Darshan University

A Project Report on

"Bank Management System"

Under the subject

Software Engineering (2301CS405)

B. Tech, Semester – IV

Computer Science & Engineering Department

Submitted By

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Academic Year (2024-2025)

Internal Guide	Dean-DIET
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DECLARATION

We hereby declare that the SRS, submitted along with the **Software Engineering (2301CS405)** for entitled **"Bank Management System"** submitted in partial fulfilment for the Semester-4 of **Bachelor Technology (B. Tech)** in **Computer Science and Engineering (CSE)** Department to Darshan University, Rajkot, is a record of the work carried out at **Darshan University, Rajkot** under the supervision of R. B. Gondaliya and that no part of any of report has been directly copied from any students' reports, without providing due reference.

Nimavat Mansi Dilipbhai

(Student name)

Student's Signature

Date: _22/12/2024_____

Computer Science & Engineering Department

Darshan University

CERTIFICATE

This is to certify that the SRS on **"Bank Management System"** **has** been satisfactorily prepared by **Nimavat Mansi Dilipbhai** (**23010101177**) under my guidance in the fulfillment of the course **Software Engineering (2301CS405)** work during the academic year 2024-2025.

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gave me the permission to use and experience the valuable resources required for the project from the University premises.

Thus, in conclusion to the above said, I once again thank the faculties and members of **Darshan University** for their valuable support in completion of the project.

Thanking You

Nimavat Mansi Dilipbhai

ABSTRACT

Bank management system is a system which aims in developing a computerized system to maintain all daily problem related money. This system will act as a tool to transfer traditional Banking into digital Banking. This project has many features which are generally not available in general Banking system like facility of user login, UPI Payment, Money transfer on one click etc. It also has a facility of admin login through which the admin can monitor the whole system. This system will be designed with the basic features such as Manager can add/view/update/delete Clerk and Account details in it. It has also a facility where customer after logging in their accounts can see Transaction History and Current Balance and Loans and also they can request the Manager to get details of Various Loan and insurance policy. The Manager after logging into his account i.e. admin account can generate various reports such as Branch report , issue report, Clerk report and Money report.

Main purpose of this system is to reduce human efforts as much as possible.

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1 Introduction

1.1 Product perspective

This project is basically updating the manual Banking system into an internet-based application so that the users can know the details of their account, current Balance etc. It is a multi-user system that efficiently manages all fundamental banking operations such as Account Management, Transaction Processing, Loan Management, and Customer Service. It can effectively handle all the basic requirements of a small-scale banking institution.

1.2 Product features
1.2.1 There are three different users who will be using this product:
- Bank Manager who will be acting as the administrator.
- Customer who will be accessing the Banking.
- Visitor who will request to open a new account or inquire about services.

1.3 Functional Requirement
1.3.1 Manger
- Link Addhar
- Accept New Applications
- Assign/Remove Clerk
- Current Balance in ATM
- Allow Online Transaction
- Check Current Schemes
- Allow Online Transation
- View Bills
- Exchanging Money

1.3.2 Member
- Login
- Deposit
- Check Balance
- Net Banking
- Money Transfer
- Generate UPI
- Generate ATM PIN
- Check Loan

1.3.3 Admin
- Send OTP
- Upload Details of Loan
- Branch
- Transaction Report
- Pay Salary
- Generate Account Report
- Generate transaction message

1.4 Non-Functional Requirement

1.4.1   Security

1.4.2   Data integrity

1.4.3   Performance

1.4.4   Maintainability

2 Design and Implementation Constraints

2.1 Use case diagram
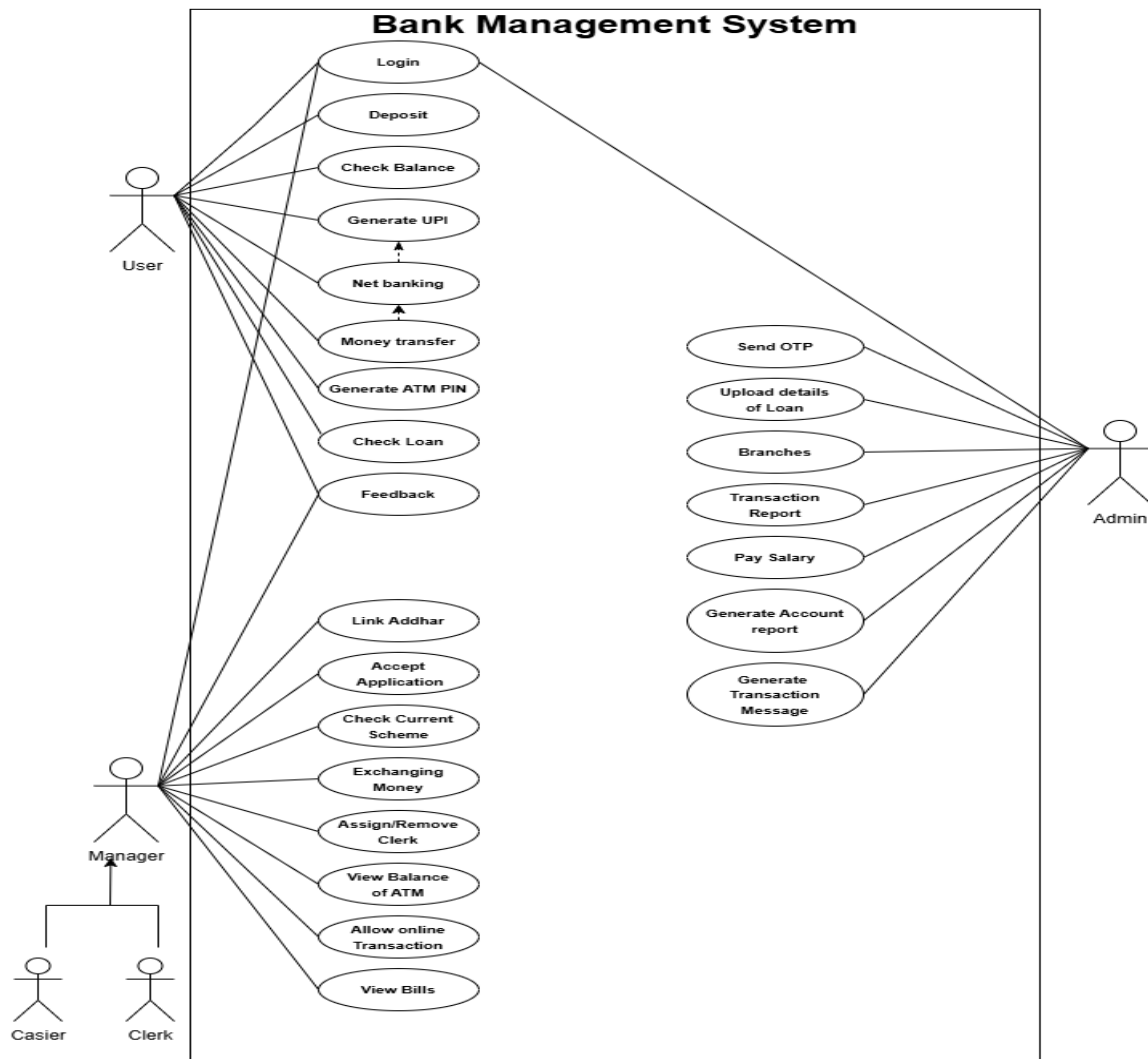
Figure 2-1 Use case diagram for Bank management system

2.2 Activity diagram and Swimlane diagram
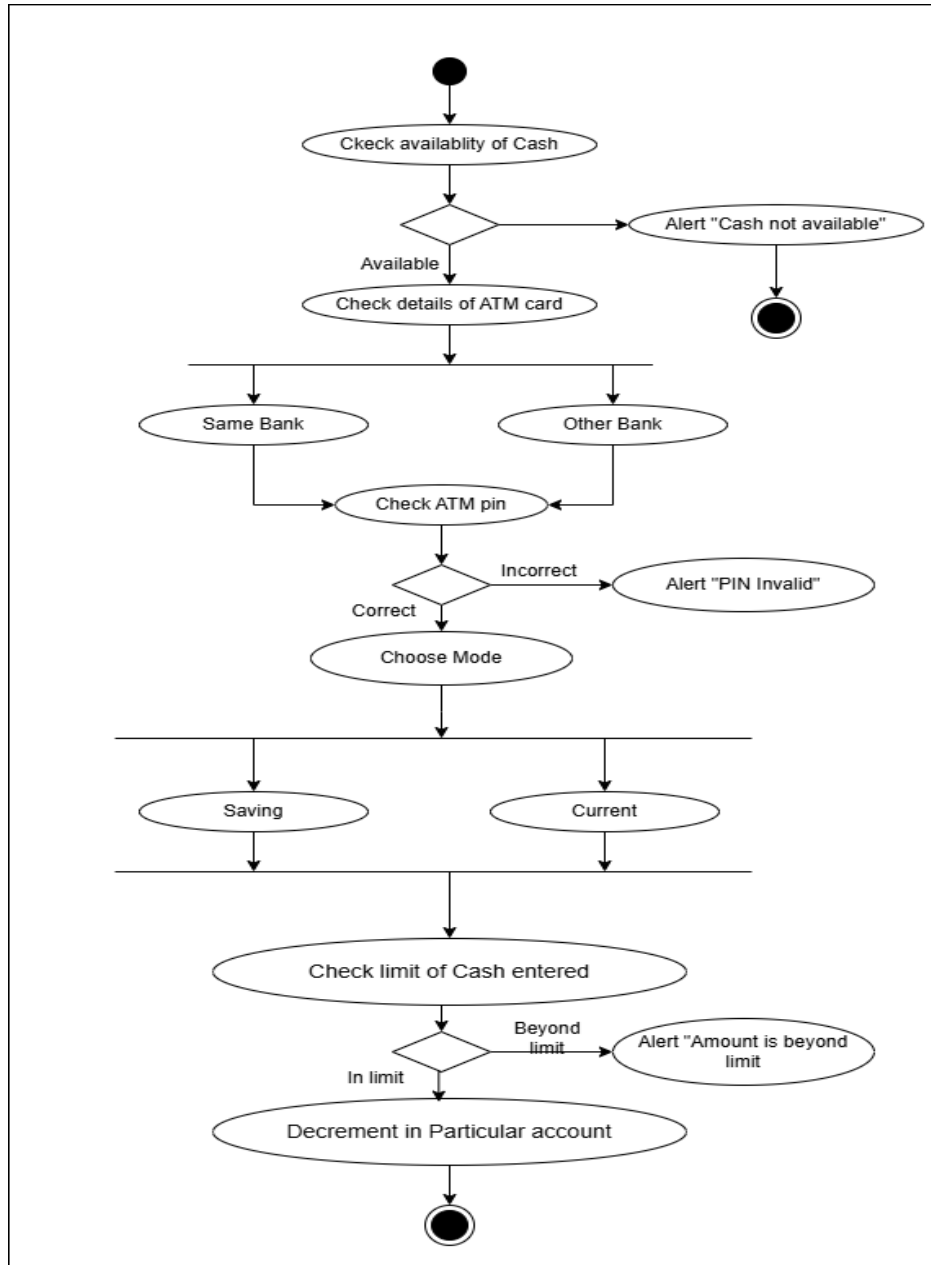
Figure 2-2 Activity Diagram for ATM
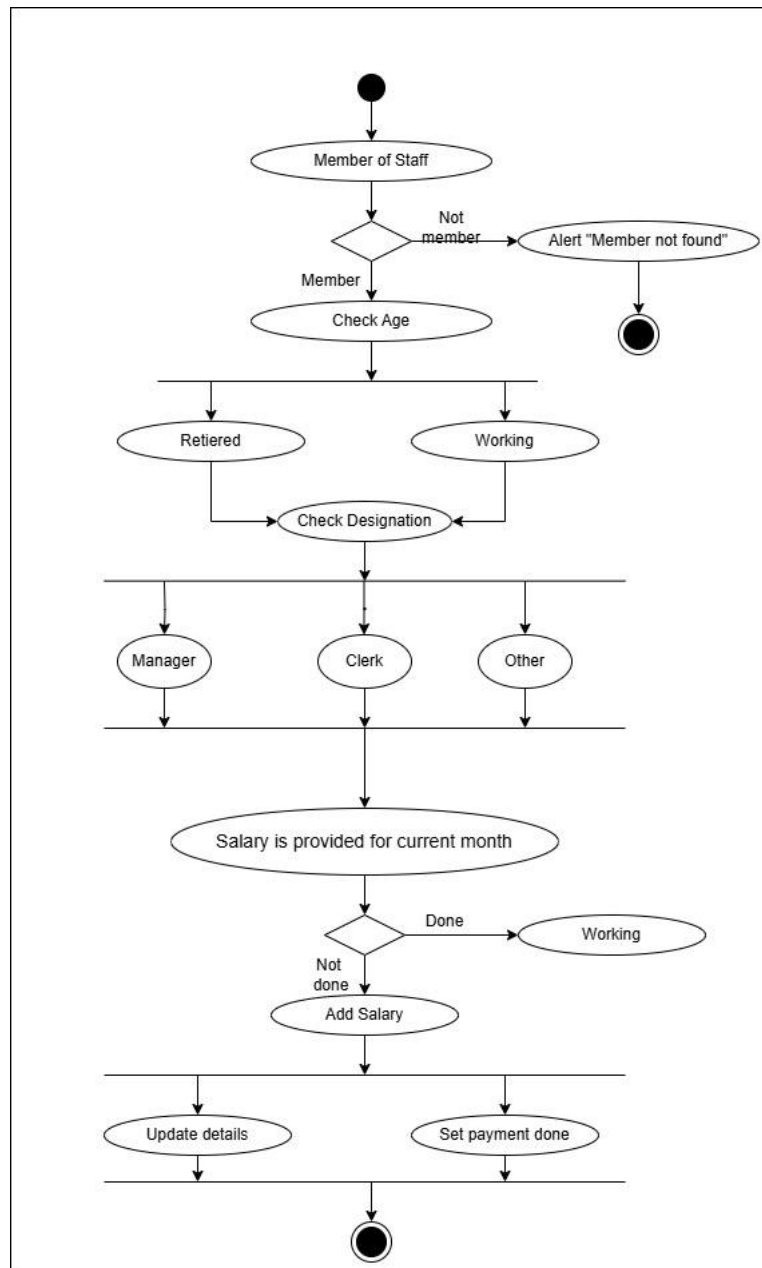
Figure 2-3 Activity diagram for Paying salary
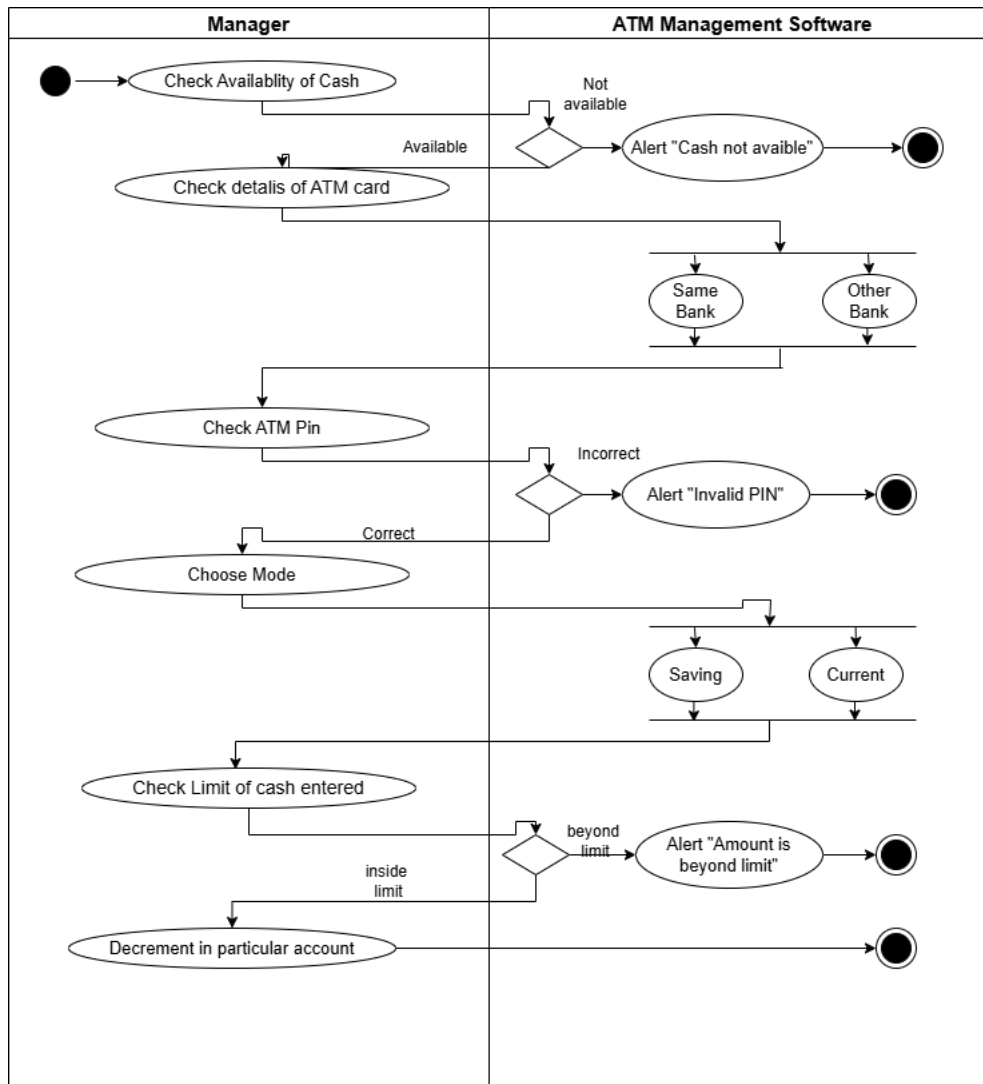
Figure 2-4 Swimlane diagram for ATM
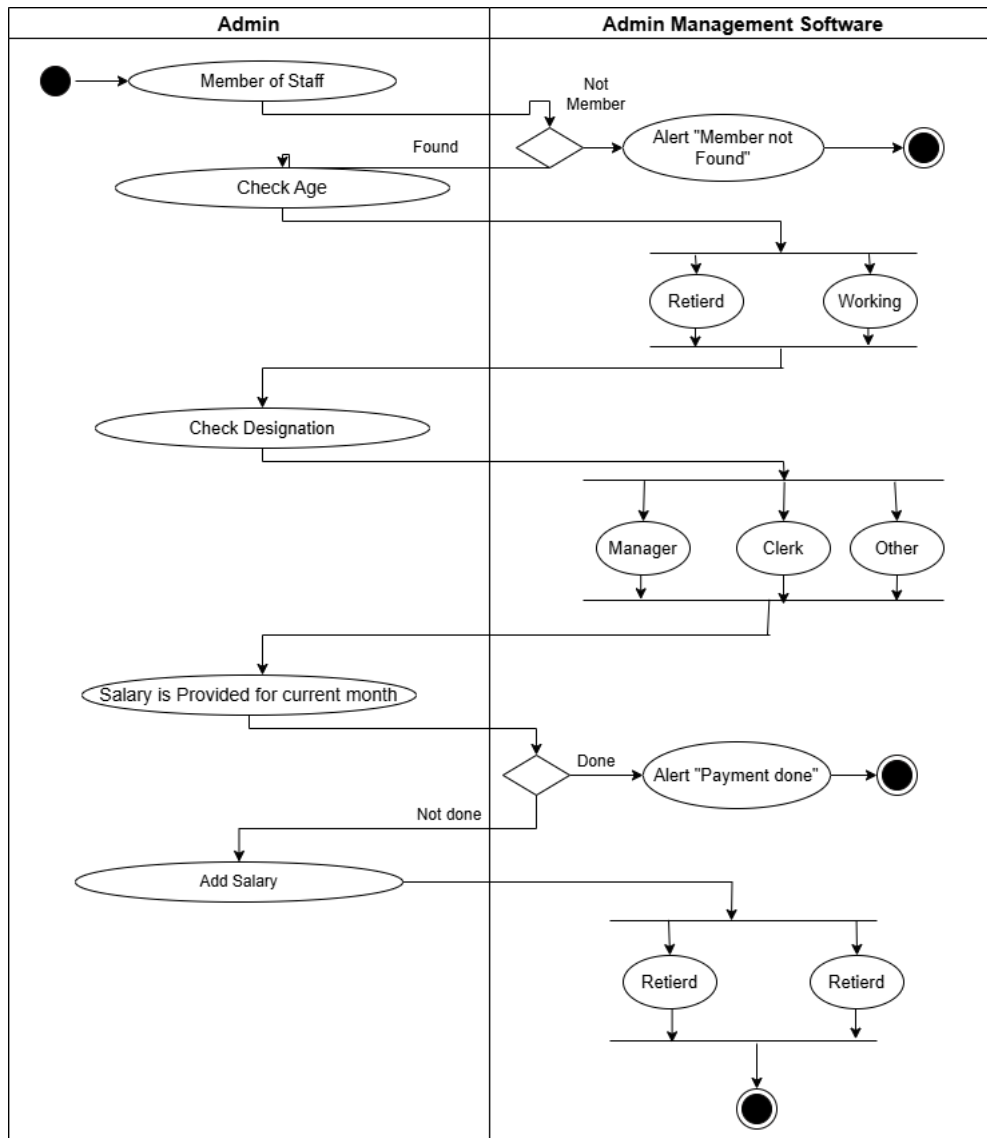
Figure 2-5 Swimlane diagram for paying salary

2.3 Sequence diagram
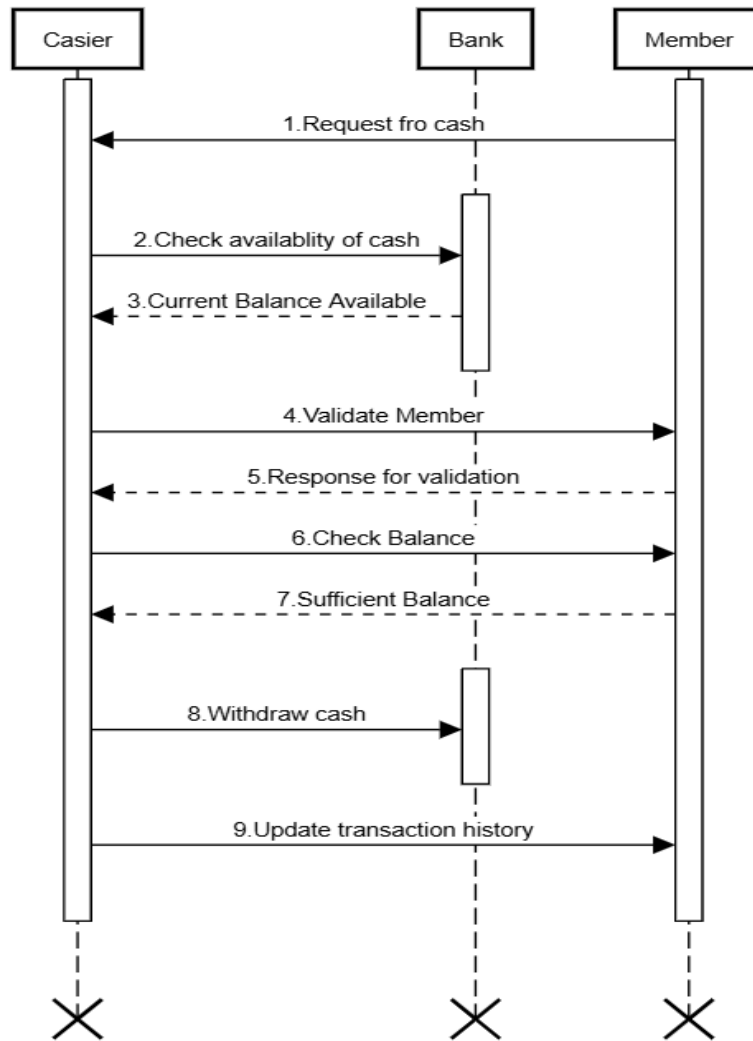
Figure 2-6 Sequence diagram for ATM

2.4 State diagram
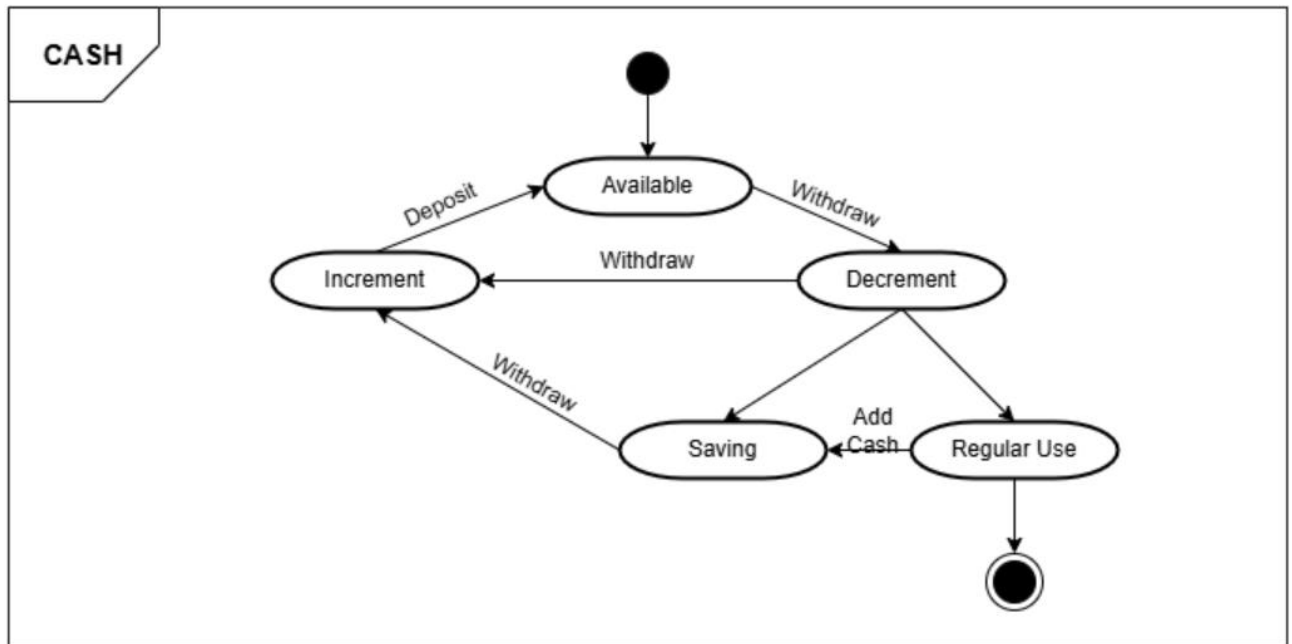
Figure 2-7 State diagram of Cash
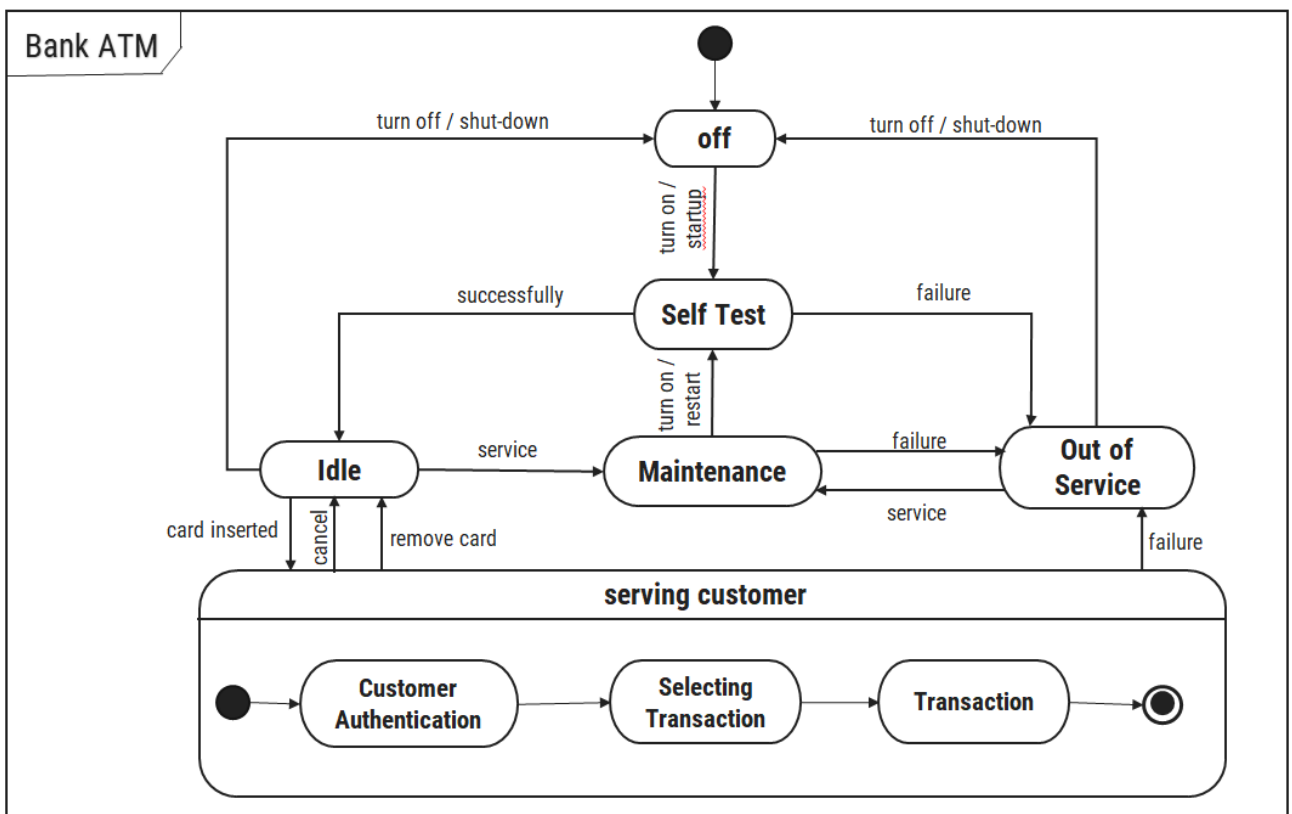
Figure 2-8 State diagram for Bank ATM

2.5 Class diagram
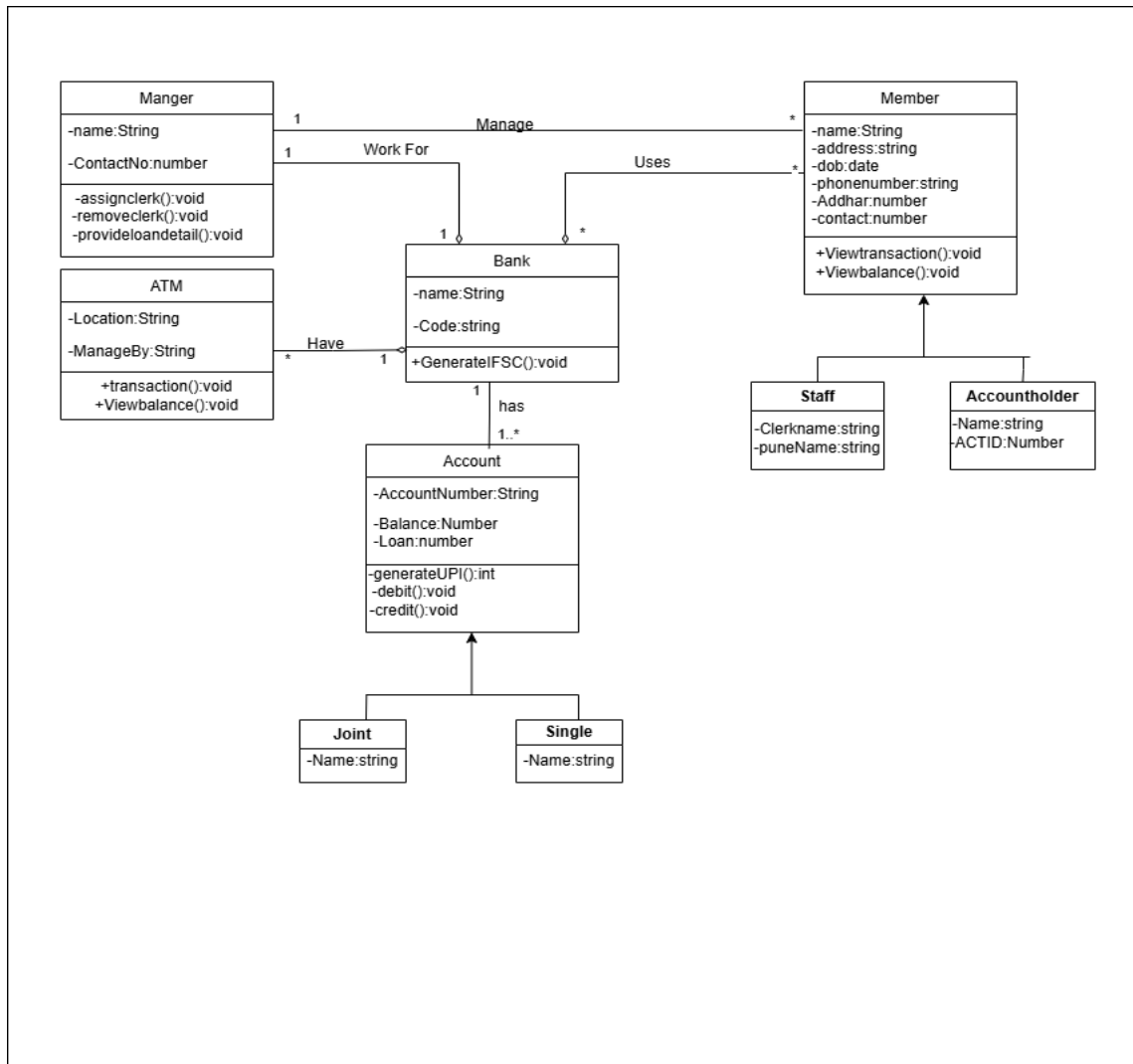
Figure 2-9 Class diagram for Bank Management System

2.6 Data flow diagram

2.6.1 Context diagram (level-0)
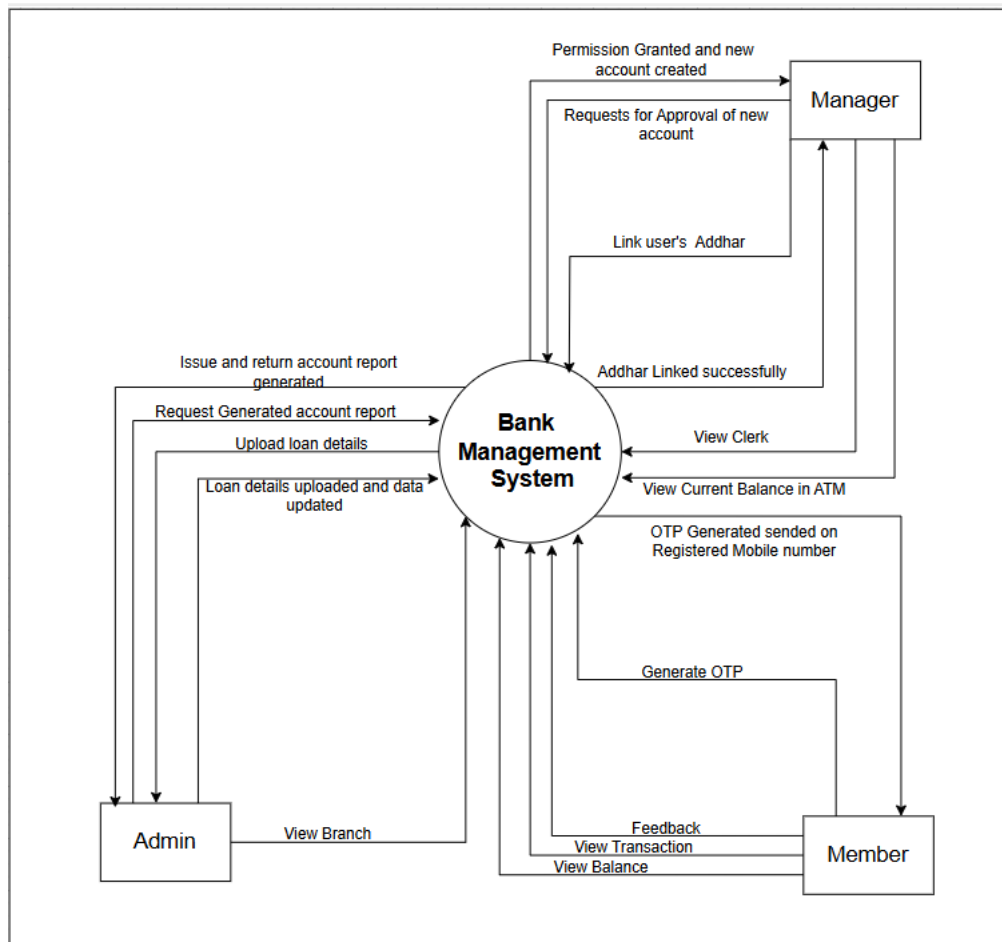
Figure 2-10 Context diagram for Bank management system

2.6.2 DFD Level-1
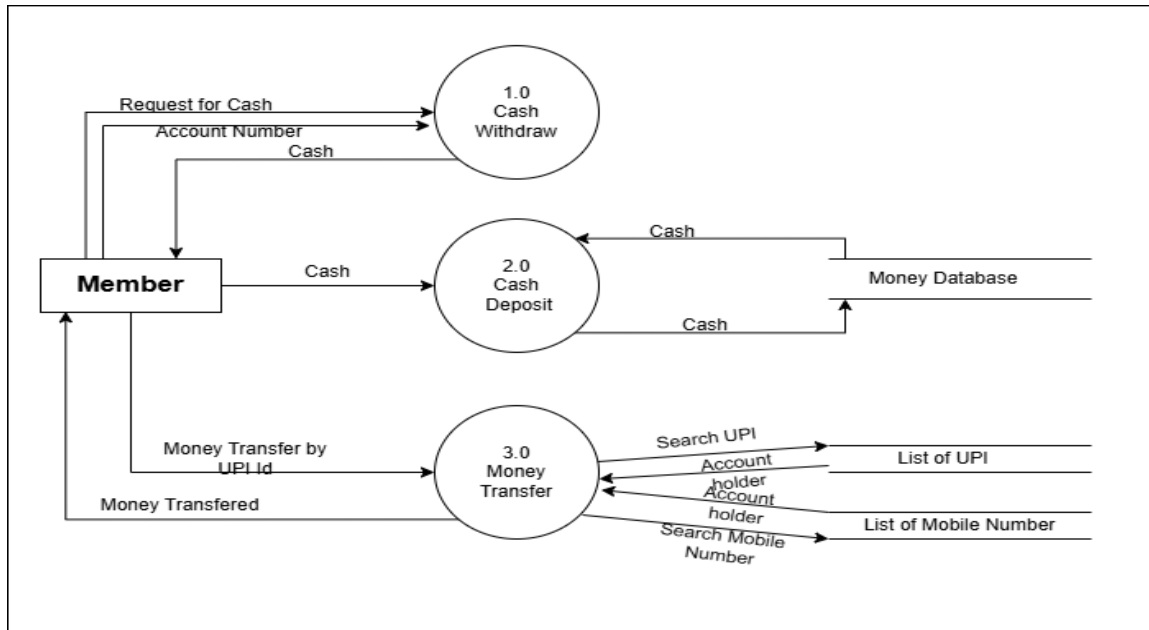
Figure 2-11 DFD level-1 for Member

2.6.3 DFD Level-2
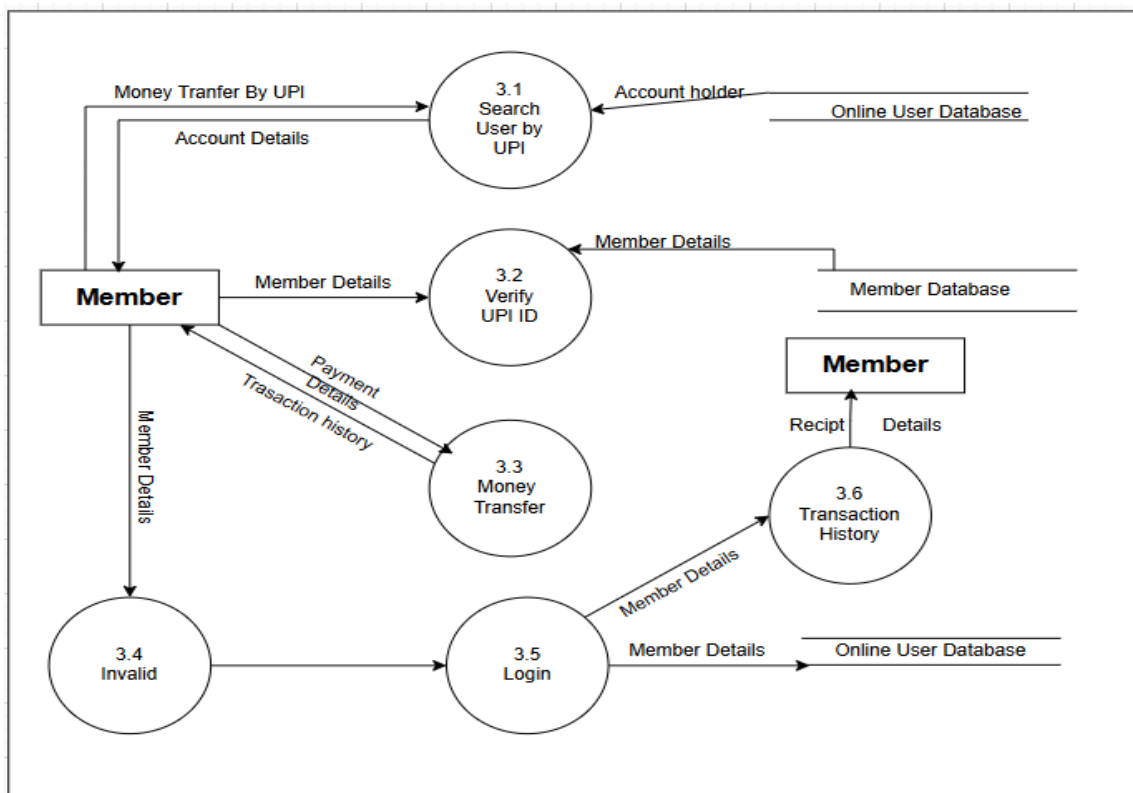
Figure 2-12 DFD level-2 for Money Transfer

3 External interface requirement (Screens)

3.1 Screen-1: Link Aadhaar

Figure 3-1 Screen-1: Link Aadhhar

Purpose: This form will allow the target end-users to Link Aadhhar in the system. To do so , the following information will be encoded in the system.

Table 3. 1-1 Screen element of Link Aadhaar

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Name	Textbox	M	1	Name field should be editable and accept the Name.
2	Moblie	Number	M	1	Moblie field should be editable and accept the Mobile and display as cross
3	Adhaar No.	Number	M	1	Adhaar number field should be editable and accept the Number.
4	Cancel	Button	M	1	To Cancel form
5	Link Aadhaar	Button	M	1	To Link Aadhaar form if any invalid data

3.2   Screen-2: View Bills

Figure 3-2 Screen-2: View Bills

Purpose: This form will be used by the system's users to access records and features of the system. The Admin can View Bills of its Branch

Table 3. 2- 1 Screen element of View Bills

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Pay	Button	M	1	Confirm that you want to pay and takes you to payment mode

3.3   Screen-3: Deposit

Figure 3-3 Screen-3: Deposit

Purpose: This module will allow the system administrator to add Deposit regarding Bank . The admin can Handle Cash and manage it.

Table 3. 3- 1 Screen element of Deposit

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Account No	Text	M	1	Account Number should be editable and acceptable
2	Current Amount	Decimal	M	1	Current Amount should be editable and acceptable
3	Amount	Decimal	O	1	Amount should be editable and acceptable
4	Updated Amount	Decimal	M	1	Updated Amount should be maintain by Manager

3.4   Screen-4: FeedBack
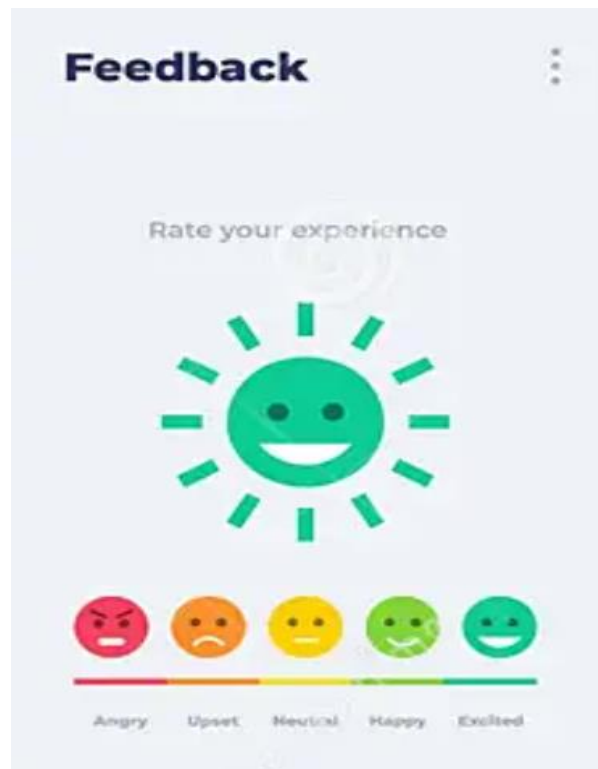
Figure 3-4 Screen-4: FeedBack

Purpose: This module will allow the system User to Give feedback. The User can Exchange their view from anywhere and in any time.

Table 3. 4-1 Screen element of FeedBack

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Angry	Button	O	1	This is to submit user feedback
2	Upset	Button	O	1	This is to submit user feedback
3	Neutral	Button	O	1	This is to submit user feedback
4	Happy	Button	O	1	This is to submit user feedback
5	Excellent	Button	O	1	This is to submit user feedback

3.5   Screen-5: Generate Transaction Message

Figure 3-5 Screen-5: Generate Transaction Message

Purpose: This module will allow the system administrator to add Customer Query regarding Bank . The admin can Handle Customer Query and manage it.

Table 3. 5-1 Screen element of Generate Transaction Message

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Account Number	Number	M	1	Account Number of Customer
2	Submit	Button	-----	-----	Submit is a button for store the entered data into database.
3	Cancel	Button	-----	-----	Cancel is a button for close add borrower dialog.

4 Database design

4.1 List of Tables

- Bank Information
- Branch
- Loan
- Customer
- Account

Table 4.1- 1 Table Bank Information

Column	Data Type	Null	Keys & Constrains	Default Value & Description
Bank_id	int	NN	PK (Auto Increment)	
BankerName	varchar(100)	NN		
IFSC	varchar(100)	NN		
Bnker_email	Varchar(50)	AN		

Table 4.1- 2 Table:Branch

Column	Data Type	Null	Keys & Constrains	Default Value & Description
Name	varchar(100)	NN		
Address	varchar(100)	AN		
Afflication	Varchar(100)	AN		

Table 4.1- 3 Table:Loan

Column	Data Type	Null	Keys & Constrains	Default Value & Description
Loan Number	int	NN		
Amount	Decimal(10,2)	NN		

Table 4.1- 4 Table:Customer

Column	Data Type	Null	Keys & Constrains	Default Value & Description
Customer_id	int	NN	PK (Auto Increment)	
Customer_Name	varchar(100)	AN		
Customer_street	varchar(100)	AN		
Customer_city	varchar(100)	AN		
Bank_id	int	NN	FK	Reference from Bank information

Table 4.1- 5 Table:Account

Column	Data Type	Null	Keys & Constrains	Default Value & Description
Category	varchar(100)	NN		
Balance	int	AN		
Account Number	int	NN		

5 Stories and Scenario

5.1 Story-1: Link Aadhaar

Story # S1	:	**As a** Bank Employee **I want to** link the Aadhaar number to the account holder's bank account **So** that the account holder can avail government subsidies and comply with regulatory requirements.
Priority	:	High
Estimate	:	**XL**
Reason	:	Linking Aadhaar to the bank account is essential for ensuring seamless transactions, identity verification, and access to government benefits.

5.1.1 Scenario# S1.1

Scenario# S1.1	:	Linking Aadhaar with Valid Information
Prerequisite	:	The bank employee is logged into the bank management system.
Acceptance Criteria	:	**Given**: The bank employee is on the Aadhaar linking page. The account holder provides valid Aadhaar details, including the Aadhaar number and matching identity details. **When**: The bank employee selects the "Link Aadhaar" option. The employee enters the valid Aadhaar details and submits the request. The system verifies the details with UIDAI. **Then**: The system successfully links the Aadhaar number to the account. The employee receives a confirmation message, and the account holder is notified via SMS/email.

5.1.2 Scenario# S1.2

Scenario# S1.2	:	Linking Aadhaar with Invalid Information
Prerequisite	:	The bank employee is logged into the bank management system.

Acceptance Criteria	:	**Given**: The bank employee is on the Aadhaar linking page. The account holder provides incomplete or incorrect Aadhaar details. **When**: The bank employee selects the "Link Aadhaar" option. The employee enters incorrect Aadhaar details and submits the request. The system attempts to verify the details with UIDAI. **Then**: The system displays an error message indicating invalid or mismatched information. The Aadhaar linking process is not completed, and the employee is prompted to correct the details.

5.2   Story-2: Deposit

Story # S2	:	**As a** Bank Customer, **I want to** deposit money into my bank account **So that** I can securely store my funds and use them for future transactions.
Priority	:	High
Estimate	:	L
Reason	:	Depositing money is a fundamental banking transaction that ensures customers can add funds to their accounts for payments, savings, and other financial activities.

5.2.1   Scenario# 2.1

Scenario# S2.1	:	Depositing Money with Valid Details
Prerequisite	:	The customer has an active bank account and is logged into the bank system (if depositing digitally) or is at a bank branch.
Acceptance Criteria	:	**Given**: The customer provides valid deposit details, including account number and deposit amount. **When**:The customer selects the "Deposit" option. The customer enters the correct deposit amount and account number. The customer confirms the deposit transaction. **Then**: The system successfully deposits the money into the account. The customer receives a confirmation message with the transaction details.

5.2.2   Scenario# S2.2

Scenario# S2.2	:	Attempting to Deposit Money with Invalid Details
Prerequisite	:	The customer has an active bank account and is logged into the bank system (if depositing digitally) or is at a bank branch.
Acceptance Criteria	:	**Given**: The customer enters incorrect deposit details, such as an invalid account number or exceeds the deposit limit. **When**: The customer selects the "Deposit" option. The customer enters an incorrect account number or invalid amount. The customer attempts to confirm the deposit transaction. **Then**: The system displays an error message indicating invalid details. The deposit is not processed, and the customer is prompted to enter the

		correct information.

5.3 Story-3: Transaction Message

Story # *S3*	:	**As** a Bank Customer, **I want to** receive a transaction message after any financial activity in my account **So** that I can stay informed about my account transactions and detect any unauthorized activities
Priority	:	High
Estimate	:	M
Reason	:	Timely transaction messages help customers track their financial activities, enhance security, and prevent fraudulent transactions.

5.3.1 Scenario# S3.1

Scenario# *S3.1*	:	Receiving a Transaction Message for a Successful Transaction
Prerequisite	:	The customer has an active bank account and is logged into the bank system (if depositing digitally) or is at a bank branch.
Acceptance Criteria	:	**Given:** A valid transaction (deposit, withdrawal, transfer, or payment) is completed successfully. **When**: The transaction is processed in the bank's system.The system generates a confirmation message with transaction details. **Then:** The customer receives an SMS/email notification with details such as transaction type, amount, date, and updated account balance.

5.3.2 Scenario# S3.2

Scenario# *S3.2*	:	Not Receiving a Transaction Message Due to System Issues
Prerequisite	:	The customer has an active bank account with notifications enabled, but the banking system experiences delays or failures in sending messages.
Acceptance Criteria	:	**Given:** The customer completes a valid transaction, but the notification service is down. **When:** The system fails to generate or send the transaction message. **Then:** The customer does not receive an immediate SMS/email.The system logs the failure and retries sending the message when the issue is resolved. The bank support team is alerted if multiple failures occur.

6 Test cases

Project Name:	Bank Management System	Test Designed by:	M.D. Nimavat
Module Name:	Link Aaddhar	Test Designed date:	14-2-2024
Release Version:	1.0	Test Executed by:	
		Test Execution date:	

Pre-condition: Web application should be accessible				
Test Case ID	**Test Title**	**Test Type**	**Description**	**Test Case ID**
TC_001	Link Aadhaar with valid details	Functional	Verify that the user can successfully link Aadhaar when valid PAN, Aadhaar number, name, and mobile number are provided, and the validation checkbox is checked.	TC_001
TC_002	Link Aadhaar with mismatched details	Functional	Verify that the system shows an error message if the entered Aadhaar details do not match the PAN details.	TC_002

Test Case Title	Link Aadhaar with valid details
Test Type	Functional
Test Priority	High
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	BUG ID
1	Access the Aadhaar linking web application	The site launched properly	Site launched successfully	Pass			
2	Enter valid PAN, Aadhaar number, Name, and Mobile Number	Fields should accept input	input accepted	Pass		PAN: ABCD1234E, Aadhaar: 1234 5678 9012, Name: John Doe, Mobile: 9876543210	

3	Check "I agree to validate my Aadhaar details" checkbox	Checkbox should be selectable	Checkbox selected	pass			
4	Click on "Link Aadhaar" button	Aadhaar should be linked successfully	Aadhaar Linked successfully	Pass	User navigated to confirmation screen		

Test Case Title	Link Aadhaar with mismatched details
Test Type	Functional
Test Priority	Medium
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Access the Aadhaar linking web application	The site should launch properly	Site launched successfully	Pass			
2	Enter PAN and Aadhaar number with mismatched Name	Fields should accept input	Input Accepted	Fail		PAN: ABCD1234E, Aadhaar: 1234 5678 9012, Name: Jane Doe (Mismatch), Mobile: 9876543210	
3	Verify if Aadhaar linking fails	User should not be able to proceed	Linking failed as expected	Fail	User remains on the same page		

4	Click on "Link Aadhaar" button	System should display an error	Error message displayed	Pass	"Aadhaar details do not match PAN details"		

Project Name:	Bank Management System	Test Designed by:	M.D. Nimavat
Module Name:	View Bills	Test Designed date:	14-2-2024
Release Version:	1.0	Test Executed by:	
		Test Execution date:	

Pre-condition: Web application should be accessible				
Test Case ID	Test Title	Test Type	Description	Test Case ID
TC_001	Verify Payment for an Unpaid Invoice	Functional	Verify that the user can successfully make a payment for an unpaid invoice when valid payment details are provided.	TC_001
TC_002	Verify Overdue Invoice Warning	Functional	Verify that the system displays a warning message when an invoice is overdue.	TC_002

Test Case Title	Verify Payment for an Unpaid Invoice
Test Type	Functional
Test Priority	High
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID

1	Access the invoice payment web application	The site should launch properly	Site launched successfully	Pass		
2	Locate an unpaid invoice with a valid due date	Invoice should be listed under "Unpaid"	Invoice is available	Pass		Recipient: Fancy Flower Pots Ltd, Bill No: 123456, Due Date: 09/10/2021, Amount: 123.45 USD
3	Click on the "Pay" button for the selected invoice	Payment process should initiate	Payment initiated	Pass		
4	Complete the payment using a valid payment method	Payment should be processed successfully	Payment successful	Pass	Confirmation message displayed	

Test Case Title	Verify Overdue Invoice Warning
Test Type	Functional
Test Priority	High
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Access the invoice payment web application	The site should launch properly	Site launched successfully	Pass			
2	Locate an unpaid invoice with an overdue due date	Invoice should have an overdue indicator	Overdue indicator present	Fail		Recipient: International Plant Seeds, Bill No: 345678, Due Date: 09/09/2021, Amount: 1,028.25 USD	
3	Verify the overdue warning symbol	The system should display an overdue warning next to the due date	Warning icon displayed	Fail			
4	Attempt to pay the overdue invoice	The system should still allow payment	Payment initiated successfully	Fail	User table to proceed with payment		

7 References

- http://www.w3schools.com/html/html_intro.asp
- https://www.w3schools.com/php/default.asp
- https://www.javatpoint.com/uml