Numerical Analysis - Project

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Introduction

Numerical Anaylsis is a specific domain of pure Mathematics that deals with the approximations and the preciseness of too small or too big of measurements that can be written conveniently, where the equations are often filled with unknowns and which consists of methods that can be used to design models and graphs to approximate the required measurements. These way of discovering new data points using old sets of data is called *Interpolation*, and similarly with that, we have concepts of,

- Error Analysis
- Polynomial approximations
- Numerical Differentiation and Integration
- Ordinary Differential Equations (*ODEs*)
- Partial Differential Equations (*PDEs*)

- Matrix Algebra
- Eigenvalues and Eigenvectors

And so on and so forth.

This project is related to **CS 325** at FAST NUCES, Karachi, under the supervision of the instructor, Hafiz Muhammad Shahbaz.

Group Members

The group members for this specific project include

1. Adil Asif, 18K 0123
2. Zulfiqar Memon, 18K 0167
3. Saif Ul Islam, 18K 0307

Acknowledgements

Ask Sir what to write here

Algorithms

The algorithms implemented here using code are given Asif

For Non Linear Equations

- Bisection
- Fixed Point Iteration
- Regular Falsi
- Newton And Secant Method

For Interpolation

- Lagrange Equation
- Newton's Foward Formula
- Newton's Backward Formula
- Newton's Central Difference Formula
- SDT (*Single Difference Table* ?)
- DDT *Double Difference Table* ?

Code For The Algorithms

Insert code here

Comparision - Analysis Of Algorithms

Put details here like,

- Timing the measurements
- Measuring the number of iterations
- The numerical complexity (*Big O Notation*)

References

[1] Mayo Clinic Staff *The LaTeX Companion*. https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/denial/art-20047926