Indian Institute of Information Technology, Allahabad

Object Oriented Methodology

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USE CASE DIAGRAM

Banking Management System

Group Number: 17

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1. Introduction:

A banking management system is a software application that enables bank managers to manage customer accounts and at the same time, it also provides a convenient way of banking to all customers.

1.1. Purpose

Trivial process of banking is very time-consuming and requires a lot of paperwork, which is not convenient for customers as well as bank managers.

From the Customer's point of view,

- Trivial banking process is time-consuming, customers need to stand in long queues for small work which causes a waste of time.
- There is a lot of paperwork involved in the trivial process.

From the Bank Manager's point of view,

- A large number of employees are required to meet the number of customers.
- It is hard to maintain data on paper. It requires a lot of resources and care.
- Customers become unhappy and unsatisfied with the time-consuming process.

So, this project aims to overcome these problems and provide an environment that is convenient for Bank Administrator as well as Customers.

1.2. Scope:

- Keep an online record of all the transactions.
- Customers can deposit, withdraw, take loans, and view previous transactions quickly without any paperwork.
- Customers can have different types of accounts for different purposes like loan accounts, savings accounts, and checking accounts.
- Bank Administrator can print a record of all customers and their balances.

2. Overall Description:

2.1 Product Perspective:

This software application's main aim is to reduce the time and paperwork involved in the banking sector. This provides convenience to customers as well as bank managers. Customers can have different types of accounts for different purposes. Transactions can be performed via a single click. Customer data is stored in an online mode which is more secure.

2.2 Product Functions:

Use Cases	Description of Use Cases
Customer:	
Create Account	Allows User to Create a New Account
Login	Allows User to login
Verify	To Verify Valid Credentials Entered by the user

Use Cases	Description of Use Cases
Login Error	Display an error if unable to login
Account Dashboard	Allows Users to Access Personal Details, Update Profile, Change Pin, View Account Balance, Account Number, And IFSC Code.
Personal details	To View Personal Details like Phone Number, Address, Email ID, Account Number, and Debit / Credit Card Details.
Update Profile	Allows User to Update Profile/Personal Details like Phone Number, Address, Email ID, etc.
Change Pin	Allows Users to change their log in pin or Debit / Credit card pin by entering OTP received on their Mobile and Email ID.
Account	Allows the user to access the Withdraw, Balance Enquiry, Deposit, Transfer, and Transaction history methods
Loan Account	An Account through which a customer can repay a bank loan
Debit Interest	Loan balance is debited by monthly interest based on the account balance and the interest rate by the bank.
Savings Account	An Interest-bearing deposit account
Credit Interest	Bank credits the balance with monthly interest based on the account balance and the interest rate.
Checking Account	It allows the balance to overdraft while withdrawing up to the credit limit
Deposit	Allows the customer to deposit money
Withdraw	Allows the customer to withdraw money
Balance Enquiry	Allows the customer to see the current account Balance

Use Cases	Description of Use Cases
Transfer	Allows the customer to transfer money to another account
Transaction History	Give User information about their previous transactions
Print Details	Allows the customer to print a report of the current balance and the transaction history.
Bank Administrator:	
Authorized Login	Allows the Bank Administrator to login
Customer Information	Allows the Bank Administrator to Fetch customer information
Account Details	Allows the Bank Administrator get Information About Account Type and related Details
Print Report	Allows the bank administrator to print a report of all customers and their current account balances

2.3. User Characteristics:

- The User should be familiar with the Bank's Operations.

2.4. Principal Actors:

The two principal actors here are
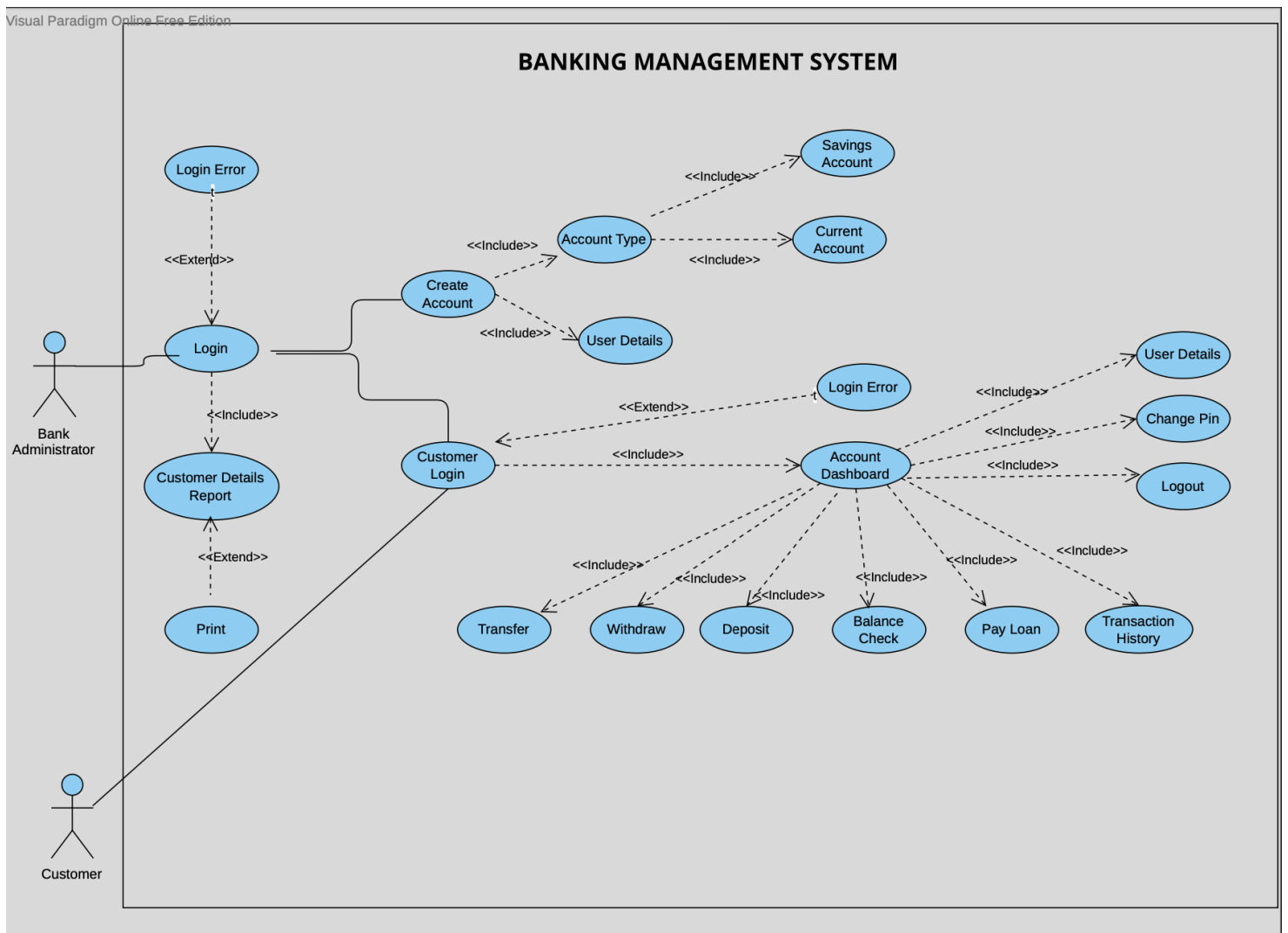- Bank Administrators
- Customers

2.5. General Constraints:

- Banking Operations on Web Requires an Internet Connection.
- Every Customer should be well aware of his/her Login Credentials.

2.6. Assumptions and Dependencies:

- Working of Net Banking is dependent on Internet Connectivity.
- Bank Administrators Must be active to proceed with Bank operations like Withdraw, Deposit, and Transfer.
- Availability of Staff Members in the Bank.

Use Case Diagram

BANKING MANAGEMENT SYSTEM

Login Error

Savings Account

<<Include>>

Account Type

<<Include>>

Current Account

<<Extend>>

Create Account

<<Include>>

<<Include>>

User Details

Login

<<Include>>

Login Error

<<Extend>>

User Details

<<Include>>

Change Pin

<<Include>>

Account Dashboard

<<Include>>

Logout

Bank Administrator

Customer Details Report

Customer Login

<<Include>>

<<Extend>>

Print

<<Include>>

<<Include>>

<<Include>>

<<Include>>

<<Include>>

<<Include>>

Transfer

Withdraw

Deposit

Balance Check

Pay Loan

Transaction History

Customer

3. Specific Requirements:

3.1. Functional Requirements:

We describe the functional requirements by giving various use cases.

Use Case 1:
Name: Create account
Summary: Allows customers to create a new bank account.
Actors:
- Bank Customer
- Bank Administrator

Pre-conditions:
- Internet connectivity.

Main success scenario:
- When the customer wants to Create an Account, the admin will click on the create account button and enter the details.

Extension: NIL
Post-condition:
- Successfully created account and Customers are now logged in and can access all features of Banking.

Use Case 2:
Name: Login
Summary: Allows customers to log in to their existing Bank account
Actors:
- Bank Customer
- Bank Administrator

Pre-conditions:
- Internet connectivity.

Main success scenario:
- When Customer wants to log in to their existing bank account.

- Admin enters customer details and checks for the authorization of login.

Extension:

- Id or password incorrect. Shows an error dialog box.

Post-condition:

- Verifies if the details are valid or not.

Use Case 3:

Name: Verify

Summary: System verifies if valid credentials are entered by the user or not

Actors:

- Bank Customer
- Bank Administrator

Pre-conditions:

- Internet connectivity.

Main success scenario:

- Website checks for valid details.
- If all the details are valid, the system will successfully log in to the bank account of the customer.

Extension:

- Entered Details may be incorrect. Shows an error dialog box with "Login Error" in it.

Post-condition:

- Logged in and customers can now access all features of Banking or Login error message.

Use Case 4:

Name: Login error

Summary: Display an error if unable to login

Actors:

- Bank Administrator

Pre-conditions:

- Unstable internet

- Wrong username credentials
- Incorrect password

Main success scenario:
- If the user credentials are not valid, not letting the user access the bank account.

Extension: NIL
Post-condition: NIL

Use Case 5:

Name: Account Dashboard

Summary: Provides User with different options like view profile, update profile, account, and change pin.

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connectivity.
- Customers must be logged in with their bank accounts.

Main success scenario:
- Admin is here by default after logging in.
- Admin can navigate to all the functionality from here.

Extension: NIL
Post-condition:
- Customers can now access all features of Net Banking.

Use Case 6:

Name: Personal Details.

Summary: Allows the customer to view Personal Details like Phone Number, Address, Email ID, Account Number, Debit / Credit Card Details, etc.

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:

- Internet Connectivity.
- Customers must already fill in some data on this page.

Main success scenario:
- When a customer wants to see Personal details and the admin clicks on the Personal Details tab.

Extension: NIL

Post-condition: Customers can view all data in the Personal Details tab.

Use Case 7:

Name: Update Profile.

Summary: Allows Administrator to update Profile/Personal details like Phone number, Address, Email ID, etc on customer demand.

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connectivity.
- Customers must upload some data on this page.

Main success scenario:
- When the customer wants to update their profile and change personal details, the admin clicks on the Update profile tab.

Extension: NIL

Post-condition: Personal Details are Updated.

Use Case 8:

Name: Change Pin.

Summary: Allows the user to change pins for Debit / Credit card by entering the OTP received on the Mobile and Email ID of the customer.

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connectivity.
- Customers must have access to a registered mobile number and Email ID.

Main success scenario:
- When a customer wants to change the pin and the Administrator clicks on the Change Pin Button.

Extension:
- Entered OTP is incorrect and shows an error box.

Post-condition:
- Pin Changed Successfully.

Use Case 9:

Name: Account

Summary: Allows the customer to access the Withdraw, Balance Enquiry, Deposit, Transfer, and Transaction history methods. There can be different types of accounts such as Loan accounts, Savings accounts, and Checking accounts.

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connectivity.
- Customers must be logged in with their accounts.

Main success scenario:
- Administrator must click on the Account button when the customer wants to access any method like withdrawal, deposit, balance inquiry, transfer, or transaction history.
- By clicking on the My Account button customers can access the advantages of different types of accounts like Loan accounts, Savings accounts, and Checking accounts.

Extension: NIL

Post-condition:
- Administrator can now access all features of the account on behalf of the customer.

Use Case 10:

Name: Loan Account

Summary: An Account through which a customer can take and repay a bank loan

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connectivity.
- Customers must be logged in with their accounts.

Main success scenario:
- When the account is of loan account type.

Extension:
- Debit loan interest

Post-condition:
- Calculates the loan interest.

Use Case 11:

Name: Debit Interest

Summary: The loan balance is debited by monthly interest based on the account balance and the interest rate by the bank.

Actors:NIL

Pre-conditions:
- Internet Connectivity.
- Customers must be logged in with their accounts.
- The account must be a loan account
- Interest rate, principal amount, and loan duration should be known prior.

Main success scenario:

- If the loan duration is not completed then the money is debited from the bank account monthly based on the principal amount, interest rate, and loan duration.

Extension: NIL

Post-condition:

- Debit the loan interest from the customer's bank account.

Use Case 12:

Name: Savings Account

Summary: An Interest-bearing deposit account

Actors:

- Bank customer
- Bank Administrator

Pre-conditions:

- Internet Connectivity.
- Customers must be logged in with their valid accounts.

Main success scenario:

- When the account is of Savings type.

Extension:

- Credit interest

Post-condition:

- Calculates the monthly interest based on the account balance.

Use Case 13:

Name: Credit interest

Summary: Bank credits the balance with monthly interest based on the account balance and the interest rate.

Actors:NIL

Pre-conditions:

- Internet Connectivity.
- Customers must be logged in with their accounts.
- Account must be a Savings account
- Interest rate should be fixed prior.

Main success scenario:
- When the Customer has a savings account and has some account balance in it.

Extension: NIL

Post-condition:
- The account balance is credited with interest money.

Use Case 14:

Name: Checking Account

Summary: It allows the balance to overdraft while withdrawing up to the credit limit

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connectivity.
- Customers must be logged in with their accounts.
- Credit limit is already known to the bank system

Main success scenario:
- When Customer wants to withdraw money and the account balance goes below zero.

Extension:
- Debit Overdraft fee

Post-condition:
- Overdraft fee is debited if the account balance goes below zero up to the credit limit.

Use Case 15:

Name: Debit Overdraft fee

Summary: Debits the account balance with an overdraft fee for making the balance go below zero up to the specified credit limit.

Actors:NIL

Pre-conditions:

- Internet Connectivity.
- If the account balance goes below zero up to the credit limit then the overdraft fee is debited.
- Credit limit should be known.

Main success scenario: NIL.

Extension: NIL

Post-condition:
- Fee is debited from the customer's account.

Use Case 16:

Name: Deposit.

Summary: Allows the customer to Deposit money

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Money Counting Machine.
- Valid government ID if Deposit amount >= Rs 50,000

Main success scenario:
- Customers give the money to the administrator.
- Cash Deposited.

Extension:
- Notes are torn, showing an error.

Post-condition:
- Cash Deposited Successfully.

Use Case 17:

Name: Withdraw.

Summary: Allows the customer to Withdraw money

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:

- Money Counting Machine.
- Valid government ID if Withdraw amount >= Rs 50,000

Main success scenario:
- Admin gives the money to the Customer.

Extension:
- Notes are torn, Customer Does Not Accept Money.

Post-condition:
- Cash Withdrawn Successfully.

Use Case 18:

Name: Balance Enquiry.
Summary: Allows the Administrator to check the Balance amount in the Customer's account for the customer.
Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connection
- Login Credentials

Main success scenario:
- Customer able to view Account Balance.

Extension: NIL
Post-condition: NIL

Use Case 19:

Name: Transfer
Summary: Allows the customer to transfer money to another account

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:

- Internet Connection
- Login Credentials

Main success scenario:
- Admin will enter the account details to which customer wants to transfer money and transfers money to that account.

Extension: NIL

Post-condition: NIL

Use Case 20:

Name: Transaction History

Summary: Allows the customers to view their information about past transactions

Actors:
- Bank customer
- Bank Administrator

Pre-conditions:
- Internet Connection
- Login Credentials

Main success scenario:
- Customer able to View Transaction History.

Extension:
- Customer can print their transaction history and balance

Post-condition: NIL

Use Case 21:

Name: Print Details.

Summary: Allows the customer to print the details of their previous transaction

Actors:
- Bank Administrator

Pre-conditions:
- Internet Connection

- Printer

Main success scenario:
- Administrator clicks on the Print Report tab under Customer Information button

Extension: NIL

Post-condition:
- The administrator now can Print or download a Report of all customers and their current account balance.

Bank Administrator

Use Case 22:

Name: Authorized Login.

Summary: Allows the Administrator to log into his account

Actors:
- Bank Administrator

Pre-conditions:
- Internet Connection

Main success scenario:
- Administrator clicks on the login button
- Software checks for Authentication

Extension: NIL

Post-condition:
- Logged in now Admin can Access Account Dashboard.

Use Case 23:

Name: Customer Information.

Summary: Allows the Bank Administrator to Fetch customer information.

Actors:
- Bank Administrator

Pre-conditions:
- Internet Connection

Main success scenario:

- Administrator clicks on the Customer Information button
- Software checks for Authentication

Extension:
- Print Report Section- To Print Report of a unique User.

Post-condition:
- Admin can Access Customer Information.

Use Case 24:

Name: Account Details.
Summary: Allows the Bank Administrator to get Information About Account Type and related Details.
Actors:
- Bank Administrator

Pre-conditions:
- Internet Connection

Main success scenario:
- Administrator clicks on the Customer Details button
- Software checks for Authentication

Extension: NIL

Post-condition:
- Admin can View Account Details Like its type, Balance, Status, and related details.

Use Case 25:

Name: Print Report.
Summary: Allows the bank administrator to print a report of all customers and their current account balances

Actors:
- Bank Administrator

Pre-conditions:
- Internet Connection
- Printer

Main success scenario:
- Administrator click on the Print Report tab under Customer Information button

Extension: NIL

Post-condition:
- The administrator now can Print or download a Report of all customers and their current account balance.

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