DEPARTMENT OF COMPUTER SCIENCE

STUDENT JIGNASA STUDY PROJECT
ON
"STUDENT RESULT MANAGEMENT"

Submitted By

BANDURU MALLESH	III MPCs
J. MADHUKUMAR	III MPCs
MUNNAWAZ BEGUM	III MPCs
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JADCHERLA-509301

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SUPERVISOR   **HOD**   **PRINCIPAL**

PRINCIPAL
Dr.B.R.R. Government Degree College
Jadcherla

CERTIFICATE

This is to certify that the project work entitled **Dr. BRR Government College Campus, Jadcherla, Mahabubnagar District, Telanagana."** is a bonafide work done by the students **Bandaru Mallesh, J. Madhu kumar, Munnawaz Begum, M Nikitha and Meharuba Begum** of III MPCs (EM)/ III BZCS(EM) under my supervision for the award of Jignasa Project Work on **"STUDENT RESULT MANAGEMENT"** in Computer Science, Department of Computer Science, Dr. BRR Government College, Jadcherla and the work hasn't been submitted to any other College/University either in part nor in full, for the award of any degree.

SUPERVISOR

M RAMAKRISHNA

· **Lect. in Computer Science,**

INCHARGE OF THE DEPARTMENT

DR. K. MANJULA

Asst. Prof. of Physics

DECLARATION

We hereby declare that the project work entitled with **"STUDENT RESULT MANAGEMENT"** is a genuine work done by us under the supervision of **RAMAKRISHNA M**, Lect. In Computer Science, for the Department of Computer Science, Dr. BRR Government College, Jadcherla and it has not been under the submission to any other Institute/University either in part nor in full, for the award of any degree.

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A C K N O W L E D G E M E N T

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I am grateful to my family and friends for their unending support and encouragement . Their understanding, and patience have been a constant source of strength for me.

Government of Telangana
Commissionerate of Collegiate Education

Certificate of Participation

This certificate is awarded to _____ M. Ramakrishna _____

Asst/Assoc. Professor _____ GDC Jadcherla _____

_____ in recognition of his/her participation as

Faculty Supervisor in Jignasa-Student Study Projects-State Level Presentation &

Selection in the subject _____ for the academic year 2022-23.

Academic Guidance Officer

Commissioner of Collegiate Education

1   Introduction:

The impact of computers and internet, on our lives today is probably much more than we really know. Getting information and quickly turning it into a product that consumers want is the essential key to staying in business and all of this is done now-a-days using computers and applications or information systems.

Information systems will continue to change businesses and the way we live. Many corporate leaders are using technology to manage every aspect of their organization, from product creation to customer service. It has brought evolution in almost every field, it changed the ways of teaching, administration of activities such as e-learning, e-library and online portals where teachers and students communicate, and sharing of information has never been better.

Student result declaration and management are amongst the most important activities within a university or any educational institution, since all other activities depend on it. Hence implementing an information system can be declared a significance result.

The main objective of this research is to enhance and automate the management and declaration of students' results using a computerized system.

Problem Definition:

Currently, the process of declaring and managing the students' results at the College Level is performed manually with extensive human intervention. The students' results are generated through a spreadsheet application and then printed on a paper, attached to a wall for declaration and then stored.

Despite having an application that generates the result, it is not very effective as the system consumes a lot of time and human resources in

performing various tasks, it is costly, it lacks data security and efficiency. And at present, the institution needs an advanced and computerized environment. And once implemented, it will minimize all the problems mentioned.

Scope:

The study aims at developing and implementing a web-based student result management system for the , replacing the old manually done paper work and to minimize the security issues and the problems it possesses.

The proposed is a multi-user system, developed using Java programming language with Apache Tomcat Server and Oracle 10g Database support.

The system is confined to and intended for the students. They possess privileges to check their results after he/she is provided with a specific username and password for a secure login. The entire system is managed by a system administrator, who possesses the full control of the system, to read, write and execute the results and to assign privileges to teachers and students. And the teachers have the privilege to assign the students' marks, through which, a result will be generated automatically and each student will have access to their results only, using their respective account.

Research Significance

The computerization of the current system will have an impact on the way the students access their results and, how it is managed and generated by the institution's employees. The system will make the life much easier for the institution as they will be able to store data much better than how they were able to do earlier.

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The students will have a smart management of their results and will be able to keep track of their progress with an ease of access, from anywhere, anytime and any device that has an internet connection, and just by entering their respective credentials provided by the institution. Not only for the students, but for the teachers and the institution's employees managing the system as well. They will be able to keep their data organized and secure.

The system will allow the teachers to grade the students even from home, and then automatically perform the grades calculation, and the students could easily access and print them. This avoids the teachers from doing all the work manually and has a better work quality and management that would reduce time, human effort and errors.

2 Literature Review

Now-a-days people interact directly with technology in fields such as education, government, finance, retail, entertainment, health care, science, travel, publishing, and manufacturing.

Most equip labs and classrooms with laptops or desktops. Some even provide computers or mobile devices to students. Many require students to have a mobile computer or mobile device to access the school's network or Internet wirelessly, or to access digital-only content provided by a textbook publisher.

And educators may use a Course Management System (CMS), sometimes called a Learning Management System (LMS), which is a software that contains tools for class preparation, distribution, and management. For example, through the course management system, students access course materials, grades, assessments, and a variety of collaboration tools.

Many schools offer distance learning classes, where the delivery of education occurs at one place while the learning occurs at other locations. Distance learning courses provide time, distance, and place advantages for students who live far from a campus or work full time.

The LMS is an information system used to track student progress, and manage educational records. Many offer other features, such as online registration, assessment tools, collaborative technologies, and payment processing. They also offer tools for creating or importing content.

The people are so accustomed to social networking and other web applications that it is an easy step to build these tools into an online platform or environment.

And referencing Wundenberg, LMS characterizes a complex, often web based software system which pools multiple task specific subprograms under a shared User Interface (UI).

These subprograms support, for instance:

• Allocation and organization of learning content for different learning scenarios;

• School administration;

• Information management;

• Online school business related communication.

3   Research Methodology

A research methodology is the elaboration of a clear strategy for gathering evidence, including the specific data collection methods to be used, the kinds of evidence to be collected. It is the path to solve a research problem. Hence it must be planned according to the objectives of the study.

Research Design

The research design used in this study is qualitative. Dawson states that, a qualitative research method is a scientific method of observation, used to gather non- numerical data and that enables to conduct in-depth studies about a broad array of topics. They are more common within the field of information science and involve methods such as case studies and surveys.

Data Collection Method

Refers to the methods used to obtain and gather all the required data and information for the execution of the current research. The data was collected using both, by primary data collection methods as well as secondary sources.

Primary data are the original data that has been collected specially for the purpose in mind, and data collected from the original source using one or more of the primary data collection methods such as, interviews, observations, surveys, etc. In the current research most of the information were gathered through primary sources. And the methods that were used to collect the primary data are: on site observation, structured interview and document analysis.

Secondary data is the one that was collected and that has already been analyzed by someone else other than the user. This means that

huge data sets are already out there, either completely unanalyzed or ready to be analyzed in new and creative ways. Furthermore, many of these data sets are inexpensive or freely available to researchers. And for an average scholar, doing secondary research on existing data can be more convenient, much faster, and less expensive than trying to do one's own primary research to collect new data. And the secondary data was collected through: books, thesis and internet or Web.

Data Analysis

The classification and tabulation transform the raw data collected into useful information by organizing and compiling the bits of data into graphically understandable manner, and in the current research, it was done with the help of a UML (Unified Modelling Language) modelling tool, Astah.

System Development

System development is a set of activities used to build an information system. System development activities often are grouped into larger categories called phases. This collection of phases sometimes is called the system development life cycle (SDLC), each system development phase consists of a series of activities.

And in the current research, to develop the Web-Based Student Result Management System, the incremental model was employed, which is now the most common approach for the development of application systems and software products.

Incremental development is based on the idea of developing an initial implementation, getting feedback from users and others, and evolving the software through several versions until the required system has been developed. Rarely a complete problem solution is worked out in advance but it moves toward a solution in a series of steps, backtracking when realized that some mistake has been made. By developing the software incrementally, it is cheaper and easier to make changes in the software as it is being developed.

4   System Analysis

Systems development is mainly done in two phases, namely, system analysis and design. And this chapter focuses on analysing the research data and describing a logical view of the whole process, by modelling the data analysed in the form of diagrams to visualize the design and specifications of the system in an object-oriented manner.

The analysis phase answers the questions of who will use the system, what the system will do, and where and when it will be used. During this phase, the research team investigates any current system(s), identifies opportunities for improvement, anddevelops a concept for the new system.

Referencing Valacich and George (2017), because analysis is a large and involved process, it is divided into two main activities to make the overall process easier to understand:

• Requirements determination: a factfinding activity.

• Requirements structuring: an activity that creates a thorough and clear description of current business operations and new information processing services.

Requirements Determination

The requirements determination turns the very high- level explanation of the business requirements stated in the system request into a moreprecise list of requirements that can be used as inputs to the rest of analysis. And a requirement is simply a statement of what the system must do or what characteristic it must have.

Requirements Structuring

"Organizing, or structuring, system requirements result in diagrams and descriptions (models) that can be analysed to show deficiencies, inefficiencies, missing elements, and illogical components of the current business operation and information systems".

A use case diagram visually representsthe interaction between users and the information system. In a use case diagram, the user becomes an actor, with a specific role that describes how he or she interacts with the system. Systems analysts can draw use case diagrams freehand or use CASE tools that integrate the use cases into the overall system design. An activity diagram resembles a horizontal flowchart that shows the actions and events as they occur. Activity diagrams show the order in which actions take place and identify the outcome. A sequence diagram shows the timing of interactions between objects as they occur. Might be used by systems analysts to show all possible outcomes, or focus on a single scenario. The interaction proceeds from top to bottom along a vertical timeline, while the horizontal arrows represent messages from one object to another.

And the Fig. 1 represents the use case diagram of the system, the Fig. 2, and 3 show the system sequence diagrams of some essential scenarios. We may also need to develop activity diagrams etc.

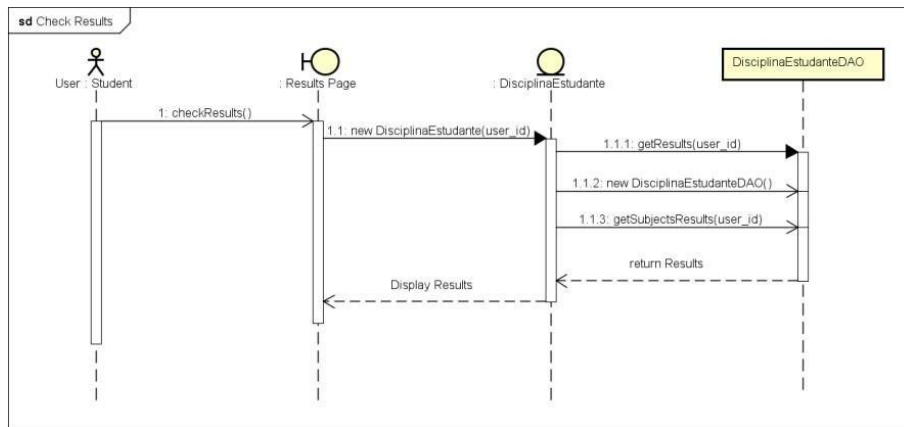*Figure 1: Use Case Diagram*

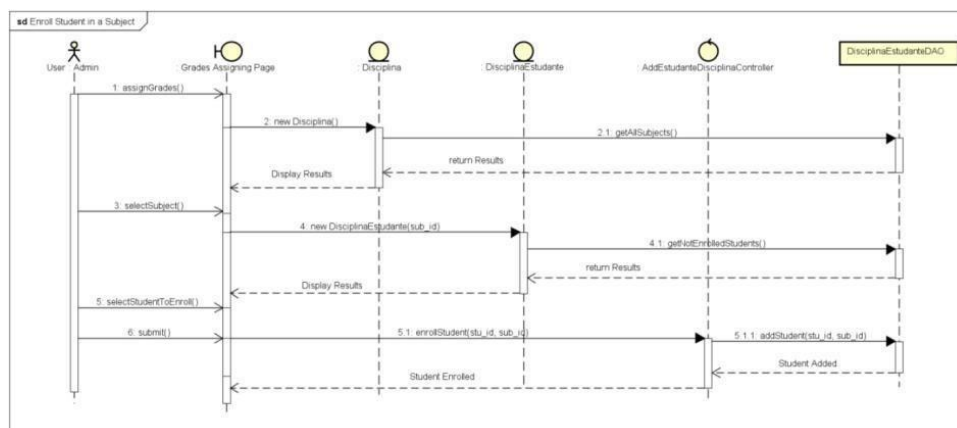*Fig. 2. Sequence Diagram – Check Results*

Fig. 3. Sequence Diagram – Enrolling Students in a Subject

5   System Design

The purpose of the analysis phase is to figure out what the business needs and right after system analysis, started system design whose purpose is to decide how to build the same system. And according to Dennis et al. (2015), system design is the determination of the overall system architecture, consisting of a set of physical processing components, hardware, software, people, and the communication among them, that will satisfy the system's essential requirements. During the initial part of design, the business requirements for the system are converted into system requirements that describe the technical details for building the system.

System Physical Architecture

In a client-server architecture, a program is broken up into two different pieces that typically run on two separate computers. A server does most of the heavy lifting and computation; it provides services to its clients across a high-bandwidth network. Clients, on the other hand, mostly just handle user input, display output, and provide communication to the server (Dooley, 2017).

The current system follows the mentioned client-server model, where the system is deployed in a web server, Apache Tomcat, that provides the services, listens and replies the requests sent by a client from a browser.

Class Diagram

A class diagram shows the static structure of an object-oriented model: the object classes, their internal structure, and the relationships in which they participate (Valacich & George, 2017).

And the Fig. 6, depicts exactly the structure of the system using class diagram.

User Interface

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This phase, generally revolved around creating a friendly user-interface, a platform on which the users could communicate or manage the data and access the information needed. Easy to understand, manageable, reliable, interactive, that establishes a great connection with other layers of the system, manipulating the data without any inner details of it and that performs a certain task accurately.

And the designing of the user-interface involved understanding the task, objectives and experience the target audience possessed. Which was possible through the application of the HTML, CSS and Bootstrap technologies.
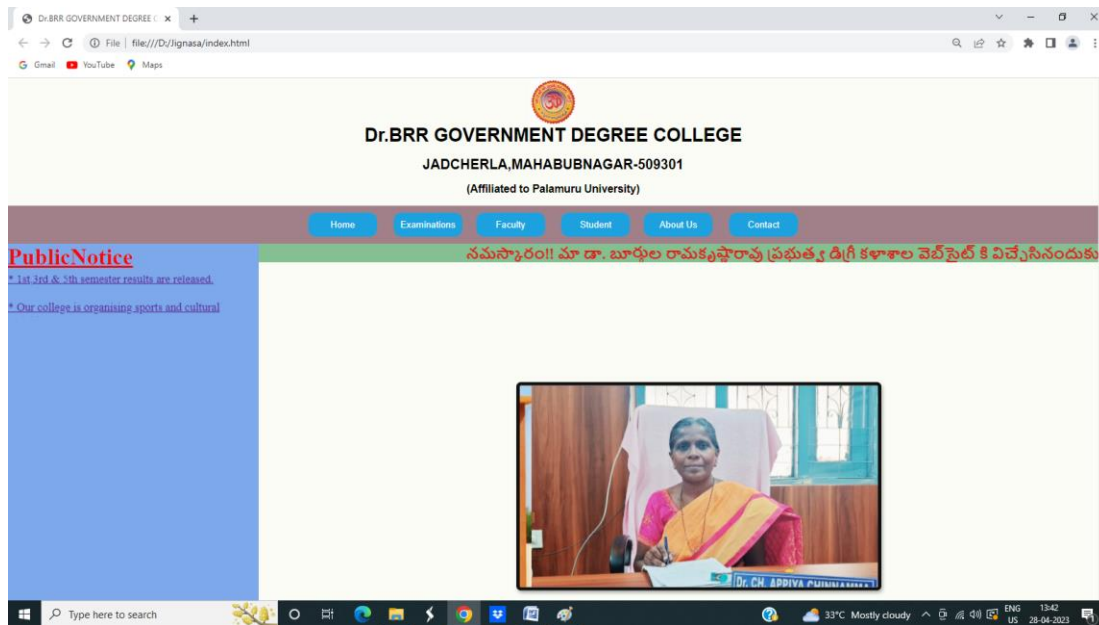
Below is the first page of the system, called the Home page, where the user is required to be authenticated to access the system. And the system shall open a particular account page or dashboard according to the user level or role.

The Fig. 2 displays the page used to login faculty to Enter Student marks with respect to subject and faculty may analyze the student result course wise and subject wise. RMS also shows the page where the Faculty can assign grades to each student on a specific subject. The professor selects a specific subject he is assigned to and the system displays a list of students enrolled in that specific subject with a few fields that allows to assign their respective grades.

The Fig. Fig. 3 Used for student registration to get the result and fig 4 is for login, after login Student may review of result as well as print the results.

Fig-1&2

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Fig-3&4

STUDENT LOGIN

STUDENT ID: [   ]
PASSWORD: [   ]
[submit] [Reset]

STUDENT REGISTRATION

NAME: [ENTER NAME]

FATHER NAME: [FATHER NAME]

EMAIL ID: [abc123@gmail.com]

PHONE NUMBER: [9848******]

GENDER: Male ○ Female ○ Others ○

DATE OF BIRTH: [▼]

COURSE: [select option ▼]

YEAR: [select option ▼]

[SUBMIT] [RESET]

Students Login Section Tabs Fig. 5
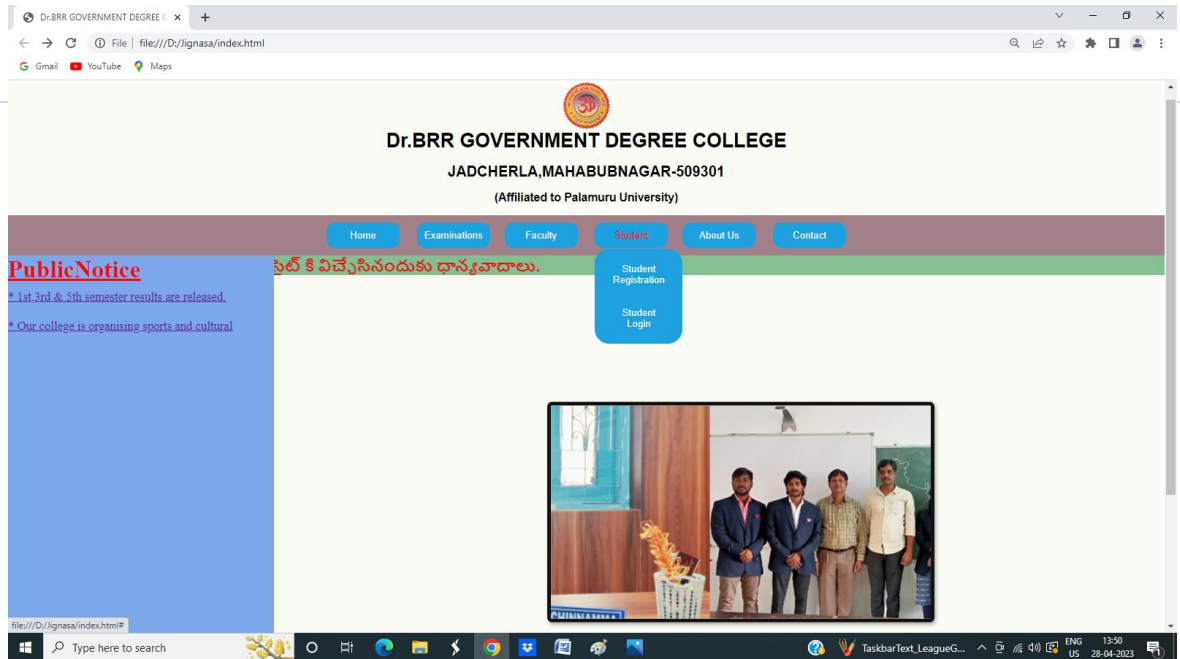
Examinations Results Section Tabs Fig. 6
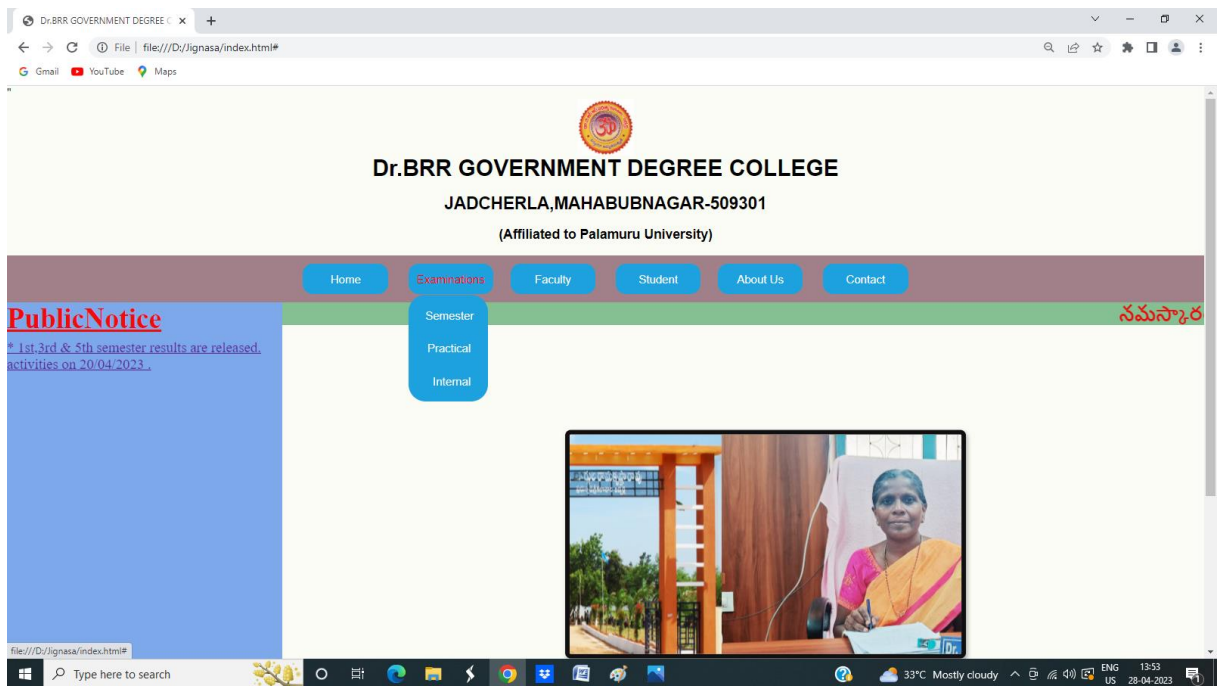
6 System Implementation

A development environment refers to the mix of software tools, methods, and physical resources that an IT (Information Technology) team uses to create an information system. It usually is easier to use an IDE (Integrated Development Environment), which uses built-in tools provided by the software vendors.

The implementation or coding of the proposed system was performed using HTML and CSS programming language which is based on the web design paradigm. It organizes the system in modules or classes within their respective packages. And has become a popular approach not only in the field of programming but for system analysis and design.

The Controller layer is responsible for receiving the requests and then processing and directing them to the Model layer in charge of satisfying the request by retrieving the information from the database. Then it passes the information obtained, to the Controller which delivers the response to the View and finally displays the information to the client, through the browser.

7 Conclusions

The present research was based on the computerization and the implementation of a sophisticated Web-Based Student Result Management System for the Dr. BRR Government Degree College, Jadcherla. The main objective was to enhance and automate the management and declaration of students' results using a computerized system. A well-defined, efficient, controlled and managed information system or software based on web technology storing, processing and providing information through the internet.

And the objectives were achieved by following a process model such as

system analysis, design and system implementation. The system analysis was composed of two activities, requirement determination and structuring. The first activity focused on the collection of data or requirements through structured interview, work environment observation and by collecting procedures and other written documents. And the latter, performed the modelling of the collected data and processes, transforming it into UML diagrams with the aid of a UML modelling tool, Astah into a graphically understandable manner. Just as structured analysis uses DFDs (Data Flow Diagrams) to model data and processes, systems analysts use UML to describe Object Oriented systems, on which the current system is based. UML is independent of any specific programming language and can be used to describe business processes and requirements generally.

8 Future Upgrading

In near future, the system interface could be improved, with more attractive, interactive and meaningful images; Enhance the system with an email and SMS (Short Message Service) or email notifications; Enhance the current system by computerizing almost all of the services provided by the institution (online exams, enrolment, library and others), turning it into a complete LMS; And evolve the system.