or *programmable machine*. **Computer can not do anything without a Program**.

Charles Babbage is called the " Father" of the computer. The First mechanical computer designed by Charles Babbage was called **Analytical Engine.** It uses read-only memory in the form of punch cards.

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) and gives the result (output) and saves output for the future use. It can process both numerical and non-numerical (arithmetic and logical) calculations.



Digital Computer Definition

The basic components of a modern digital computer are: Input Device, Output Device, Central Processor Unit (CPU), mass storage device and memory. A Typical modern computer uses LSI Chips. Four Functions about computer are:

accepts data	Input
processes data	Processing
produces output	Output
stores results	Storage

Input (Data):

Input is the raw information entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

Process:

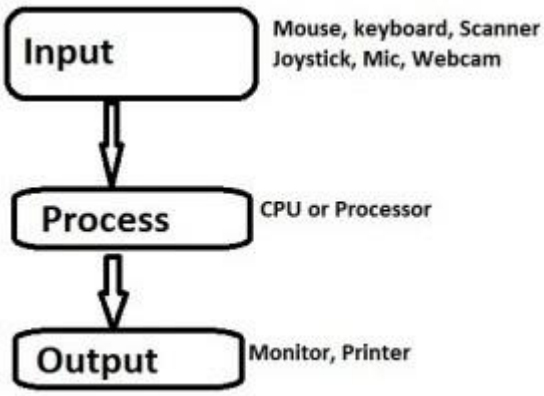
Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output:

Output is the processed data given by computer after data processing. Output is also called as Result. We can save these results in the storage devices for the future use.

Block Diagram of Computer and its Various Components

Computer – The word "computer "comes from the word "compute "which means to calculate. So a computer is normally considered to be a calculating device that performs arithmetic operations at enormous speed. A computer is an electronic device which is used to perform operation on raw data as per instruction given by user.



Various Components of Computer

Computer is an electronic device which performs tasks given by user with extremely fast speed and accuracy. Like any other device or machine, a computer system has also a number of parts. A computer system can be blocked into mainly three parts:

1. Input Unit
2. Central Processing Unit
3. Output Unit

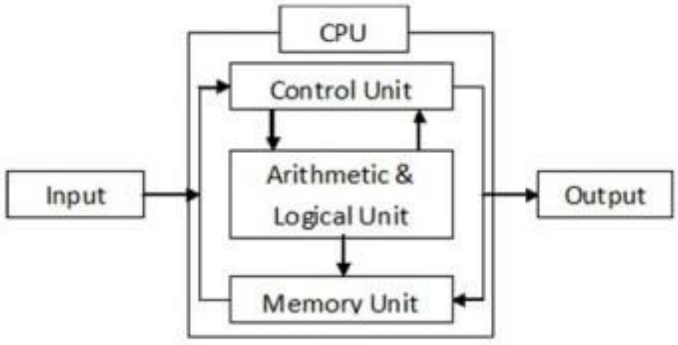


Fig. Block Diagram of Computer

1. Input unit – Input unit is a unit that accepts any input device. The input device is used to input data into the computer system.
Function of input unit:

1. It converts inputted data into binary codes.
2. It sends data to main memory of computer .

2. Central Processing Unit (CUP) – CPU is called the brain of a computer. An electronic circuitry that carries out the instruction given by a computer program. CPU can be sub classified into three parts.

i .Control unit (CU)

ii. Arithmetic & Logic unit (ALU)

iii.Memory Unit (MU)

i. Control unit (CU)- the control unit manages the various components of the computer. It reads instructions from memory and interpretation and changes in a series of signals to activate other parts of the computer. It controls and co-ordinate is input output memory and all other units.
ii. Arithmetic & Logic unit (ALU) – The arithmetic logic unit (ALU), which performs simple arithmetic operation such as +,-, *, / and logical operation such as >, <, =<, <= etc.
iii. Memory Unit (MU)- Memory is used to store data and instructions before and after processing. Memory is also called Primary memory or internal memory. It is used to store data temporary or permanently.
Function of CPU-

1. It controls all the parts and software and data flow of computer.
2. It performs all operations.
3. It accepts data from input device.
4. It sends information to output device.

5. Executing programs stored in memory
6. It stores data either temporarily or permanent basis.
7. It performs arithmetical and logical operations.

3. Output Unit –Output unit is a unit that constituents a number of output device. An output device is used to show the result of processing.
Function of Output unit:

1. it accepts data or information sends from main memory of computer
2. It converts binary coded information into HLL or inputted languages.

2.Characteristics of Computers:

Basic characteristics about computer are:

1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete.

Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.

2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: - It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.

5. Power of Remembering: - Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.

6. No IQ: - Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.

7. No Feeling: - It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.

8. Storage: - The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

4.Applications of computers

Education : .Research shows that computers can significantly enhance performance in learning. Students exposed to the internet say they think the web has helped them improve the quality of their academic research and of their written work. One revolution in education is the advent of distance learning. This offers a variety of internet and video-based online courses.

Health and Medicine :

Computer technology is radically changing the tools of medicine. All medical information can now be digitized. Software is now able to computer the risk of a disease. Mental health researchers are using computers to screen troubled teenagers in need of psychotherapy. A patient paralyzed by a stroke has received an implant that allows communication between his brain and a computer; as a result, he can move a cursor across a screen by brainpower and convey simple messages.

Science :

Scientists have long been users of it. A new adventure among scientists is the idea of a "collaboratory", an internet based collaborative laboratory, in which researchers all over the world can work easily together even at a distance. An example is space physics where space physicists are allowed to band together to measure the earth's ionosphere from instruments on four parts of the world.

Business :

Business clearly see the interest as a way to enhance productivity and competitiveness. Some areas of business that are undergoing rapid changes are sales and marketing, retailing, banking, stock trading, etc. Sales representatives not

only need to be better educated and more knowledgeable about their customer's businesses, but also must be comfortable with computer technology. The internet has become a popular marketing tool. The world of cybercash has come to banking – not only smart cards but internet banking, electronic deposit, bill paying, online stock and bond trading, etc.

Recreation and Entertainment:

Our entertainment and pleasure-time have also been affected by computerization. For example:

• In movies, computer generated graphics give freedom to designers so that special effects and even imaginary characters can play a part in making movies, videos, and commercials.

• In sports, computers compile statistics, sell tickets, create training programs and diets for athletes, and suggest game plan strategies based on the competitor's past performance.

• In restaurants, almost every one has eaten food where the clerk enters an order by indicating choices on a rather unusual looking cash register; the device directly enters the actual data into a computer, and calculates the cost and then prints a receipt.

Government:

Various departments of the Government use computer for their planning, control and law enforcement activities. To name a few – Traffic, Tourism, Information & Broadcasting, Education, Aviation and many others.

Defence:

There are many uses computers in Defence such as:

• Controlling UAV or unmanned air-crafts an example is Predator. If you have cable I would recommend watching the shows "Future Weapons" and "Modern Marvels". The show future weapon gives an entire hour to the predator.

• They are also used on Intercontinental Ballistic Missiles (ICBMs) that uses GPS and Computers to help the missile get to the target.

• Computers are used to track incoming missiles and help slew weapons systems onto the incoming target to destroy them.

• Computers are used in helping the military find out where all their assets are (Situational Awareness) and in Communications/Battle Management Systems.

• Computers are used in the logistic and ordering functions of getting equipments to and around the battlefield.
• Computers are used in tanks and planes and ships to target enemy forces, help run the platform and more recently to help diagnose any problems with the platforms.
• Computers help design and test new systems.

Sports:

In today's technologically growing society, computers are being used in nearly every activity.

Recording Information

Official statistics keepers and some scouts use computers to record statistics, take notes and chat online while attending and working at a sports event.

Analyzing Movements

The best athletes pay close attention to detail. Computers can slow recorded video and allow people to study their specific movements to try to improve their tendencies and repair poor habits.

Writers

Many sportswriters attend several sporting events a week, and they take their computers with them to write during the game or shortly after while their thoughts are fresh in their mind.

Scoreboard

While some scoreboards are manually updated, most professional sports venues have very modern scoreboards that are programmed to update statistics and information immediately after the information is entered into the computer.

Safety

Computers have aided in the design of safety equipment in sports such as football helmets to shoes to mouth guards

5.Limitation or Drawback of Computer

1. **No I.Q. :** Computer is not a magical device. It performs only those works which man can does but the main difference is that computer can work those operations with very high speed and reliable accuracy. It has no any intelligence quality or thinking power

2. **No Feeling:** Because computer is only a machine, it has no feeling like human being. It has no brain for thinking as man can does. Man had successes to make computer memory be different inventions of technology but he couldn't make heart.
3. **Data Machine Readable :** Computer data is read by machine, meaning data obtained from the computer can be read by the computer itself.
4. It required power to operate.
5. Problem may occur due to system breakdown.

INPUT DEVICES

Following are some of the important input devices which are used in a computer −

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

Keyboard is the most common and very popular input device which helps to input data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

The keys on the keyboard are as follows −

S.No	Keys & Description
1	**Typing Keys** These keys include the letter keys (A-Z) and digit keys (09) which generally give the same layout as that of typewriters.
2	**Numeric Keypad** It is used to enter the numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machines and calculators.
3	**Function Keys** The twelve function keys are present on the keyboard which are arranged in a row at the top of the keyboard. Each function key has a unique meaning and is used for some specific purpose.
4	**Control keys** These keys provide cursor and screen control. It includes four directional arrow keys. Control keys also include Home, End, Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).

5	**Special Purpose Keys** Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse

Mouse is the most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base, which senses the movement of the mouse and sends corresponding signals to the CPU when the mouse buttons are pressed.

Generally, it has two buttons called the left and the right button and a wheel is present between the buttons. A mouse can be used to control the position of the cursor on the screen, but it cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of the keyboard.

Joystick

Joystick is also a pointing device, which is used to move the cursor position on a monitor screen. It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket. The joystick can be moved in all four directions.

The function of the joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

Light pen is a pointing device similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.

When the tip of a light pen is moved over the monitor screen and the pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball

Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on the ball, the pointer can be moved.

Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button, or a square.

Scanner

Scanner is an input device, which works more like a photocopy machine. It is used when some information is available on paper and it is to be transferred to the hard disk of the computer for further manipulation.

Scanner captures images from the source which are then converted into a digital form that can be stored on the disk. These images can be edited before they are printed.

Digitizer

Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Microphone

Microphone is an input device to input sound that is then stored in a digital form.

The microphone is used for various applications such as adding sound to a multimedia presentation or for mixing music.

Magnetic Ink Card Reader (MICR)

MICR input device is generally used in banks as there are large number of cheques to be processed every day. The bank's code number and cheque number

are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.

This reading process is called Magnetic Ink Character Recognition (MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader (OCR)

OCR is an input device used to read a printed text.

OCR scans the text optically, character by character, converts them into a machine readable code, and stores the text on the system memory.

Bar Code Readers

Bar Code Reader is a device used for reading bar coded data (data in the form of light and dark lines). Bar coded data is generally used in labelling goods,

numbering the books, etc. It may be a handheld scanner or may be embedded in a stationary scanner.

Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

Optical Mark Reader (OMR)

OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked.

It is specially used for checking the answer sheets of examinations having multiple choice questions.

What is an Operating system

The Operating System is a program with the following features −

- An operating system is a program that acts as an interface between the software and the computer hardware.
- It is an integrated set of specialized programs used to manage overall resources and operations of the computer.

- It is a specialized software that controls and monitors the execution of all other programs that reside in the computer, including application programs and other system software.

wop51EF.tmpoleObject0.bin

Objectives of Operating System

The objectives of the operating system are −

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

Characteristics of Operating System

Here is a list of some of the most prominent characteristic features of Operating Systems

- **Memory Management** − Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** − Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** − Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** − Allocates and de-allocates the resources and decides who gets the resources.
- **Security** − Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** − Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** − Records delays between the request for a service and from the system.
- **Interaction with the Operators** − Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** − Production of dumps, traces, error messages, and other debugging and error-detecting methods.
- **Coordination Between Other Software and Users** − Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

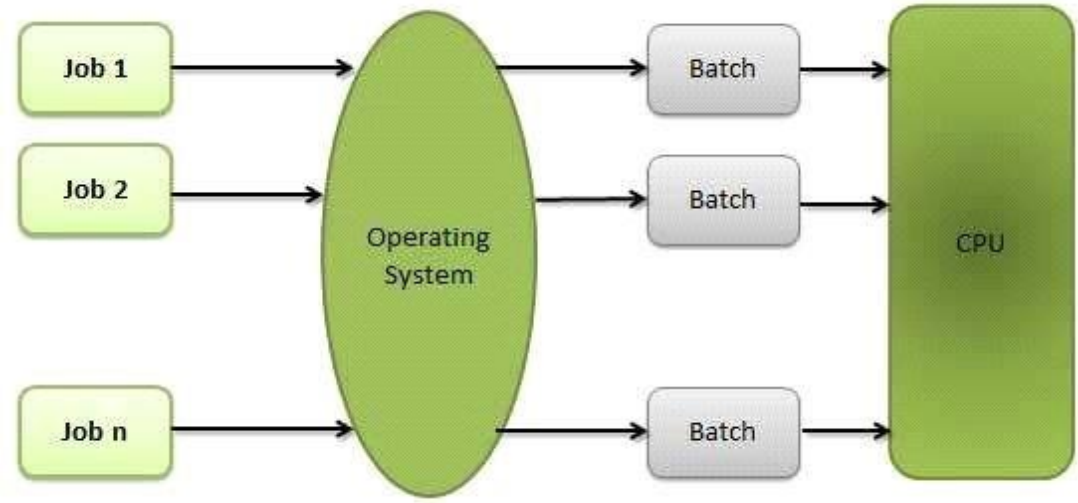
Operating system types

Following are some of the most widely used types of Operating system.

Batch processing

Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. An operating system does the following activities related to batch processing −

- The OS defines a job which has predefined sequence of commands, programs and data as a single unit.
- The OS keeps a number a jobs in memory and executes them without any manual information.
- Jobs are processed in the order of submission, i.e., first come first served fashion.
- When a job completes its execution, its memory is released and the output for the job gets copied into an output spool for later printing or processing.



Advantages

- Batch processing takes much of the work of the operator to the computer.
- Increased performance as a new job get started as soon as the previous job is finished, without any manual intervention.

Disadvantages

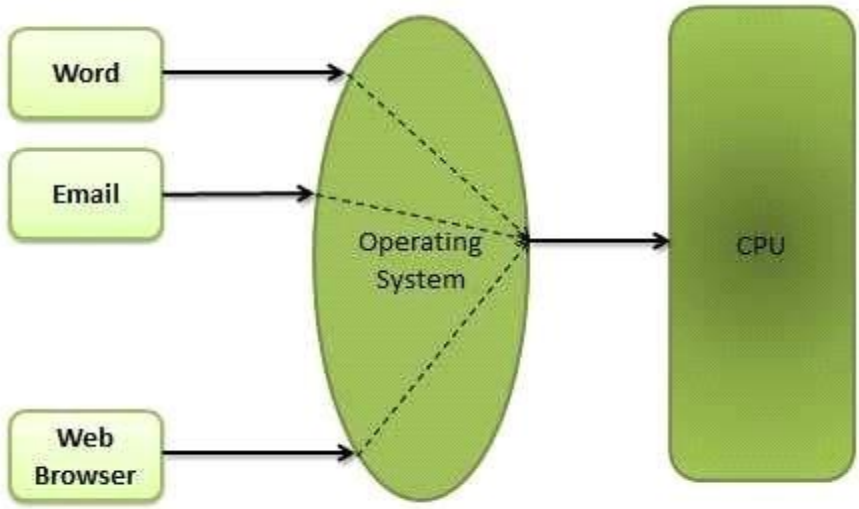
- Difficult to debug program.
- A job could enter an infinite loop.
- Due to lack of protection scheme, one batch job can affect pending jobs.

2.Multitasking

Multitasking is when multiple jobs are executed by the CPU simultaneously by switching between them. Switches occur so frequently that the users may interact with each program while it is running. An OS does the following activities related to multitasking −

- The user gives instructions to the operating system or to a program directly, and receives an immediate response.
- The OS handles multitasking in the way that it can handle multiple operations/executes multiple programs at a time.

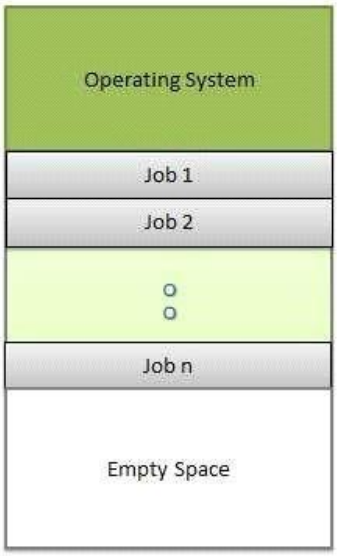
- Multitasking Operating Systems are also known as Time-sharing systems.
- These Operating Systems were developed to provide interactive use of a computer system at a reasonable cost.
- A program that is loaded into memory and is executing is commonly referred to as a **process**.
- When a process executes, it typically executes for only a very short time before it either finishes or needs to perform I/O.



3.<u>Multiprogramming</u>

Sharing the processor, when two or more programs reside in memory at the same time, is referred as **multiprogramming**. Multiprogramming assumes a single shared processor. Multiprogramming increases CPU utilization by organizing jobs so that the CPU always has one to execute.

The following figure shows the memory layout for a multiprogramming system.



Advantages

- High and efficient CPU utilization.

- User feels that many programs are allotted CPU almost simultaneously.

Disadvantages

- CPU scheduling is required.
- To accommodate many jobs in memory, memory management is required.

4. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.

wopADEF.tmpoleObject4.bin

Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

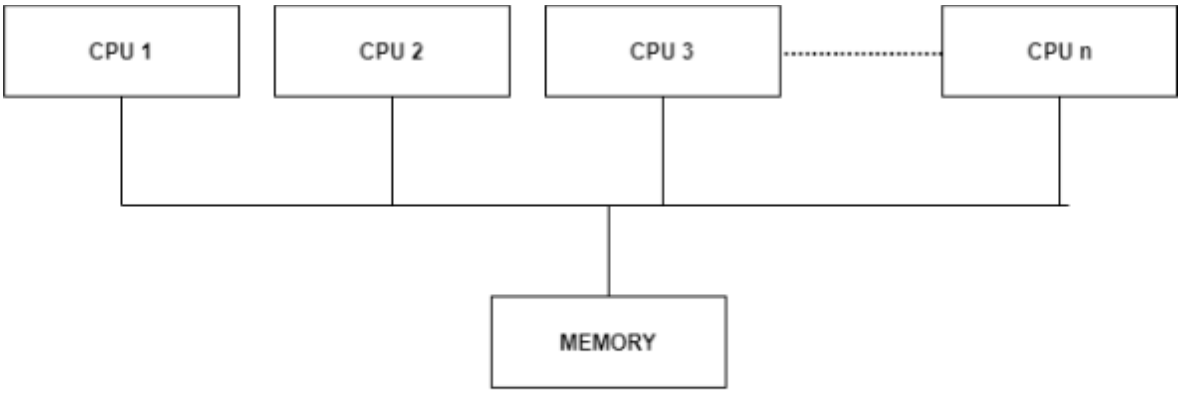
Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

Multiprocessing operating system

computer systems are single processor systems i.e they only have one processor. However, multiprocessor or parallel systems are increasing in importance nowadays. These systems have multiple processors working in parallel that share the computer clock, memory, bus, peripheral devices etc. An image demonstrating the multiprocessor architecture is:



Multiprocessing Architecture

Types of Multiprocessors

There are mainly two types of multiprocessors i.e. symmetric and asymmetric multiprocessors. Details about them are as follows:

Symmetric Multiprocessors

In these types of systems, each processor contains a similar copy of the operating system and they all communicate with each other. All the processors are in a peer to peer relationship i.e. no master - slave relationship exists between them.

An example of the symmetric multiprocessing system is the Encore version of Unix for the Multimax Computer.

Asymmetric Multiprocessors

In asymmetric systems, each processor is given a predefined task. There is a master processor that gives instruction to all the other processors. Asymmetric multiprocessor system contains a master slave relationship.

Asymmetric multiprocessor was the only type of multiprocessor available before symmetric multiprocessors were created. Now also, this is the cheaper option.

Advantages of Multiprocessor Systems

There are multiple advantages to multiprocessor systems. Some of these are:

- More reliable Systems
- Enhanced Throughput
- More Economic Systems

Disadvantages of Multiprocessor Systems

There are some disadvantages as well to multiprocessor systems. Some of these are:

- Increased Expense
- Complicated Operating System Required
- Large Main Memory Required

INTERNET

- Internet is a global network of inter-connected computers, where one computer can be connected to any other computer (or computerized device) in any portion of the world.

- Internet uses various internet protocol technologies. The recent introduction of mobile internet have been equally successful.
- Internet surfing is very easy. Internet is available in all major villages, towns, cities of almost every country. It is possible to surf through Internet with the help of internet browsers such as Windows explorer, Google chrome, etc.
- The organization that provides the Internet service to end-users are known as an Internet Services Providers (ISP). The major internet companies of India are BSNL, Vodafone, Airtel, Idea, and Aircel.

Uses of Internet

Large volume of Information: Internet can be used to collect information from around the world. This information could relate to education, medicine, literature, software, computers, business, entertainment, friendship, tourism, and leisure.

News and Journals: All the newspapers, magazines and journals of the world are available on the Internet. With the introduction of broadband and advanced mobile telecommunication technologies such as 3G (third generation) and 4G (fourth generation), the speed of internet service has increased tremendously. A person can get the latest news about the world in a matter of few seconds.

Electronic Mode of Communication: Internet has given the most exciting mode of communication to all. We can send an E-mail (the short form of Electronic Mailing System) to all the corners of the world.

Chatting: There are many chatting software that can be used to send and receive real-time messages over the internet. We can chat with our friend and relatives using any one of the chatting software.

Online Banking (Net-Banking): The use of internet can also be seen in the field of banking transactions. Many banks such as HSBC, SBI, Axis Bank, Hdfc Bank, etc. offers online banking facilities to its customers. They can transfer funds from one account to another using the net-banking facility.

E-commerce: Internet is also used for carrying out business operations and that set of operations is known as Electronic Commerce (E-commerce). Flipkart is the largest e-commerce company in India. The rival, Amazon, is giving stiff competition to Flipkart.

NETWORK

A network is a collection of computers, servers, mainframes, network devices, peripherals, or other devices connected to one another to allow the sharing of data. An excellent example of a network is the Internet, which connects millions of people all over the world. To the right is an example image of a home network with multiple computers and other network devices all connected.

Examples of network devices

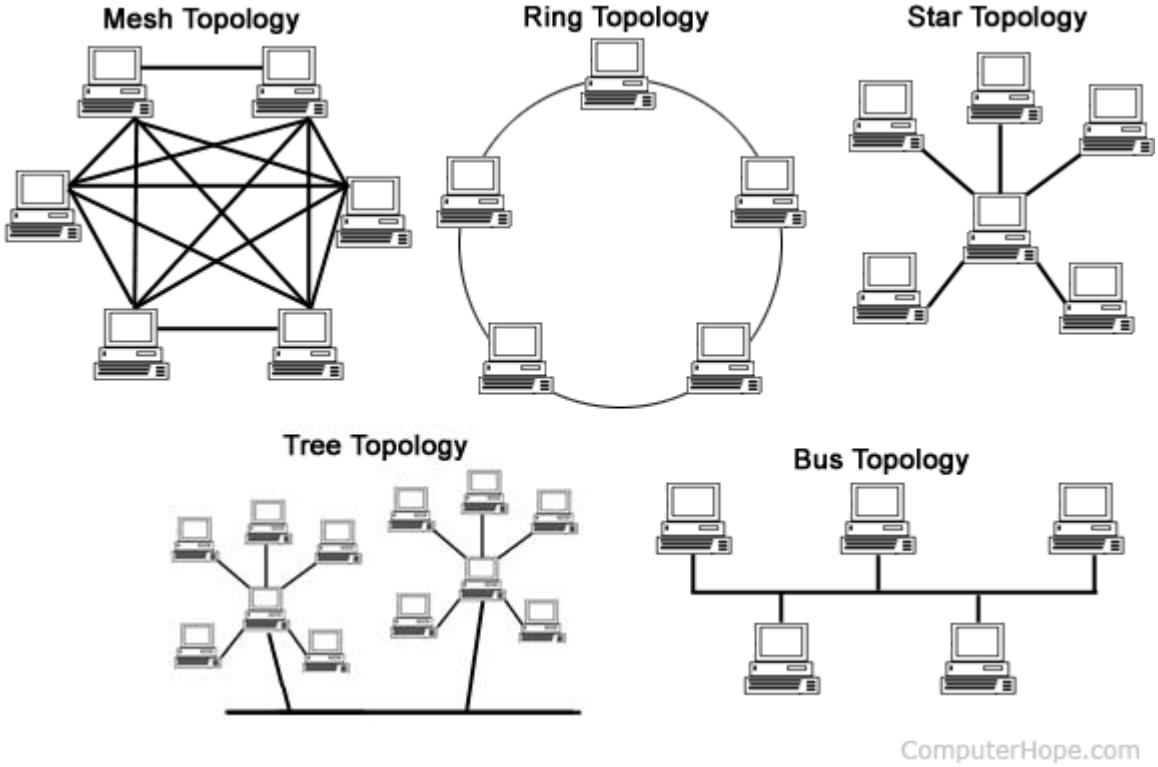
- Desktop computers, laptops, mainframes, and servers.
- Consoles and thin clients.
- Firewalls
- Bridges
- Repeaters

- Network Interface cards
- Switches, hubs, modems, and routers.
- Smartphones and tablets.
- Webcams

Network topologies and types of networks

The term network topology describes the relationship of connected devices in terms of a geometric graph. Devices are represented as vertices, and their connections are represented as edges on the graph. It describes how many connections each device has, in what order, and it what sort of hierarchy.

Typical network configurations include the bus topology, mesh topology, ring topology, star topology, tree topology and hybrid topology.



Most home networks are configured in a tree topology that is connected to the Internet. Corporate networks often use tree topologies, but they also often incorporate star topologies, and an Intranet.

BROWSER

web browser or Internet browser, a browser is a software program to present and explore content on the World Wide Web. These pieces of content, including pictures, videos, and web pages, are connected using hyperlinks and classified with URIs (Uniform Resource Identifiers). This page is an example of a web page that can be viewed using a browser.

There have been many different web browsers that have come and gone over the years. The first, named WorldWideWeb (later changed to Nexus), was invented by Tim Berners-Lee in 1990. However, the first graphical browser and widely used browser that help bring popularity to the Internet was NCSA Mosaic.

List of current Internet browsers

- Google Chrome
- Microsoft Edge
- Microsoft Internet Explorer
- Mozilla Firefox
- Opera
- Apple Safari
- Amazon Silk

Microsoft Excel

Microsoft Excel is a spreadsheet program that is used to record and analyse numerical data. Think of a spreadsheet as a collection of columns and rows that form a table. Alphabetical letters are usually assigned to columns and numbers are usually assigned to rows. The point where a column and a row meet is called a cell. The address of a cell is given by the letter representing the column and the number representing a row.

Features of Microsoft Excel

1. Add Header and Footer

MS Excel allows us to keep the header and footer in our spreadsheet document.

2. Find and Replace Command

MS Excel allows us to find the needed data (text and numbers) in the workbook and also replace the existing data with a new one.

3. Password Protection

It allows the user to protect their workbooks by using a password from unauthorized access to their information.

4. Data Filtering

Filtering is a quick and easy way to find and work with a subset of data in a range. A filtered range displays only the rows that meet the criteria you specify for a column. MS Excel provides two commands for filtering ranges:

- AutoFilter; which includes filter by selection, for simple criteria
- Advanced Filter; for more complex criteria

5. Data Sorting

Data sorting is the process of arranging data in some logical order. MS Excel allows us to sort data either in ascending or descending order.

6. Built-in formulae

MS Excel has got many built-in formulae for sum, average, minimum, etc. We can use those formulae as per our needs.

7. Create different charts (Pivot Table Report)

MS Excel allows us to create different charts such as bar graph, pie- charts, line graphs, etc. This helps us to analyze and compare data very easily.

8. Automatically edits the result

MS Excel automatically edits the result if any changes are made in any of the cells.

FUNCTIONS:

1 Count and Sum: The most used functions in Excel are the functions that count and sum. You can count and sum based on one criteria or multiple criteria.

2 Logical: Learn how to use Excel's logical functions, such as IF, AND, OR and NOT.

3 Cell References: Cell references in Excel are very important. Understand the difference between relative, absolute and mixed reference, and you are on your way to success.

4 Date & Time: To enter a date in Excel, use the "/" or "-" characters. To enter a time, use the ":" (colon).
5 Text: Excel has many functions to offer when it comes to manipulating text strings.
6 Lookup & Reference: Learn all about Excel's lookup & reference functions, such as VLOOKUP, HLOOKUP, MATCH, INDEX and CHOOSE.
7 Financial: This chapter illustrates Excel's most popular financial functions.
8 Statistical: An overview of some very useful statistical functions in Excel.
9 Round: This chapter illustrates three functions to round numbers in Excel. ROUND, ROUNDUP and ROUNDDOWN.
10 Formula Errors: This chapter teaches you how to deal with some common formula errors in Excel.
11 Array Formulas: This chapter helps you understand array formulas in Excel. Single cell array formulas perform multiple calculations in one cell.

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET

DEPARTMENT OF ECONOMICS

BRIDGE COURSE

COURSE STRUCTURE –SESSION-WISE

Sl.No.	Session	Topic
1	Basics of Economics	Meaning, Evolution, Wealth, Welfare and Scarcity Definitions
2	Concepts in Economics	Consumption, Production, Distribution, Exchange
3	Micro and Macro Economics	Micro Economic and Macro Economic Concepts
4	Graphs	Simple Graphs- Demand, Supply, Positive and negative Slope
5	Simple Mathematical Concepts	Equations, Functions, Set Theory and Marginal Concepts
6	Simple Statistical Concepts	Averages, Data, Distribution, Survey and Schedule Method
7	Production	Factors of Production, Entrpreneur, Labour
8	Circular Flow of Economy	Two-sector and Three- Sector
9	Tabular Presentation of Data	Depicting data in Tables
10	Banking	RBI, Commercial Banks, Bank Rate
11	Economic Development	Unemployment, Poverty, Sustainable Development

Department of Political Science

Bridge Course

S.No	Name of the Student	Group in Intermediate.	Signature.
1	V. Neha	BiPc	VN
2	P. Nirmala	MPC	P.
3	P. Mounika	MPC	
4	R. Anjusha	MPC	Anjusha
5	S. Anusha	MPC	
6	Y. Jagrathi	MPC	Jagrathi
7	Sakshi Jain	MEC	Sakshi
8	K. Prasanna	MPC	
9	B. Shalini	BiPc	shalini
10	N. Sai Keerthi	MPC	Sai Keerthi
12	Ch. Sahithya	BiPc	Ch. Sahithya
13	M. Sai Priya	MEC	Msai
14	M. Jayanthi	BiPc	Jayanthi
15	P. Madhavi	MPC	Madhavi
16	V. Archana	BiPc	V. archana
17	G. Sandhya Rani	MPC	Gsandhya
18	G. Sangeetha	MPC	G Sangeetha
19	P. Shilpa	MPC	bindu
20	K. Bindhu Babitha	MPC	
21	Y. Divya Sree	BiPc	divya
22	A. Akhila	BiPc	Soumya
23	J. Soumya	MPC	Soumya Sree
24	B. Soumya Sree	MPC	
25	D. Revathi	MPC	
26	Manju Bhargavi	MEC	T. Sandhya
27	T. Sandhya	MEC	
28	K. Bhargavi	BiPc	G. Soumya
29	G. Soujanya	BiPc	Jareed
30	Malika Jareed	MPC	Ramya
35	Ch. Ramya Sree	BiPc	
32	V. Tejaswini	MPc	Tejaswini

2019-2020.

S.No.	Name of the student	Group in Intermediate	Signature
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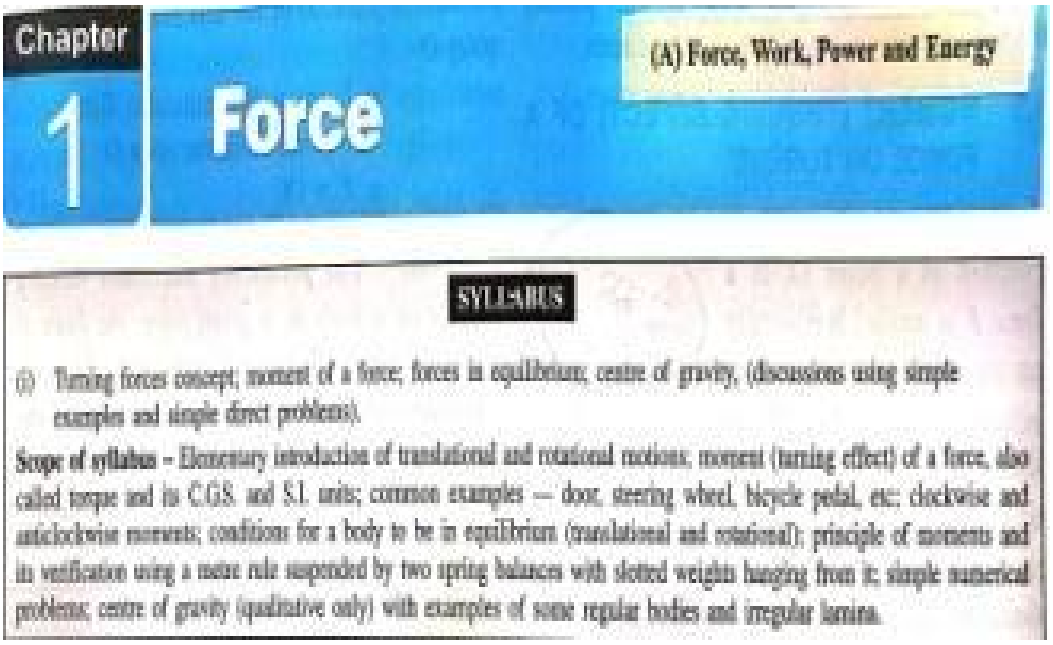
4	Usha Priya	BiPC	Usha
5.	Pragathi	MEC	
6.	P. Devayani	MPC	
7.	A. Swetha	BiPC	Swetha
8.	B. Devi	MPC	
9.	K. Pallavi	BiPC	Pallavi
10.	KM. Vaishnavi	MPC	
11.	B. Devi	MPC	
12	P. Vijayalaxmi	BiPC	PP
13.	P. Prasanna kumari	MPC	
14.	G. Haripriya	MPC	
15	K. Sreekha Reddy	MPC	
16	T. Pravalika	MPC	
17	G. Anusha	BiPC	
18	E. Aruna kumari	BiPC	Aruna
19	Pravalika Mahesh Naik	MEC	
20	K. Shivaleela	MPC	Shivaleela
21	B. Divya	BiPC	
22	P. Navya	BiPC	
23	P. Sowya	MPC	
24	M. Akshaya	MPC	Akshaya
25	Sabiya Begum	BiPC	
26	P. Sandhya Rani	MPC	
27	P. Preethi	MEC	
28	A. Sabitha	Diploma in home science	
29	N. Mamatha	BiPC	
30	B. Rupika	BiPC	
31	T. Deepika	MPC	
32	B. Krishna Tulasi	BiPC	

S.NO.	Group in Intermediate	Group in Intermediate	Signature
33	S. Janani	MPC	S. Janani
34	N. Pooja	MPC	N.Pooja
35	Fairuunnisa Begum	CGT.	Fairuunnisa.

BRIDGECOURSE-REPORT

THE DEPARTMENT OF PHYSICS IS ORGANISING THE BRIDGE COURSE EVERY YEAR FOR FIRST YEAR STUDENTS TO INTRODUCE A BRIDGE COURSE TO FILL THE GAP BETWEEN INTERMEDIATE COURSE AND UNDERGRADUATE COURSE SO THAT STUDENDS GET AWARE ON STANDARD TOPICS IN PHYSICS

The following topics were discussed during Bridge course



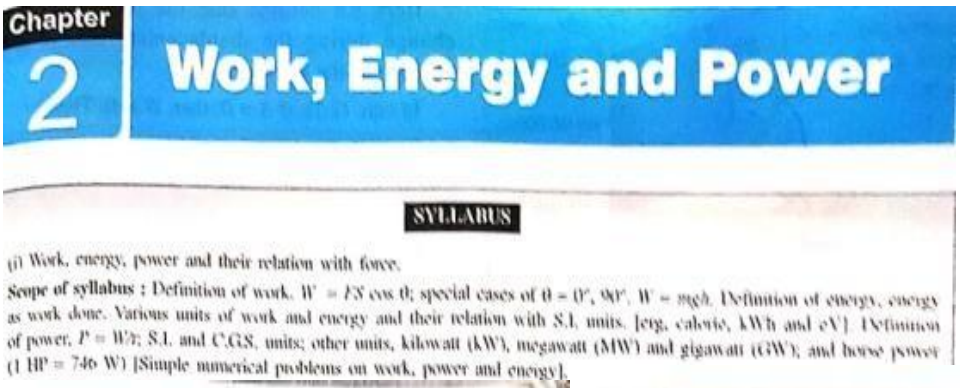
Chapter 1 Force

(A) Force, Work, Power and Energy

SYLLABUS

(i) Turning forces concept; moment of a force; forces in equilibrium; centre of gravity, (discussions using simple examples and simple direct problems).

Scope of syllabus – Elementary introduction of translational and rotational motions; moment (turning effect) of a force, also called torque and its C.G.S. and S.I. units; common examples — door, steering wheel, bicycle pedal, etc; clockwise and anticlockwise moments; conditions for a body to be in equilibrium (translational and rotational); principle of moments and its verification using a meter rule suspended by two spring balances with slotted weights hanging from it; simple numerical problems; centre of gravity (qualitative only) with examples of some regular bodies and irregular lamina.

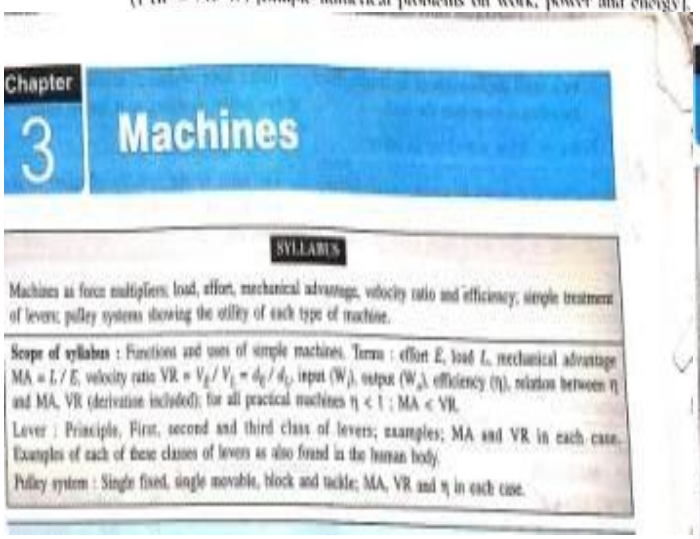


Chapter 2 Work, Energy and Power

SYLLABUS

(i) Work, energy, power and their relation with force.

Scope of syllabus : Definition of work, $W = FS \cos\theta$; special cases of $\theta = 0°, 90°$, $W = mgh$. Definition of energy, energy as work done. Various units of work and energy and their relation with S.I. units. [erg, calorie, kWh and eV]. Definition of power, $P = W/t$; S.I. and C.G.S. units; other units, kilowatt (kW), megawatt (MW) and gigawatt (GW); and horse power (1 HP = 746 W) [Simple numerical problems on work, power and energy].



Chapter 3 Machines

SYLLABUS

Machines as force multipliers; load, effort, mechanical advantage, velocity ratio and efficiency; simple treatment of levers; pulley systems showing the utility of each type of machine.

Scope of syllabus : Functions and uses of simple machines. Terms : effort E, load L, mechanical advantage MA = L/E, velocity ratio VR = $V_E/V_L = d_E/d_L$, input (W_E), output (W_L), efficiency (η), relation between η and MA, VR (derivation included); for all practical machines $\eta < 1$; MA < VR.

Lever : Principle, First, second and third class of levers; examples; MA and VR in each case. Examples of each of these classes of levers as also found in the human body.

Pulley system : Single fixed, single movable, block and tackle; MA, VR and η in each case.

Chapter 4 Refraction of Light at Plane Surfaces

(B) Light

SYLLABUS

(i) Refraction of light through a glass block and a triangular prism, qualitative treatment of simple applications such as real and apparent depth of objects in water and apparent bending of sticks in water. Application of refraction of light.

Scope of syllabus : Partial reflection and refraction due to change in medium. Laws of refraction, the effect on speed (V), wavelength (λ) and frequency (f) due to refraction of light, conditions for a light ray to pass undeviated. Values of speed of light (c) in vacuum, air, water and glass; refractive index $\mu = c/V$, $V = f\lambda$. Values of μ for common substances such as water, glass and diamond, experimental verification; refraction through glass block; lateral displacement; multiple images in thick glass plate/mirror; refraction through a glass prism; simple applications; real and apparent depths of object in water; apparent bending of a stick under water. Simple numerical problems and approximate ray diagrams required.

(ii) Total internal reflection; Critical angle; examples in triangular glass prisms; comparison with reflection from a plane mirror (qualitative only). Application of total internal reflection.

Scope of syllabus : Transmission of light from a denser medium (glass/water) to a rarer medium (air) at different angles of incidence; critical angle C, $\mu = 1/\sin C$, essential conditions for total internal reflection. Total internal reflection in a triangular glass prism; ray diagrams, different cases – angles of prism (60°, 90°, 60°), (90°, 30°, 90°), (45°, 45°, 90°); use of right angle prism to obtain $\delta = 90°$ and 180° (ray diagram); comparison of total internal reflection from a prism and reflection from a plane mirror.

Chapter 5

Refraction Through A Lens

SYLLABUS

Lenses (converging and diverging) including characteristics of the images formed (using ray diagrams only) magnifying glass, location of images using ray diagrams and thereby determining magnification.

Scope of syllabus : Types of lenses (converging and diverging), convex and concave action of a lens as a set prism, technical terms : centre of curvature, radius of curvature, principal axis, foci, focal plane and focal leng detailed study of refraction of light in spherical lenses through ray diagrams, formation of images – princip rays or construction rays, location of images from ray diagrams for various positions of a small linear object the principal axis, characteristics of images, sign convention and direct numerical problems using the lens form are included (derivation of formula not required). **Scale drawing or graphical representation of ray diagra not required.**

Power of a lens (concave and convex), simple direct numerical problems. Magnifying glass or simple microsco location of image and magnification from ray diagram only (formula and numerical problems not included Applications of lenses.

Chapter 6

Spectrum

SYLLABUS

Using a triangular prism to produce a visible spectrum from white light; Electromagnetic spectrum. Scattering of light.

Scope of syllabus : Deviation produced by a triangular prism; dependence on colour (wavelength) of light; dispersion and spectrum; electromagnetic spectrum; broad classification (names only arranged in order of increasing wavelength); properties common to all electromagnetic radiations; properties and uses of infrared and ultraviolet radiations. Simple application of scattering of light e.g. blue colour of the sky.

Chapter 7

Sound

(C) Sound

SYLLABUS

(i) Reflection of sound waves; echoes, their use; simple numerical problems on echoes.

Scope of syllabus : Production of echoes, condition for formation of echoes; simple numerical problems; use of echoes by bats, dolphins, fishermen, medical field. SONAR.

(ii) Natural vibrations, damped vibrations, forced vibration and resonance — a special case of forced vibrations.

Scope of syllabus : Meaning and simple applications of natural, damped, forced vibrations and resonance.

(iii) Loudness, pitch and quality of sound.

Scope of syllabus : Characteristics of sound; loudness and intensity; subjective and objective nature of these properties; sound level in dB (as unit only); noise pollution; inter dependence of pitch and frequency, quality and waveforms (with examples).

Chapter 8

Current Electricity

(D) Electricity and Magnetism

SYLLABUS

(i) Ohm's law, concepts of e.m.f., potential difference, resistance; resistances in series and parallel; internal resistance.

Scope of syllabus : Concepts of p.d. (V), current (I) and resistance (R) and charge (Q). Ohm's law; statement, $V = IR$; SI units; experimental verification; graph of V vs I and resistance from slope; ohmic and non-ohmic resistors, factors affecting resistance (including specific resistance) and internal resistance, super conductors, electromotive force (e.m.f.); combination of resistances in series and parallel and derivations of expressions for equivalent resistance. Simple numerical problems using the above relations. (Simple network of resistors).

(ii) Electrical power and energy.

Scope of syllabus : Electrical energy; examples of heater, motor, lamp, loudspeaker *etc.*, electrical power, measurement of electrical energy; $W = QV = VIt$ from the definition of p.d., Combining with Ohm's law $W = VIt = I^2Rt = (V^2/R)t$ and electrical power $P = (W/t) = VI = I^2R = V^2/R$, Units : S.I. and commercial; power rating of common appliances, household consumption of electric energy; calculation of total energy consumed by electrical appliances; $W = Pt$ (kilowatt × hour = kWh), (simple numerical problems).

Chapter 9

Household Circuits

SYLLABUS

Household circuits - main circuit; switches, fuses, earthing, safety precautions, three pin plugs, colour coding of wires.

Scope of syllabus : House wiring (ring system), power distribution; main circuit (3 wires – live, neutral, earth) with fuse/MCB, main switch and its advantages, circuit diagram, two-way switch, staircase wiring, need for earthing, fuse, 3-pin plug and socket, conventional location of live, neutral and earth points in 3-pin plugs and sockets; safety precautions, colour coding of wires.

(A) TRANSMISSION OF POWER AND HOUSE WIRING

Chapter 10

Electro-magnetism

SYLLABUS

Magnetic effect of current (principles only, laws not required); Electromagnetic induction (elementary); transformer.

Scope of syllabus : Oersted's experiment on the magnetic effect of electric current; magnetic field (B) and field lines due to current in a straight wire (qualitative only), right hand rule; magnetic field due to a current in a loop; electromagnets, their uses; comparison with a permanent magnet; Fleming's left hand rule, the dc electric motor — simple sketch of main parts (coil, magnet, split ring commutator and brushes); brief description and type of energy transfer (working not required); simple introduction to electromagnetic induction, frequency of a.c. in household supplies, ac generator — simple sketch of main parts, brief description and type of energy transfer (working not required); advantage of a.c. over d.c.; transformer — its types, charactertics of primary and secondary coils in each type (simple labelled diagram and its uses).

Chapter 11

Calorimetry

(E) Heat

SYLLABUS

(i) Calorimetry : Meaning, Specific heat capacities, Principle of method of mixture, Numerical problems on specific heat capacity using heat loss and gain and the method of mixtures.

Scope of syllabus : Heat and its units (calorie, joule), temperature and its units (°C, K); Thermal (heat) capacity $C'=Q/\Delta T$. (S.I. unit of C'), Specific heat capacity $c = Q/m\ \Delta T$; (S.I. unit of c), Mutual relations between heat capacity and specific heat capacity, Values of c for some common substances (ice, water and copper). Principle of method of mixtures including mathematical statement. Natural phenomena involving specific heat; consequences of high sp. heat of water. Simple numerical problems.

(ii) Latent heat; loss and gain of heat involving change of state for fusion only.

Scope of syllabus : Change of phase (state); heating curve for water; latent heat; sp latent heat of fusion (S.I. unit). Simple numerical problems. Common physical phenomena involving latent heat of fusion.

Chapter 12

Radioactivity

(F) Modern Physics

SYLLABUS

(i) Radioactivity and changes in the nucleus; background radiation and safety precautions.

Scope of syllabus : Brief introduction (qualitative only) of the nucleus, nuclear structure, atomic number (Z), mass number (A), radioactivity as spontaneous disintegration, α, β and γ - their nature and properties; changes within the nucleus. One example each of α and β decay with equations showing changes in Z and A. Uses of radioactivity - radio isotopes. Harmful effects. Safety precautions. Background radiation.
Radiation : X-rays, radioactive fall out from nuclear plants and other sources.
Nuclear energy : Working on safe disposal of waste. Safety measures to be strictly reinforced.

(ii) Nuclear fission and fusion; basic introduction and equations.