

# Simple Banking System

The Simple Banking System project is a Java-based console application that simulates essential banking operations, offering both user and administrative functionalities. The system provides a user-friendly interface for account holders to perform actions such as depositing funds, withdrawing cash, checking balances, and managing their account details. Additionally, it offers administrative capabilities for system administrators to oversee and manage user accounts efficiently.

## **1. User Authentication:**

- Secure user login with a combination of unique user identifiers and personal identification numbers (PINs).

## **2. Account Management:**

- Account holders can perform standard banking operations, including deposits and withdrawals, with real-time updates to their account balances.

## **3. User Interaction:**

- Intuitive console-based interface for users to interact with the banking system, providing clear prompts and options.

## **4. Admin Functionality:**

- Administrators have access to an extended set of functions, including displaying all user accounts, viewing specific user details, adding new user accounts, editing existing user information, and deleting user accounts.

## **5. Data Persistence:**

- Utilizes file-based data storage to maintain user account information, ensuring persistence across multiple sessions.

## **6. Security Measures:**

- Implements a role-based access control system, differentiating between regular users and administrators. Special permissions are required for certain operations.

## 7. Randomized Account Generation:

- Automatically generates unique Mastercard numbers and PINs for new user accounts, ensuring the security of the system.

## 8. Error Handling:

- Incorporates robust error-handling mechanisms to gracefully manage potential exceptions and ensure the stability of the application.

## 9. Input Validation:

- Validates user inputs to prevent unintended errors or misuse, enhancing the reliability of the system.

This Simple Banking System project serves as a foundation for a basic banking application, providing essential functionalities for user account management and administrative oversight. The console-based interface ensures simplicity and accessibility, making it suitable for educational purposes or as a starting point for more advanced banking systems.

## Class Diagram:

