# Software Requirements Specification

# For
# ATM System


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# 1. INTRODUCTION

## Purpose

This SRS describe the requirement specifications for Automated Teller Machine system (ATM) for developers. The purpose of an ATM system is to provide a convenient and accessible way for bank customers to perform various financial transactions without the need for human assistance. ATMs allow bank customers to perform operations like cash withdrawal, cash deposition, checking balance, changing pin and it also provides mini-statements from their accounts quickly and conveniently eliminating the need to visit a bank branch during operating hours.

## Objectives

The objective of an ATM project is to create a software system that simulates the functionality of are al-world ATM .The primary goal is to provide users with convenient access to various banking services such as cash withdrawals, cash deposits, mini-statements and checking balance. Below are the key objectives of such a project:

- User Convenience : Enable users to perform banking transactions conveniently without the need to visit a physical bank branch.
- Efficiency and Speed: Provide fast and efficient transaction processing to minimize waiting times for users.
- Accuracy: Ensure accurate processing of transactions and account balances to maintain the integrity of users' financial data.
- Accessibility: Make the ATM system accessible to a wide range of users, including those with disabilities, by incorporating accessibility features and adhering to usability standards.
- Cost Reduction: ATM system can help banks reduce operational costs associated with traditional brick-and-mortar branches by automating routine transactions and reducing the need for extensive staffing in physical locations.

By achieving these objectives, an ATM project aims to deliver liable, secure, and user-friendly banking experience for customers .

## Abbreviations

| | |
|---|---|
| **ATM** | Automated Teller Machine |
| **IFSC** | IFSC is an acronym for Indian Financial System Code. |
| **CVV** | The Card Verification Value(CVV) is an extra code printed on your debit or credit card. |
| **PIN** | Personal Identification Number (PIN) |
| **CR** | Credit Record |
| **DR** | Debit Record |
| **H/W Components** | Hardware Components |

# 2 THE OVERALL DESCRIPTION

## Product Perspective

The product perspective of an ATM system involves understanding its role and functionality within the broader context of the banking system and its interaction with various stakeholders. Here's a break down of the product perspective:

- User Interface Design : The console interface would be the primary interaction point for users. It should be simple, providing options for users to perform basic ATM functions such as withdrawing, depositing, changing PIN, and checking balance.

- Functionality: The ATM system should accurately handle various transactions such as depositing funds into an account, withdrawing funds, transferring funds between accounts, and checking balance.

- Database Management: The system needs to interact with a database to store and retrieve account information, transaction history, and other relevant data. Proper database management is crucial for ensuring data integrity and reliability.

- User Experience: While the interface is simple in a console-based application, attention should still be paid to the overall user experience. The system should provide clear instructions and feedback to users, making the interaction smooth and efficient.

Overall, the product perspective of a simple console-based ATM project involves balancing functionality, usability, and scalability to create a reliable and user-friendly banking experience.

## Product Functions

The product functions of an ATM project outline the specific features and capabilities that the ATM system offers to users. Here are the key product functions typically included in an ATM project:

- Amount Withdrawal: Allow users to withdraw amount from their bank accounts using their ATM cards. The user should have bank balance above Rs.1000 and amount entered should be a numeric value and greater than 0.

- Amount Deposit : Enable users to deposit amount into their bank accounts by inserting amount into the ATM's deposition slot .The ATM should accurately count and validate the deposited amount and update the user's account balance accordingly.

- Balance Inquiry: Provide users with the ability to check the balances of their bank accounts. The ATM should display the available balance for each account.

- PIN Change: Enable users to change their Personal Identification Number (PIN) . Users should be prompted to enter their current PIN and then enter a new PIN twice in order to change their PIN.

- Mini-Statement: Provide users with a printed or on-screen mini-statement of recent 10 transactions for their bank accounts. The mini-statement should display details such as transaction dates, transaction type, time and amounts.

## Constraints

- The Card no and PIN given as input should be numeric values only. Card no should be of 16 digits whereas PIN should be 4 digits.
- While changing the PIN new PIN should be asked twice and the value of those PINs should be same
- The number of invalid pin entries attempted must not exceed three. After three unsuccessful login attempts, the card is seized/blocked and need to be unblocked by the bank**.**
- The minimum amount of money a user can withdraw is Rs 100/- and the maximum amount of money a user can withdraw in a session is Rs.10,000/-and the maximum amount he can withdraw in a day is Rs. 20,000/-.
- Before the transaction is carried out , a check is performed by the machine to ensure that a minimum amount of Rs1000/-is left in the user's account after the withdrawal failing which the withdrawal is denied.
- The minimum amount a user can deposit is Rs 1000/- and the maximum amount he can deposit is Rs 10,000/-.

## Assumptions and Dependencies

**The requirements stated in the SRS could be affected by the following factors:**

- The system is constrained by the limitations of a text-based console interface, which may restrict the complexity of interactions and user experience compared to graphical user interfaces (GUIs).
- Another constraint relating to the operating environment is that we are specific to MySQL Database.
- Console-based systems may have limitations in scaling to support a large number of users or transactions simultaneously, especially if they rely on single-threaded execution.
- Updating and maintaining a console-based ATM system may be more challenging compared to systems with more modern architectures and development tools, potentially leading to longer constraints**.**

# 3. .OPERATING ENVIRONMENT

## Hardware Components:

- Processor: Intel i3 onwards
- RAM: 4 GB or more
- HardDrive: 256GB or more

## Software Components:

- Eclipse IDE, Operating System: Windows 10,MySQL, MSOffice

# 4. SYSTEM FEATURES

## Authorization

Implementing an ATM system with authorization involves several components such as user authentication, account validation, and transaction processing. The authorization starts after a customer has entered his Card no and PIN in ATM. The ATM has to check if the entered card no is a valid and active card or not.

**Input**

Customer will enter the card details like Card no and PIN for login purpose.

**Processing**

Checks if the card details entered by the user are valid or not .It will be valid if:

1. The card details entered by user will match with card details of the respective user available in the database.
2. Card is active and not expired.

**Output**

If details are valid allows logging in and executing operations like deposit, withdraw, change PIN and balance check on the basis of validations given to respective operation.

**Issue money**

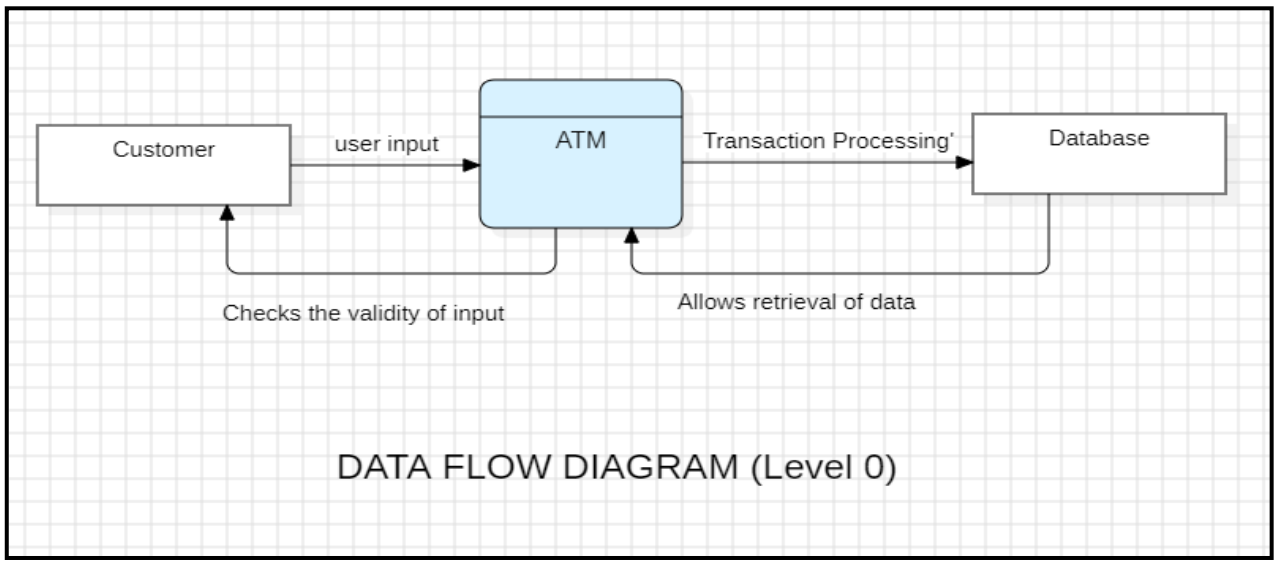
The client enters ATM card details It will asks for PIN and check

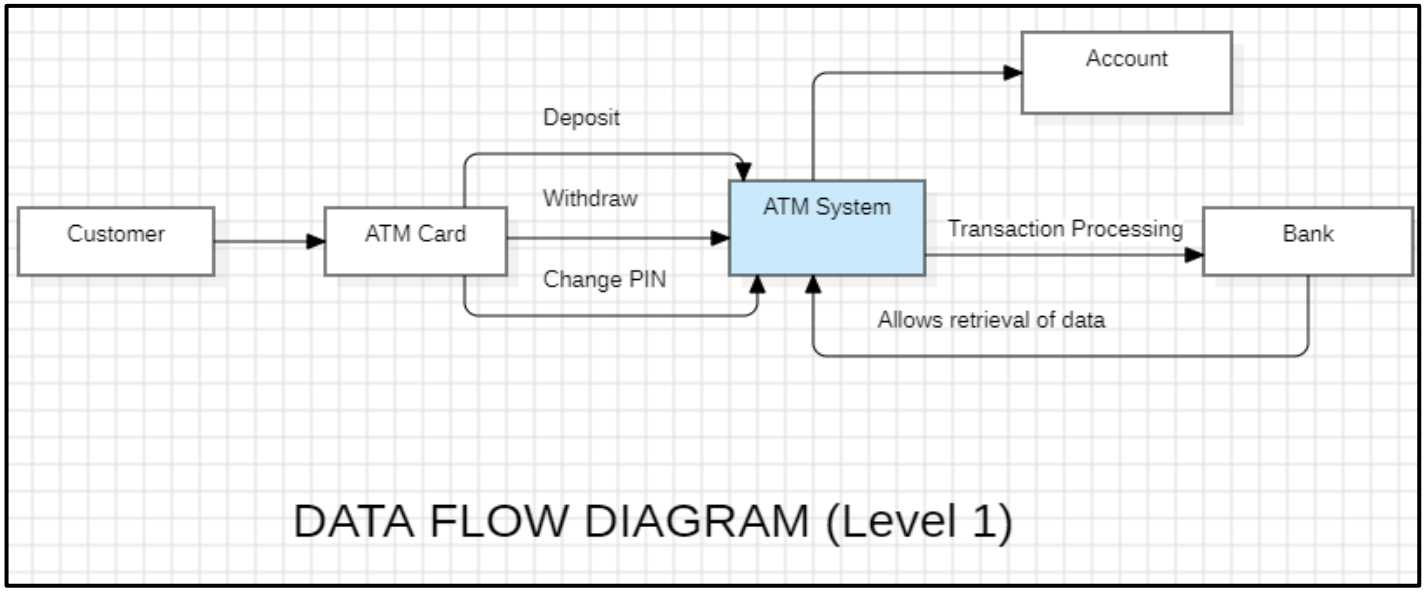
authorization , If the client has enough credit in his account, he will be

permitted to carry out a valid transaction.

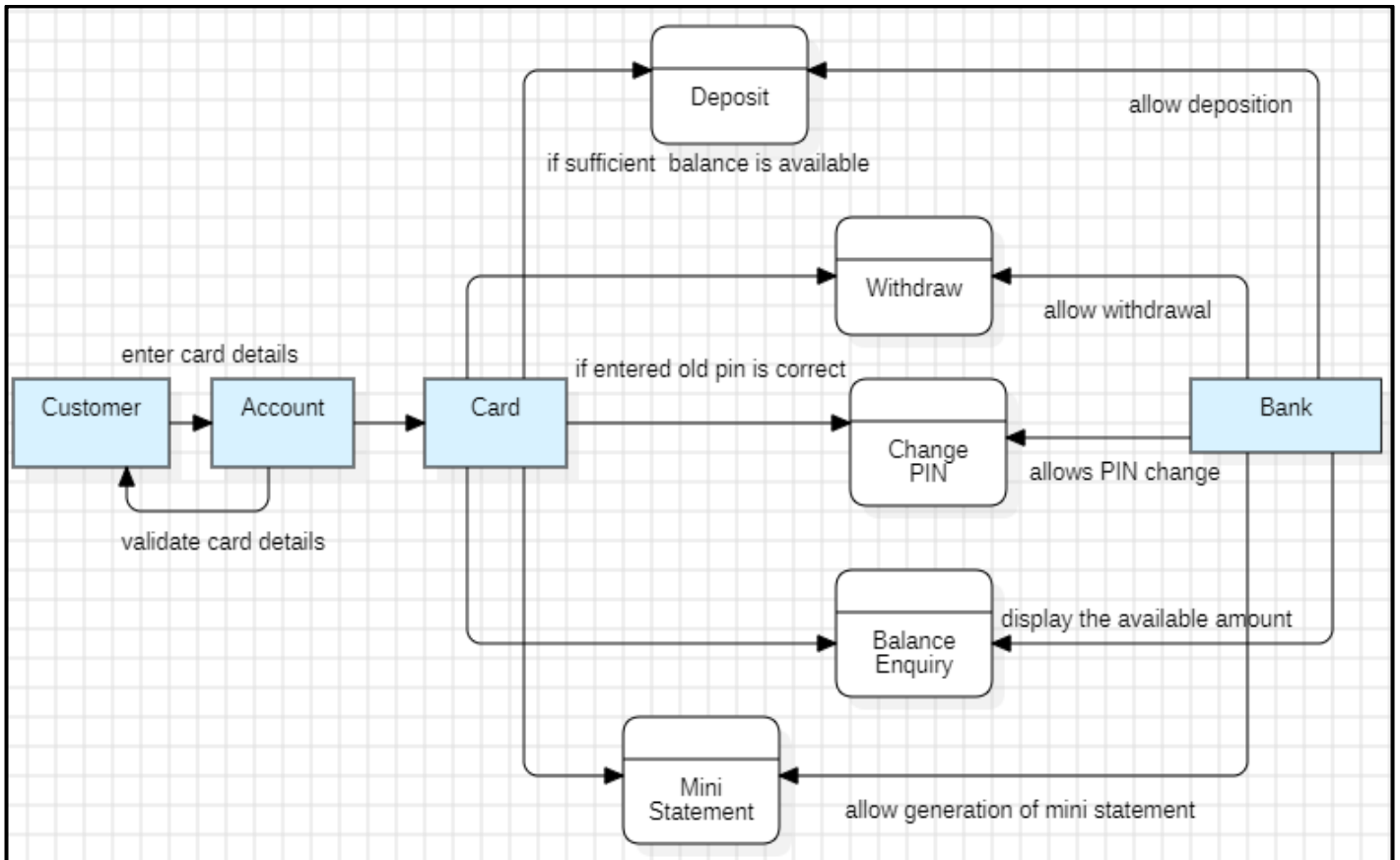
# Data Flow

## Data-Flow Diagram



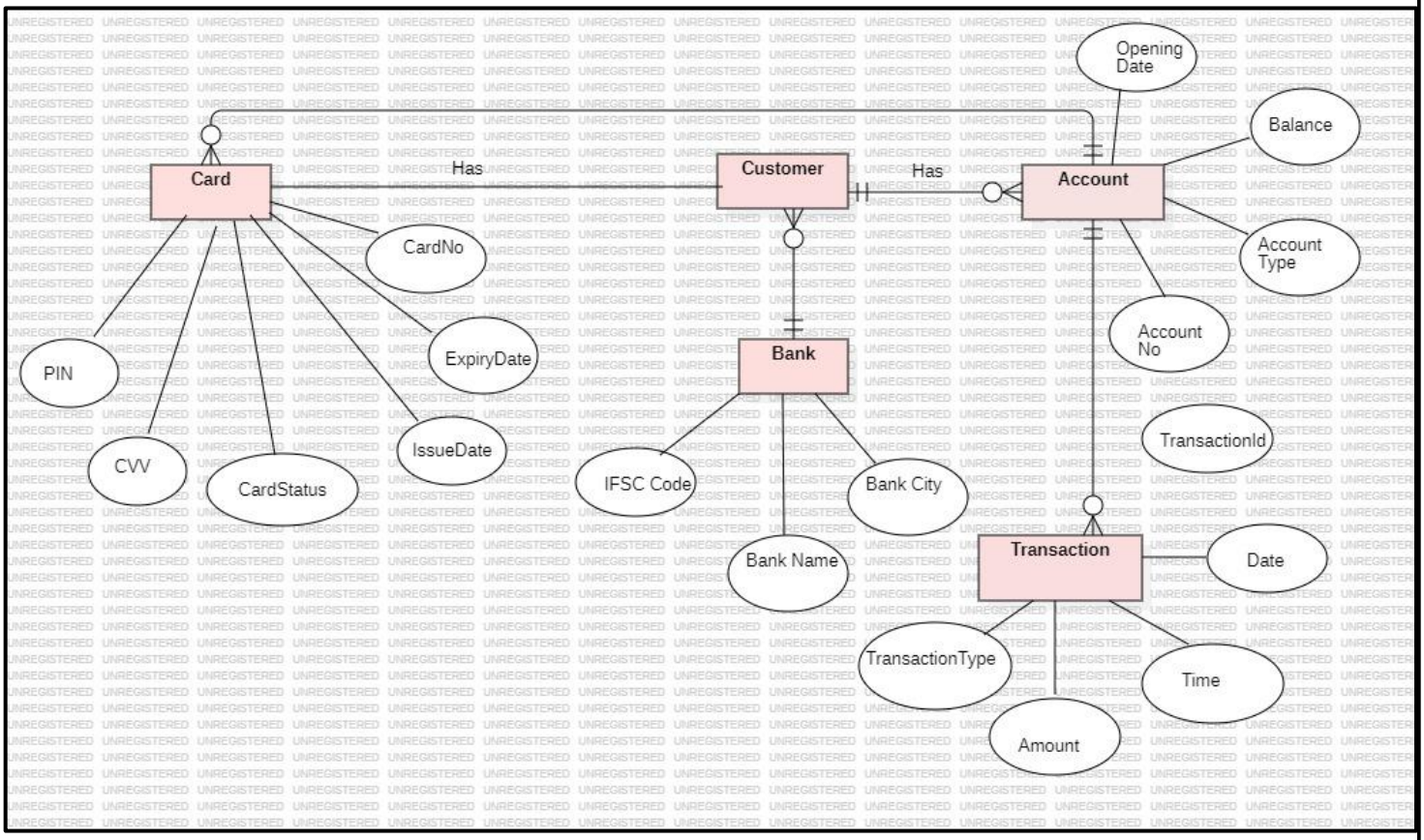



DATA FLOW DIAGRAM (Level 1)

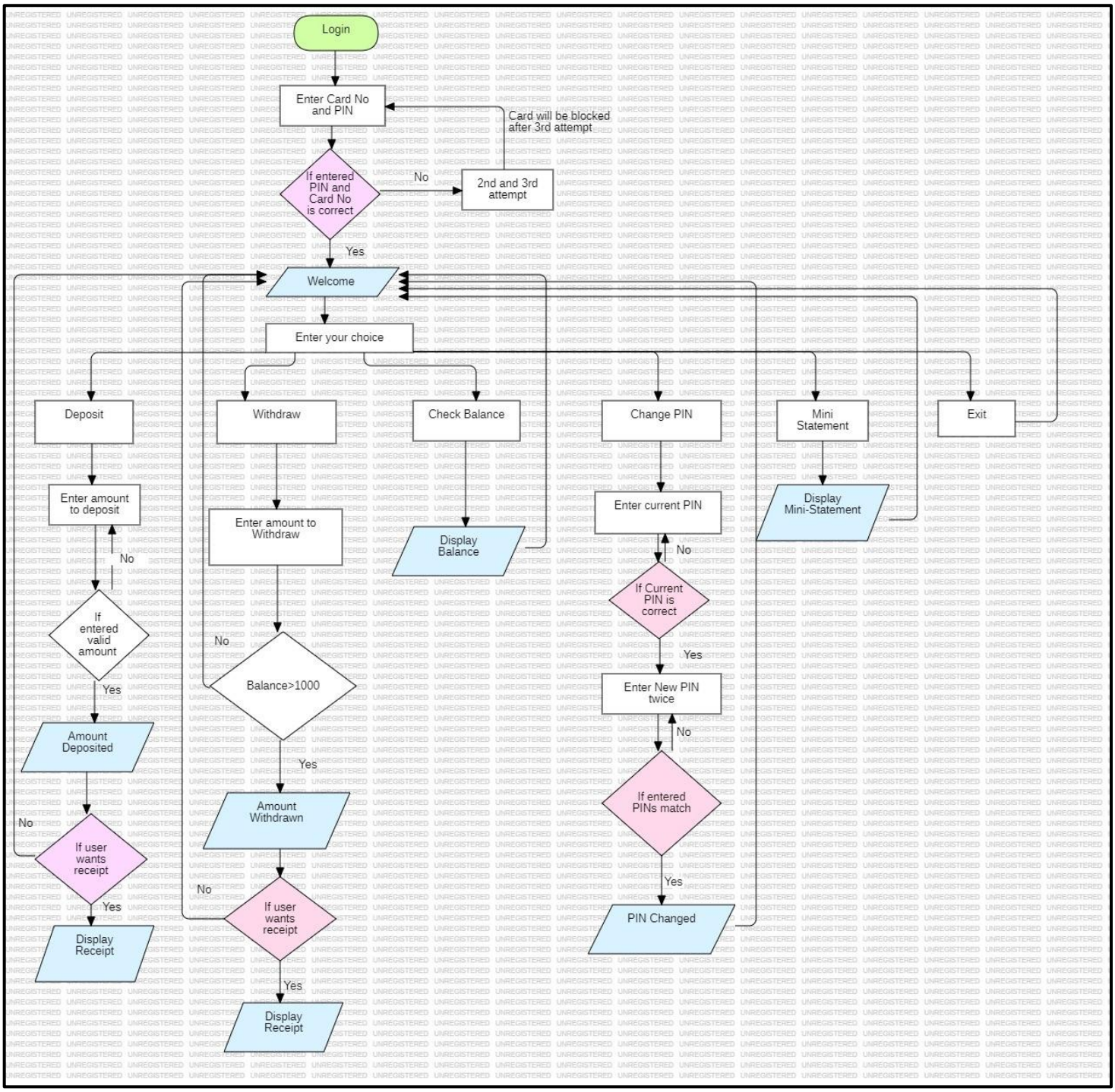



DATA FLOW DIAGRAM(Level 2)

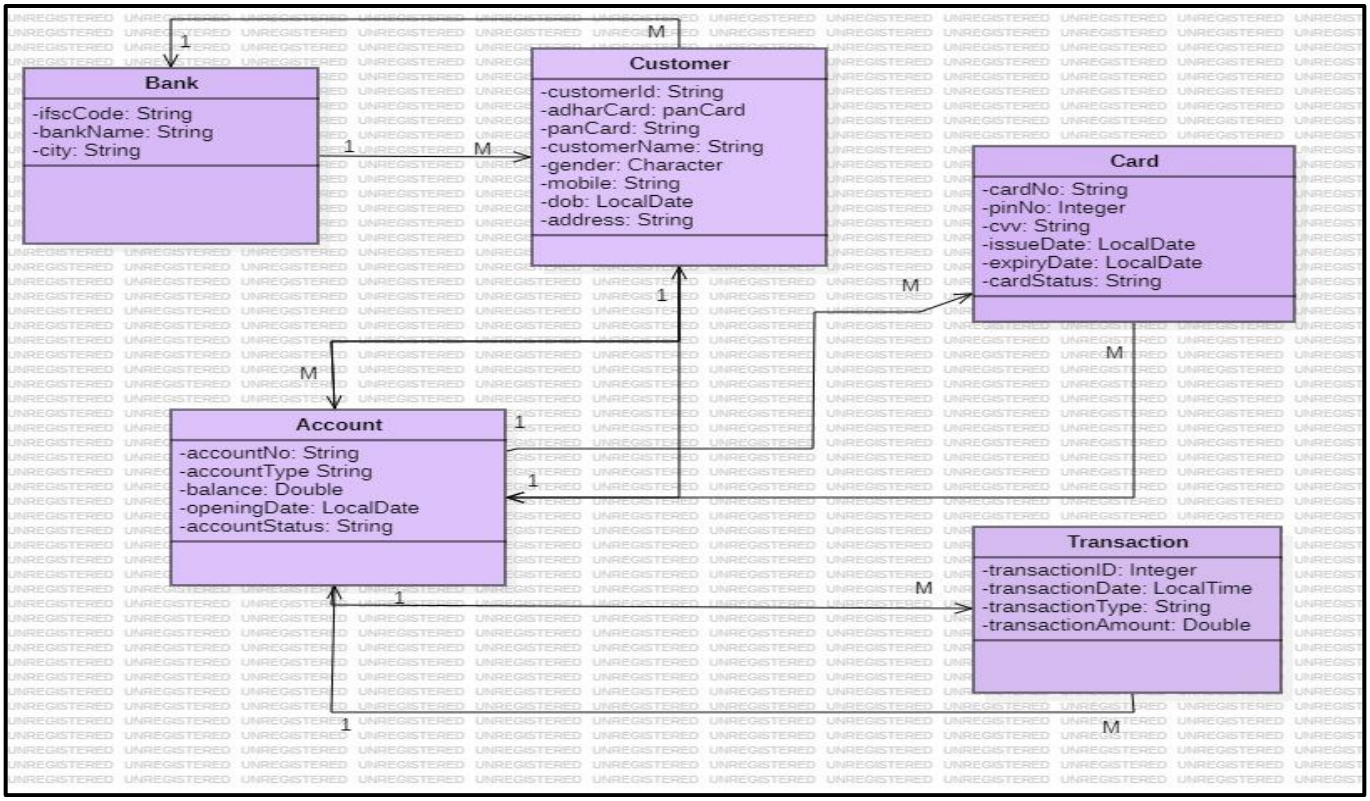
# Entity–Relationship Diagram



# Flow Chart


Login
Enter Card No and PIN
Card will be blocked after 3rd attempt
If entered PIN and Card No is correct
No
2nd and 3rd attempt
Yes
Welcome
Enter your choice
Deposit
Withdraw
Check Balance
Change PIN
Mini Statement
Exit
Enter amount to deposit
No
If entered valid amount
Yes
Amount Deposited
No
If user wants receipt
Yes
Display Receipt
Enter amount to Withdraw
No
Balance>1000
Yes
Amount Withdrawn
No
If user wants receipt
Yes
Display Receipt
Display Balance
Enter current PIN
No
If Current PIN is correct
Yes
Enter New PIN twice
No
If entered PINs match
Yes
PIN Changed
Display Mini-Statement

# Class-Diagram



## Database Design

Select MySQL 8.0 Command Line Client

```
mysql> use atm;
Database changed
mysql> show tables;
+---------------+
| Tables_in_atm |
+---------------+
| account       |
| bank          |
| card          |
| customer      |
| transaction   |
+---------------+
5 rows in set (0.00 sec)

mysql> desc account;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| accountNo     | varchar(16) | NO   | PRI | NULL    |       |
| accountStatus | varchar(10) | YES  |     | NULL    |       |
| accountType   | varchar(25) | YES  |     | NULL    |       |
| balance       | double      | YES  |     | NULL    |       |
| openingDate   | date        | YES  |     | NULL    |       |
| customerId    | varchar(11) | YES  | MUL | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
6 rows in set (0.07 sec)

mysql> desc bank;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| ifscCode | varchar(11) | NO   | PRI | NULL    |       |
| bankName | varchar(20) | YES  |     | NULL    |       |
| city     | varchar(15) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Select MySQL 8.0 Command Line Client

```
mysql> desc card;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| cardNo     | varchar(16)  | NO   | PRI | NULL    |       |
| cardStatus | varchar(10)  | YES  |     | NULL    |       |
| cvv        | varchar(3)   | YES  |     | NULL    |       |
| expiryDate | date         | YES  |     | NULL    |       |
| issueDate  | date         | YES  |     | NULL    |       |
| pinNo      | varchar(255) | YES  |     | NULL    |       |
| accountNo  | varchar(16)  | YES  | MUL | NULL    |       |
+------------+--------------+------+-----+---------+-------+
7 rows in set (0.00 sec)

mysql> desc customer;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| customerId   | varchar(11) | NO   | PRI | NULL    |       |
| aadharCard   | varchar(16) | YES  |     | NULL    |       |
| address      | varchar(30) | YES  |     | NULL    |       |
| customerName | varchar(20) | YES  |     | NULL    |       |
| dob          | date        | YES  |     | NULL    |       |
| gender       | char(1)     | YES  |     | NULL    |       |
| mobile       | varchar(10) | YES  |     | NULL    |       |
| panCard      | varchar(10) | YES  |     | NULL    |       |
| ifscCode     | varchar(11) | YES  | MUL | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
9 rows in set (0.00 sec)

mysql> desc transaction;
+-------------------+-------------+------+-----+---------+----------------+
| Field             | Type        | Null | Key | Default | Extra          |
+-------------------+-------------+------+-----+---------+----------------+
| transactionId     | int         | NO   | PRI | NULL    | auto_increment |
| transactionAmount | double      | YES  |     | NULL    |                |
| transactionDate   | date        | YES  |     | NULL    |                |
| transactionTime   | time        | YES  |     | NULL    |                |
| transactionType   | varchar(25) | YES  |     | NULL    |                |
| accountNo         | varchar(16) | YES  | MUL | NULL    |                |
+-------------------+-------------+------+-----+---------+----------------+
6 rows in set (0.00 sec)
```

# 5. FUTURE SCOPE

- Enhanced Security Features: Implementation of real-time transaction alerts via SMS or email to notify users of account activity and enhance security by enabling immediate detection of unauthorized transactions.

- Fund transfer: transfer of money from one bank account to another either within same or to any other financial institution.

- UPI Integration: UPI has gained significant traction in India as a convenient and instant payment system. ATM machines can integrate UPI functionality, allowing users to initiate transactions directly from their bank accounts linked to UPI IDs.

- Enhanced User Interface: Future console-based ATM systems may feature more intuitive and user-friendly interfaces.