SRS DOCUMENTATION OF ATM MACHINE:

**1. Introduction**

**1.1 Purpose**

The purpose of this Software Requirements Specification (SRS) is to define the requirements for the Automated Teller Machine (ATM) System. This system allows bank customers to perform transactions such as card authentication, PIN verification, balance inquiry, and cash withdrawal through communication with the bank server.

**1.2 Scope**

The ATM System enables customers to:  
- Insert and validate ATM cards.  
- Enter and verify Personal Identification Numbers (PINs).  
- Request withdrawal and balance inquiries.  
- Receive transaction feedback and cash.  
  
The system ensures secure interaction between the Account Holder, the ATM Machine, and the Bank Server, providing reliability and data integrity throughout the process.

**1.3 Definitions, Acronyms, and Abbreviations**

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| **Term** | **Definition** |
| ATM | Automated Teller Machine |
| PIN | Personal Identification Number |
| SRS | Software Requirements Specification |
| UI | User Interface |

**1.4 References**

• IEEE Std 830-1998: Recommended Practice for Software Requirements Specifications  
• Banking Security Standards (ISO/IEC 27001)  
• UML Sequence Diagram provided (ATM Interaction Flow)

**1.5 Overview**

This document provides a detailed overview of the ATM system including its functions, interactions, user requirements, and non-functional constraints. The document serves as a guide for the design, implementation, and validation of the ATM software.

**2. Overall Description**

**2.1 Product Perspective**

The ATM System acts as an intermediary between the Account Holder and the Bank Server.  
- The Account Holder interacts with the ATM Machine.  
- The ATM Machine processes user requests and communicates with the Bank Server for authentication and transaction validation.  
  
The system is part of a larger banking network and operates as a real-time terminal connected to the main banking database.

**2.2 Product Functions**

The ATM system performs the following key functions:  
- Card insertion and validation  
- PIN entry and verification  
- Withdrawal transaction processing  
- Balance checking  
- Cash dispensing and transaction completion messages

**2.3 User Characteristics**

Users are bank customers with valid ATM cards and basic knowledge of ATM operations. They are expected to follow on-screen instructions during transactions.

**2.4 Constraints**

• Requires a continuous and secure network connection with the Bank Server.  
• Complies with financial and security regulations.  
• Limited transaction time (timeout after inactivity).  
• Cash dispensing limits per day as defined by the bank.

**2.5 Assumptions and Dependencies**

• The Bank Server database is always available and updated.  
• The ATM Machine hardware components (card reader, keypad, cash dispenser) are functioning correctly.  
• Power supply and network availability are maintained.

**3. Specific Requirements**

**3.1 Functional Requirements**

1. Card Validation:  
 - The ATM reads the card and sends details to the bank server.  
 - If invalid, the ATM displays “Invalid Card.”  
2. PIN Verification:  
 - The user enters a PIN which is sent to the server for validation.  
 - If the PIN is invalid, the user is prompted to re-enter it.  
3. Withdrawal Request:  
 - User enters the withdrawal amount.  
 - The ATM checks account balance via the server.  
 - If sufficient balance exists, the amount is dispensed.  
4. Transaction Continuation:  
 - The ATM prompts the user for another transaction.  
 - If “No,” the session is terminated and the card is ejected.

**3.2 System Features**

**Feature 1: Card Validation**

Authenticate card by communicating with the bank server.  
Input: Card details.  
Output: Valid or Invalid card message.

**Feature 2: PIN Authentication**

Validate the user’s PIN via bank server.  
Input: PIN.  
Output: Valid/Invalid PIN notification.

**Feature 3: Withdrawal Processing**

Process withdrawal after successful authentication.  
Input: Amount.  
Output: Cash dispensed or insufficient balance message.

**Feature 4: Session Management**

Manage user session and prompt for further transactions.  
Input: Yes/No response.  
Output: Continue or End session message.

**3.3 Interface Requirements**

User Interface:  
- Touchscreen or keypad for input.  
- Display screen for messages and prompts.  
  
Hardware Interface:  
- Card reader, cash dispenser, and receipt printer.  
  
Software Interface:  
- Communication protocol between ATM and bank server (TCP/IP).  
  
Communication Interface:  
- Secure encrypted channel between ATM and bank database.

**4. Non-Functional Requirements**

**4.1 Performance Requirements**

• Each transaction must complete within 5 seconds.  
• The system should support up to 1000 transactions per hour per ATM.

**4.2 Security Requirements**

• All data between ATM and server must be encrypted.  
• PINs should never be stored in plain text.  
• The card should be blocked after 3 invalid PIN attempts.

**4.3 Reliability**

• The ATM should maintain 99% operational uptime.  
• In case of network failure, transactions must terminate safely without loss of data.

**4.4 Maintainability**

• Software should support remote updates and maintenance.  
• System logs should be available for auditing and troubleshooting.

**5. Other Supporting Information**

**5.1 Appendices**

Appendix A: Sequence of Operations  
1. Insert Card → Card Validation  
2. Enter PIN → PIN Verification  
3. Enter Withdrawal Amount → Balance Check  
4. Cash Dispense → End or Continue Transaction  
  
Appendix B: Actors  
- Account Holder  
- ATM Machine  
- Bank Server

**5.2 Index**

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| **Term** | **Description** |
| Account Holder | User operating the ATM |
| ATM Machine | Interface device for bank transactions |
| Bank Server | Backend system for authentication and transaction processing |
| PIN | User security code for authentication |