A collaborative LaTeX document

Class of ID2090, Third Trimester of 2021 batch

June 14, 2022

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1 Introduction

This file includes tex files from the folders of each student. The students are expected to update the file named after their roll number and place any images in the same folder. Students do not have to edit this master document. Once the student has sent a pull request which is accepted and processed successfully, his/her assignment submission is deemed to be complete.

You are also welcome to add references and cite them. Examples on how to do that are on the course repository [**?**].

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4 AE21B045

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32   MM21B032

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33.1 Equation:

Taylor's Series Expansion:

$$f(x) \approx f(x_0) + f'(x_0)(x - x_0) + f''(x_0)\frac{(x - x_0)^2}{2!} + \ldots$$

$$\ldots + f^{n'}(x_0)\frac{(x - x_0)^n}{n!} + \ldots \infty terms \quad (1)$$

$$f(x) = \sum_{n=0}^{\infty} f^{(n)}(x_0)\frac{(x - x_0)^n}{n!}$$

33.2 Description:

- Any function f(x) can be written as a series of its derivatives with respect to x and multiplied by a factor $\frac{(x-x_0)^n}{n!}$.

- <u>Accuracy of expression</u> is proportional to no of terms evaluated.

- Eg.

$$e^x \approx 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots + \frac{x^n}{n!} + \ldots$$

33.3 Table of Variables:

Variables	Expressions	Explanation
$f'(x_0)$	df/dx	1st order Derivative of f(x) with respect to x
$f''(x_0)$	d^2f/dx^2	2nd order Derivative of f(x) with respect to x
$\vdots$	$\vdots$	$\vdots$
$f^{(n)}(x_0)$	d^nf/dx^n	nth order Derivative of f(x) with respect to x

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43   NA21B052

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44 Conclusions

If this master tex file could be compiled successfully, it means that the class has learnt the concepts of Git as well as LaTeX properly.

45 References

References

[1] Repository for id2090 course. `https://github.com/gphanikumar/mm2090`. Accessed: 2022-06-13.