Software Requirements Specification

For ATM System

Version 1.0

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**1. Introduction**

**1.1 Purpose**

The purpose of this SRS is to outline the functional and non-functional requirements for an Automated Teller Machine (ATM) system. This system allows users to manage accounts, perform transactions like deposits, withdrawals, and transfers, as well as change their PINs.

**1.2 Document Conventions**

The following notations will be used:

* Account: A user's bank account (savings or checking).
* ATMService: A service handling user interactions with the ATM.

**1.3 Intended Audience and Reading Suggestions**

This document is intended for developers, testers, project managers, and stakeholders involved in the ATM system's development. Start by reviewing the introduction and system features before delving into specific interface and non-functional requirements.

**1.4 Project Scope**

This ATM system facilitates basic banking functionalities, allowing users to access their accounts via an ATM interface, perform transactions, and view their transaction history.

**1.5 References**

* Java SDK 8+
* Swing (for GUI)
* Java SE Documentation
* Swing Documentation
* Stack Overflow

**2. Overall Description**

**2.1 Product Perspective**

The ATM system is designed as a standalone Java application using a graphical user interface (GUI) built with Swing. It consists of two main components: AccountManager (handles accounts) and ATMService (handles transactions).

**2.2 Product Features**

* Account login and authentication
* Balance inquiry, deposit, withdrawal, and transfer
* PIN change functionality
* Transaction history

2.3 User Classes and Characteristics

* ATM Users: Bank customers who can log in using their account number and PIN.

**2.4 Operating Environment**

The system will run on any device that supports Java 8+, specifically targeting desktop environments for the ATM GUI interface.

**2.5 Design and Implementation Constraints**

* The application must run on Java 8 or higher.
* The system uses Swing for the GUI.
* Constraints on maximum withdrawal limits and transaction fees for savings and checking accounts are enforced.

**2.6 User Documentation**

Users will be provided with a user manual explaining how to interact with the ATM system, including how to perform basic banking operations.

**2.7 Assumptions and Dependencies**

The system assumes that accounts are managed locally via AccountManager, and no external banking APIs are required for account management.

**3. System Features**

**3.1 Account Management**

**3.1.1 Description and Priority**

This feature allows users to log in, view, and manage their accounts. It is a high-priority feature.

**3.1.2 Stimulus/Response Sequences**

* Users enter their account number and PIN.
* Upon successful login, users can perform transactions.

**3.1.3 Functional Requirements**

* REQ-1: The system must validate the user's PIN.
* REQ-2: The system must allow users to view their balance.

**3.2 Transaction Management**

**3.2.1 Description and Priority**

This feature allows users to perform transactions, including deposits, withdrawals, and transfers. High-priority feature.

**3.2.2 Stimulus/Response Sequences**

* Users input the amount they wish to deposit or withdraw.

**3.2.3 Functional Requirements**

* REQ-3: The system must support deposits and withdrawals.
* REQ-4: The system must apply transaction fees to savings accounts after three withdrawals.

**3.3 PIN Management**

**3.3.1 Description and Priority**

This feature allows users to change their PIN after validating the old one. Medium priority feature.

**3.3.2 Stimulus/Response Sequences**

* Users input their old PIN and a new one.

**3.3.3 Functional Requirements**

* REQ-5: The system must validate the old PIN before allowing changes.
* REQ-6: The new PIN must be exactly 4 digits.

**4. External Interface Requirements**

**4.1 User Interfaces**

The system provides a graphical user interface with the following components:

* **Login Screen**: Prompts for account number and PIN.
* **Main Menu**: Displays available transactions (deposit, withdraw, transfer, PIN change).

**4.2 Hardware Interfaces**

The system requires basic input devices (keyboard/mouse).

**4.3 Software Interfaces**

The system interfaces with the following software components:

* Java Runtime Environment (JRE)

**4.4 Communications Interfaces**

No external communication protocols are required for this system.

**5. Other Nonfunctional Requirements**

**5.1 Performance Requirements**

The system must respond to user inputs within 2 seconds.

**5.2 Safety Requirements**

The system should prevent overdrawing from savings and checking accounts beyond specified limits.

**5.3 Security Requirements**

* User authentication is required for account access.
* PINs must be stored securely.

**5.4 Software Quality Attributes**

* **Usability**: The interface should be simple and intuitive.
* **Reliability**: The system must handle invalid input (e.g., incorrect PIN) gracefully.

**6. Other Requirements**

* Legal requirements for secure PIN storage and user privacy should be met.

**Appendices**

* **Appendix A**: Glossary
  + **ATM**: Automated Teller Machine
  + **PIN**: Personal Identification Number
* **Appendix B**: Analysis Models (Class Diagrams, Flow Diagrams)
* **Appendix C**: Issues List