BANKING SYSTEM PROJECT REPORT

1. Introduction

This report presents a Banking System application developed using JavaFX and the MVC architectural pattern. The system provides functionality for managing customers and their bank accounts, enabling operations such as creating accounts, viewing customer information, performing transactions, and managing overall banking data. The goal of the project is to demonstrate practical skills in object-oriented programming, GUI development, and structured software design.

2. System Overview

The Banking System is a desktop-based application built using JavaFX for the user interface, Java for the backend logic, and a model–view–controller (MVC) approach to maintain clean separation between components. The system allows administrators to add new customers, view existing customer details, and manage account operations in an intuitive and user-friendly interface.

3. Key Features

• Customer registration and listing
• Account creation for each customer
• Viewing of account balances and details
• Deposit and withdrawal functionalities
• Error handling and basic data validation
• Clean MVC architecture for maintainability

4. System Architecture

The system follows the Model–View–Controller architecture. The Model contains classes such as Customer and BankAccount, representing real-world banking entities. The Controller (BankController) manages all business logic, connecting the user interface with the model. The View (MainView) provides the graphical interface through which the user interacts with the system.

5. Technologies Used

• Java (Object-Oriented Programming)
• JavaFX (Graphical User Interface)
• MVC Architectural Pattern
• ObservableLists for efficient UI updates

6. Challenges Encountered

During development, several challenges were encountered, including handling input validation, ensuring smooth UI updates when customer information changed, and properly structuring the MVC components. These challenges were addressed by refining the class structures, improving controller logic, and conducting iterative testing of the user interface.

7. Conclusion

The Banking System project successfully demonstrates fundamental principles of Java programming, GUI development, and modular software design. Through this project, a functional and intuitive system was implemented, showcasing the practical use of object-oriented techniques and the MVC architecture in a real-world scenario.