Lab Assignment NO: 01

AIM: Consider a Problem statement for software development and Prepare SRS for the same.

OBJECTIVES:

- To Learn how the SRS facilitates system design and serves as a reference for creating comprehensive test plans.
- To Develop skills to write a clear, concise, and unambiguous SRS document that serves as a reliable reference throughout the software lifecycle.

THEORY:

Software Requirement Specification (SRS) Format as the name suggests, is a complete specification and description of requirements of the software that need to be fulfilled for the successful development of the software system. These requirements can be functional as well as non-functional depending upon the type of requirement. The interaction between different customers and contractors is done because it is necessary to fully understand the needs of customers.

Depending upon information gathered after interaction, SRS is developed which describes requirements of software that may include changes and modifications that is needed to be done to increase quality of product and to satisfy customer's demand.

Problem Statement: ATM Withdrawal System

Develop a software system to manage ATM withdrawal operations. The system should enable users to securely withdraw cash, check their balance, and print transaction receipts. It should ensure data accuracy, handle multiple concurrent users, and provide robust security measures against fraud or unauthorized access.

Software Requirements Specification (SRS) Document

1. Introduction

- **Purpose**: The purpose of this document is to define the functional and non-functional requirements for the ATM Withdrawal System. The system aims to provide secure, efficient, and user-friendly access to banking services.
- **Scope**: This software will allow users to withdraw cash from ATMs using their debit cards, check their account balances, and obtain receipts. It ensures secure transactions through authentication and encryption mechanisms.
- **Definitions, Acronyms, and Abbreviations**:

  - ATM: Automated Teller Machine
  - PIN: Personal Identification Number
  - SRS: Software Requirements Specification
- **References**: Relevant banking guidelines, ISO security standards, etc.

2. Overall Description

- **Product Perspective**: The ATM Withdrawal System is part of a broader banking software ecosystem, interacting with the bank's database and transaction server.
- **Product Features**:
  - User authentication using debit cards and PINs.
  - Cash withdrawal up to a user-defined limit.
  - Balance inquiry.
  - Receipt printing and on-screen confirmation.
  - Multilingual interface.
- **User Characteristics**: The primary users are bank customers with minimal technical knowledge. Secondary users include ATM service personnel.
- **Assumptions and Dependencies**:
  - Reliable internet connection for server communication.
  - Functional ATM hardware.
  - Valid debit card and sufficient account balance.

3. Functional Requirements

- **Login Functionality**:
  - Authenticate the user via debit card and PIN.
  - Allow a maximum of three incorrect attempts before blocking the card.
- **Withdrawal Process**:
  - Prompt the user to select a withdrawal amount.
  - Verify account balance and transaction limits.
  - Dispense cash and update the account balance.
- **Balance Inquiry**:
  - Display the current account balance after authentication.
- **Receipt Printing**:
  - Provide a printed or digital receipt of the transaction.

4. Non-Functional Requirements

- **Performance Requirements**:
  - Response time for user inputs should not exceed 3 seconds.
  - Support up to 1000 concurrent users.
- **Security Requirements**:
  - Encrypt user data and transactions.
  - Implement multi-factor authentication.

- **Usability Requirements**:
  - Provide a user-friendly interface with clear instructions.
  - Support multiple languages.
- **Reliability Requirements**:
  - Ensure 99.9% uptime for the ATM system.

5. System Models

- **Use Case Diagram**: Depicts the interactions between users and the system.
- **Data Flow Diagram (DFD)**: Illustrates the flow of data between the ATM, the bank server, and the user.
- **State Diagram**: Describes the various states of an ATM (idle, card inserted, authenticated, etc.).

6. Constraints

- Limited cash availability in ATMs.
- Compliance with banking regulations.

7. Appendices

- Glossary of terms.
- References to applicable laws and standards.

CONCLUSION: