Mini Project

Submitted in partial fulfillment of the requirements of the degree

BACHELOR OF ENGINEERING IN **ARTIFICIAL INTELLINGENCE AND DATA SCIENCE**

By

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Artificial Intelligence & Data Science

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(AY 2022-23)

CERTIFICATE

This is to certify that the Mini Project entitled **"To Develop Python program for numerical techniques such as Gauss elimination , Gauss-Seidel, Newton's forward and backward interpolation , Inverse of a matrix using Gauss elimination ,Solution of 1st order differential equation by Euler method and Runge Kutta 4th order method and also incorporate graphic user using Tkinter. Use conversational AI"** is a bonafide work of **MOHAMMED MAVIYA QURESHI(91), SAGAR BANTUPALLY NAIDU(78), MOKSH PUNAMIYA(90), ASHLEY PEREIRA(88)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **"Bachelor of Engineering"** in **"Artificial Intelligence and Data Science" .**

(Dr.G.T.Thampi)
Supervisor

(Prof. Madhuri Rao)
Head of Department

(Dr. G.T.Thampi)
Principal

Mini Project Approval

This Mini Project entitled "**To Develop Python program for numerical techniques such as Gauss elimination , Gauss-Seidel, Newton's forward and backward interpolation , Inverse of a matrix using Gauss elimination ,Solution of 1st order differential equation by Euler method and Runge Kutta 4th order method and also incorporate graphic user using Tkinter. Use conversational AI**"
by **MOHAMMED MAVIYA QURESHI (91)**, **SAGAR BANTUPALLY NAIDU (78)**, **MOKSH PUNAMIYA (90)**,**ASHLEY PEREIRA (88)** is approved for the degree of **Bachelor of Engineering** in **Artificial Intelligence and Data Science.**

Examiners

1……
(Internal Examiner Name & Sign)

2……
(External Examiner name & Sign)

Date:

Place:

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Acknowledgement

We would like to express our gratitude and thanks to **Prof. Bharati Ingale** for her valuable guidance and help. We are indebted for her guidance and constant supervision as well as for providing necessary information regarding the project. We would like to express our greatest appreciation to our principal **Dr. G.T. Thampi** and head of the department **Prof. Madhuri Rao** for their encouragement and tremendous support. We take this opportunity to express our gratitude to the people who have been instrumental in the successful completion of the project.

Mohammed Maviya Qureshi

Sagar Bantupally Naidu

Moksh Punamiya

Ashley Pereira

Chapter 1

Introduction

This chapter explains the aim, objectives and scope of the proposed system.

1.1 Introduction

Our Mini project topic includes implementation of various mathematical properties.

1.2 Motivation

Our motivation behind this project is to learn all the required technical skills and implement it in the most efficient way.

1.3 Problem Statement & Objectives

Problem statement: Develop a java program for various numerical techniques using java primitives.

Objectives: Apply the programming knowledge into a real- world situation/problem.

1.4 Organization of the Report

This report consists of three chapters. The first chapter deals with introduction of the topic, problem statement, motivation behind the topic and objectives. The second chapter is the Literature Survey. It includes all the research work done related to this topic. All information related to study of existing systems as well as learning of new tools is mentioned in this chapter. The third chapter is about the proposed system which is used in this project.

Chapter 2

Literature Survey

This chapter explains the concepts used in this project, study of existing system and contribution of this project

2.1 Survey of Existing System

There were some projects available online which were very similar to our mini project topic.

2.2 Limitation of existing system

While studying the existing projects we observed that they have used very complex logic in the code. We came to a conclusion that not use such complex logic and build the project using all the basic concepts.

2.3 Mini Project Contribution

To build a simple logic we have used tried using loops i.e for loop, while loop,etc in our programs. Also we have made different functions to make our code more organized.

Chapter 3

Proposed System

This chapter consists of detailed description about the methodology used, the hardware and software components, the tools used and also the screenshots of the project

3.1 Introduction

The programming language used to build this mini project is Java.

The IDE we used to write code is Visual Studio Code by Microsoft.

3.2 Algorithm and Process Design

Following is a step-by-step process of how we implemented mini project:

1. Formulating the Problem statement
2. Understanding the framework and requirements
3. Identifying tools/technology to be used
4. Finalizing the features to be included
5. Development
6. Testing
7. Evaluation

3.3 Details of Hardware & Software

The system configuration are as follow:

RAM: 8GB

Processsor: Intel core i7 11^{th} Gen

IDE: Visual Studio Code

3.4 Conclusion and Future Work

We have successfully implemented various numerical techniques using java.
And in future we plan to do many more projects to improve our technical skills.