

Database Project – Banking Management System

Objective:

Design and implement a database for a bank app that provides smooth banking experience to account holders through the digital mode. With this database one can easily manage banking queries and give responses according to that.

Let the app be called “My Bank”.

Application Users

1. Customers
2. Bank Employees
3. Admin (HOD)

Use cases - Customer

1. Register if do not have login details.
2. Log in if have login details.
3. Can track transactions for each of his/her account.
4. Open/Manage fixed deposits.
5. Payments through different methods.
6. Apply for loan.
7. Invest in different investments.
8. Apply for any insurances.
9. Service Requests and Complaints

I. Register and Log in

- If a person is new to the application then, he/she has to register to the application through his/her registered mobile number with account. Further, he/she has to register their username and password. Application will also ask to register their willing MPIN (Mobile Personal Identification Number) which can be useful during payments and application login purpose.
- Users can login to the application either through username and password or through MPIN.

II. Manage Accounts

- A user may have one or more accounts even of different types in the same bank.
- Here, one can manage each of their accounts by keeping track of account balance and information and transaction history.
- Transaction history keeps a record of the transactions from the account which includes transaction id, account number of the payer and acceptor, transaction type i.e. deposit, withdrawal or transfer, transaction amount, balance after transaction.

III. Manage Fixed Deposits

- Users can open fixed deposits through the application. They need to enter the deposit amount, term length and also need to follow specific requirements to open a FD.
- Application lends them all the information regarding different interest rates along with their specific requirements.
- It also gives the information of their opened FD which includes deposit id, name, deposited amount, opened date, maturing date, interest rate, maturity amount, status i.e. active, matured, stored.

IV. Payments

- Application provides users different payment methods like quick transfer and UPI.
- It also provides the facility to transfer the money to your other one/others accounts.

V. Loan, Investments and Insurances Applications

- Application provides users with different types of loans like home loan, personal loan etc., investments like stocks, mutual funds etc. and insurances like life insurance, general insurance etc. with their respective information, guidelines, required documents and helpline number for further queries.
- User has the facility to apply for loan, investments and insurances through application without paying a visit at the bank.
- He/she can access information of their active loans, investments or insurances in their respective sections and can also check the status of their applications.

- Information on Loans includes loan id, account number, name, loan type, interest rate, loan status, applied/approved/closed dates etc.
- Information on investments includes investment id and its type, applicant name, investment name, date and status, returns/profits etc.
- Information on insurances includes insurance id, applicant name, coverage amount, premium amount, policy start date and end date, and policy status.

VI. Service Requests/Complaints

- The application provides the facility of online service requests like account closure, requests for cards, complaints regarding application or any other.
- This feature helps the users to save time as they don't need to pay physical visits unless necessary.

Use Cases - Bank Employees

These are the users maintaining the database and making appropriate changes to the database accordingly.

1. Login with the provided details.
2. Entering the information of new account holder in the database.
3. Manage information of Account Holders.
4. Modify the database upon operations made by Account holder.
5. Update the interest rates information time to time.
6. Manage loan, investments and insurance information.
7. Register responses to service requests.

I. Bank Employee Login

- Bank Employees have to login to the system using unique id and password provided by the bank for security purpose.

II. Add new Accounts and Manage User details

- Employee has to enter the account details whenever a person opens a new account. A person has to open his/her account physically at the bank.
- Account details of a person includes user-id, account number, account type, current balance. Account type can be either Savings or Current.
- A person can have multiple accounts in the same bank. The account number uniquely identifies the different accounts of the same person.
- He/she also need to maintain the information of the fixed deposits which are opened physically at the bank.
- Whenever the user requests for any modification in the required personal information like address, mobile number etc. the modification has to be done accordingly.

III. Manage transactions and interest rate details

- When a customer performs a transaction such as deposit, withdrawal or transfer, the bank employee enters the details of the transaction.
- This includes capturing information such as transaction id, account number, transaction type, amount, date and time, destination account, balance after transaction etc.
- Bank employees need to stay updated on the current interest rates offered by the bank for various types of accounts, such as savings accounts, current accounts, and fixed deposits.
- They are responsible for managing and updating these interest rates.

IV. Manage Loan, Investment and Insurance details

- New loans/investments/insurances introduced by the bank or changes in the existing loans/investments/insurances must be updated in the application to keep the users updated.
- Loan information includes loan id, different types of loans like personal, home etc., their interest rates, required documents and

other related description.

- Information regarding investments includes investment id, different types of investments like stocks, mutual funds, required documents and other required description/features.
- Information regarding insurance includes insurance id, different types of investments, coverage amount, premium amount, annual premium range, required documents and other related description.
- Employees need to add/manage the information of the customers who applied for the different loan/investments/insurance, check if they are eligible, whether all the required documents have been submitted, check/update the status for the active loans/investments/insurance, if rejected then rejection reasons, deposit the profit after maturity for those who applied for the investment and take care of other related management.

V. Manage Services Requests

- Bank employees are responsible for managing various services offered to customers, such as account closure, card replacement, address change, and issuing new cards.
- This involves handling the details of these services within the banking management system like add/modify new services provided by the bank, register and update status of service requests etc.
- Service information includes service id, service name, helpline number and the service request information include request id, date, status etc.

Tentative list of reports (Queries)

I. For Customers

- Fetch the current balance of his/her accounts along with the name associated with the accounts.
- Fetch the transaction history of a week/month/year for the selected account.
- Fetch the FD history based on below parameters:
 - i. All the FDs whether active or matured
 - ii. Only active ones or matured ones.
 - iii. All the necessary information for a selected FD like name, deposited amount, maturity date, matured amount, interest etc.

- List all loan entries with their respective account numbers and statuses.
- Retrieve all investments made along with their status (active, matured, closed).
- Retrieve all insurances made along with their policy status.
- Retrieve all requests made along with their status.

II. For Employees

- Insert new account details into the database.
- Update user information based on user requests.
- Record transaction details such as account number, type (deposit/withdrawal/transfer), amount, date, and time.
- Calculate and manage interest payments.
- Update interest rates for various types of accounts periodically.
- Monitor maturity dates and handle renewals or closures for FDs.
- Insert/Update loan information periodically.
- Retrieve the loan applications made by the customers.
- Identify accounts with overdue loan payments.
- Insert/Update investment information periodically (or whenever necessary).
- Retrieve the investment applications made by the customers.
- Insert/Update insurance information periodically (or whenever necessary).
- Retrieve the insurance applications made by the customers.
- Retrieve all active insurance policies expiring within the next one months to ensure timely renewal and coverage continuity.
- Register/Retrieve new service requests into the system with details such as date, type (account closure, card replacement, etc.), and status.
- Update status and handle requests as they progress (pending, processed, rejected, etc.).

III. For Admin (HOD)

- Analyze historical interest rate data and trends.
- Analyze loan performance.
- Analyze investment trends.
- Manage employee accounts, roles, and permissions.
- Create, update, or delete departmental structures.
- Assign employees to departments and roles.