

Date: 5/6/2021,
Warangal

TO

The principal,

Pingle Court college for women, Warangal.

Warangal urban Dist

Subs:- About the bringing of the students
to DMHO, Warangal urban for project
work in Mathematics

Respected Sir,

I, I. Mangamma Asst. Prof in Maths
initiated a project on "Application of Newton
backward interpolation formula that is Analysis
of no of Corona cases in Warangal urban
district" on to Final year students of our college
on. 5/6/2021. Hence I request you to permit
me to bring the students to DMHO office.


5/6/2021

Thank you Sir,

Yours faithfully

(I. Mangamma)
Asst Prof in Maths

PINGLE GOVT COLLEGE WADDEPALLY,WARANGAL

DEPARTMENT OF MATHEMATICS

FIELD PROJECT

Title:Application of newtons backward interpolation formula is that analysis of number of carona cases in Warangal urban district

Submitted by

- 1 Kommu akanksha Bsc Mpcs 3rd year
- 2 Bollempally Sabitha Bsc Mpcs 3rd year
- 3 Rapelly Deepthi Bsc mpcs 3rd year
- 4 Rathipally Ravali Bsc mpcs 3rd year
- 5 D Navya Bsc Mpcs 3rd year

Under the supervision of

I MANGAMMA,Assistant prof of mathematics

Pingle govt college for women waddepally warangal

Field project

Title: - Application of Newton's Backward interpolation .i.e, Analysis of Number of corona cases in Warangal urban District

Abstract: - Interpolation is the one of the most basic and most useful numerical techniques. It constitutes an irreplaceable tool during work with tabular or graphical functions. The Newton's backward interpolation is one of the most important numerical techniques which have huge application in Mathematics.

Introduction: - Covid - 19.

- Covid 19 is the disease caused by SARS-COV-2 that corona virus that emerged in Dec-2019.
- Covid-19 can be severe and has caused millions of deaths around the world as well as lasting health problems in some who have survived the illness in Warangal urban district also same.
- The corona virus can be spread from person to person. It is diagnosed by a laboratory test.

$$p = \frac{x - x_n}{h}$$

Formula

$$f(x) = f(x_n) + p \nabla f(x_n) + \frac{p(p+1)}{2!} \nabla^2 f(x_n) + \dots + \frac{\nabla^n f(x_n) \cdot p(p+1) \dots (p+n-1)}{n!}$$

Application :-

We have went to Health department office of newangal urban dist and we have consulted DMHO regarding to corona cases in the district He has given to us details of corona cases

from the month May 2020 to march 2021.
Details are follows:

Month	Number of corona cases
05	500
6	650
7	680
8	590
9	700
10	725
11	520
12	244

Now let's apply Newton's backward diff by analytically to find the number of Corona cases in at Sep 15.

Solution of the problem:-

x_i	$f(x_i)$	$\nabla f(x_i)$	$\nabla^2 f(x_i)$	$\nabla^3 f(x_i)$	∇^4	∇^5
5	500					
6	650	150				
7	680	30	-120	0		
8	590	-90	-120	320		
9	700	110	200	320	-605	
10	725	25	-85	-285		-825

$$p = \frac{x - x_n}{h} = \frac{9.5 - 10}{1} = -0.5$$

$$f(x) = f(x_n) + p \nabla f(x_n) + \frac{p(p+1)}{2!} \nabla^2 f(x_n) + \frac{p(p+1)(p+2)}{3!} \nabla^3 f(x_n) + \frac{p(p+1)(p+2)(p+3)}{4!} \nabla^4 f(x_n) + \dots$$

$$f(9.5) = 725 + (-0.5) \times 25 + \frac{(-0.5)(-0.5)}{2} \times -85 + \frac{-0.5 \times -0.5 \times 1.5}{6} \times -285 + \frac{-0.5 \times -0.5 \times 1.5 \times 2.5}{24} \times -605 + \frac{-0.5 \times -0.5 \times 1.5 \times 2.5 \times 3.5}{120} \times -925$$

of diff
corona

$$\begin{aligned} & 25 - 12.5 + 10.625 + 17.8125 + 23.6328125 \\ & + 25.29296875 \\ & = 789.86328125. \end{aligned}$$

The Number of Corona cases at the time See
September 15, 2020 are 789.86328125.

Conclusion: - By using Newton's Backward
interpolation formula we have calculated
the no of Corona cases very quickly and
much more correctly both.

References: -

Field visit 2020-22

The Faculty of Dept of Mathematics along with some interested students has visited 'Thousand Pillars Temple' on '03.03.2021'. They this is very famous and historical temple and was constructed by Kakatiyas. Different shapes and structures are using in the Architecture of the Temple. The students learned the Beauty and Architecture of the Temple.

The following students participated

S.No.	Student name	Signature
1	A. Yamuna	<u>Y</u>
2	A. Aslesha	<u>Aslesha</u>
3	B. Kalyani	<u>B. Kalyani</u>
4	Ch. Sharanya	<u>Shu</u>
5	E. Karunya	<u>K.Y</u>
6	G. Bhargavi	<u>Bh</u>
7	G. Navya	<u>G. Navya</u>
8	R. Pavani	<u>R</u>
9	M. Sunitha	<u>Sunitha</u>
10	U. Anjali	<u>A</u>
11	V. Ashritha	<u>Ash</u>
12	M. Snehitha	<u>Snehitha</u>

B. ...

