**NAME: SYED SEEMAB**

**STD ID: 15406**

**Functional Requirements**

Functional requirements describe **what the ATM system should do** — the core operations it performs.

1. **User Authentication**
   * The system must verify users through their **ATM card** and **PIN** before granting access.
   * Invalid PIN entries should be limited (e.g., 3 attempts before card is blocked).
2. **Cash Withdrawal**
   * The system should allow users to **withdraw cash** up to the available balance or daily withdrawal limit.
   * It should **dispense accurate cash amounts** and **update the account balance** accordingly.
3. **Balance Inquiry**
   * The system must allow users to **check their account balance** and display it on the screen.
4. **Deposit Funds**
   * The ATM should enable users to **deposit cash or cheques** and update their account balance.
5. **Mini Statement**
   * The system should print or display a **mini statement** showing recent transactions.
6. **Funds Transfer**
   * The user should be able to **transfer money** between accounts within the same bank.
7. **PIN Change**
   * The system should allow users to **change their PIN** securely after authentication.
8. **Receipt Printing**
   * After each transaction, the ATM must **print a receipt** showing transaction details.
9. **Session Timeout**
   * The system must **automatically log out** the user after a period of inactivity.
10. **Error Handling**
    * The system should **display clear error messages** for invalid operations, such as insufficient funds or network failure.

**Non-Functional Requirements**

Non-functional requirements describe **how the system should perform** — its qualities and constraints.

1. **Performance**
   * Transactions should be processed within **3–5 seconds**.
   * The system must handle **multiple users simultaneously** without delays.
2. **Security**
   * All data must be **encrypted** during transmission.
   * The ATM should **not display sensitive information** like the full account number or PIN.
   * **CCTV monitoring** and **tamper detection** should be integrated.
3. **Reliability**
   * The system should ensure **99.9% uptime**.
   * It should have **backup power and network recovery mechanisms**.
4. **Usability**
   * The interface must be **easy to use** with clear instructions and multilingual support.
   * Buttons and menus should be **intuitive** for all users.
5. **Availability**
   * The ATM system must be **operational 24/7** with scheduled maintenance only during non-peak hours.
6. **Maintainability**
   * The software should be **modular and easy to update** without downtime.
   * Logs should be maintained for **fault detection and troubleshooting**.
7. **Scalability**
   * The system should support **future upgrades**, such as new transaction types or biometric authentication.
8. **Portability**
   * The system should be **compatible with different ATM hardware and banking networks**.
9. **Compliance**
   * The system must comply with **banking regulations** and **data protection laws** (e.g., PCI-DSS).
10. **Auditability**
    * Every transaction must be **logged** for audit and security tracking.