

Project Proposal - SWE [P] [Group 1]

Project Title

Bank Management System

Introduction

This desktop based application is aimed at solving the tasks required to run a bank. The application can be the central data hub of a bank, providing facilities in three layers, Manager Dashboard, User Dashboard and Customer Dashboard. All three of the managing elements is seamlessly connected and protected by a single login page, where when logging in a specific managing page is opened based on the role of the person within the system.

Objectives

- To replace manual paperwork and banking work with a digital management system.
- To implement Role-Based Access Control (RBAC) for Managers, Cashiers, and Customers.
- To ensure secure and accurate financial transactions (deposits, withdrawals, transfers).

Target Audience

- **Bank Managers:** Administrators responsible for overseeing bank operations, employee management, and customer account oversight.
- **Bank Cashiers:** Staffs who handle daily financial transactions and customer service requests.
- **Bank Customers:** Individuals holding savings or fixed deposit accounts who require digital access to their financial information and fund transfer feature.

System Features

1. Manager Dashboard

- **User Management:** Create, remove, and edit profiles for Customers and Bankers.
- **Account Management:** Create and remove Savings and Fixed Deposit accounts.
- **Data Oversight:** View full lists of customers and employees.

2. Cashier Dashboard

- **Transactions:** Perform Cash Deposits and Withdrawals for customers.
- **Service:** Perform Fund Transfers between accounts and check account balances.

3. Customer Dashboard

- **Dashboard:** View personal account details and balance.
- **Transactions:** Perform Fund Transfers to other accounts directly.

Tools & Technologies

- **Language:** Java
- **GUI Framework:** Java Swing & AWT

OOP Principles Implemented

- **Encapsulation:** Used in Entity classes (`Person`, `Account`) to protect data.
- **Inheritance:** `Customer` and `Banker` inherit from `Person`; `Savings` and `FixedDeposit` inherit from `Account`.
- **Polymorphism:** Method overriding and overloading in transaction handling.
- **Abstraction:** Use of abstract classes (`Account`, `Person`) and interfaces (`IPerson`).

Conclusion

The Bank Management System replaces manual paperwork with a computer program where Managers, Cashiers, and Customers each have their own specific tools. By using Java OOP principles, we built a reliable system that can be used to operate a small bank.