PROPOSAL

ON

BANK MANAGEMENT

SYSTEM

GUIDED BY:-

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1. Title of the Project

Bank Management System

2. Introduction

The Bank Management System is a software application designed to digitalize the core operations of a bank. It allows customers, employees, and administrators to efficiently manage banking activities such as account creation, customer details, transactions, and reporting.

3. Objective

- Automate traditional banking operations.
- Provide secure and fast transactions.
- Maintain accurate customer and account information.
- Provide command-line interface using Java.
- Ensure data integrity using MySQL backend.

4. Project Category

Database Management System (DBMS) / Console-Based Application

It is a command line project.

5. Analysis

Modules and Description

Modules :

a) Customer Management
b) Account Management
c) Transaction Management
d) Loan Management
e) Loan Payment (EMI)
f) Employee Management
g) Admin Management

Module 1 : Customer Management

1.1 Add new customer
1.2 Updates customer details
1.3 View and search customer information
1.4 Delete customer records

Module 2 : Account Management

2.1 Creates bank accounts
2.2 View account details
2.3 Check balance
2.4 Close or active accounts

Module 3 : Transaction Management

3.1 Deposit money
3.2 Withdraw money
3.3 Transfer funds
3.4 View transaction history

Module 4 : Loan Management

4.1 Accepts and processes loan applications
4.2 Maintains loan details such as amount, interest rate, and tenure

Module 5 : Loan Payment (EMI)

5.1 Records EMI payments
5.2 Tracks outstanding loan balance
5.3 Maintains payment history

Module 6 : Employee Management

6.1 Stores employee details
6.2 Manages roles and salaries
6.3 Manges joining dates

Module 7 :Admin Management

7.1 Admin login and authentication
7.2 Manage customers, accounts, and loans
7.3 View complete transaction history
7.4 Generate reports
7.5 Manages joining dates

Database Design

Tables:

1. Customers

Fields	Datatype	Description
customer_id	INT(PK)	Unique customer ID
name	VARCHAR(100)	Full name
email	VARCHAR(100)	Email ID
phone	VARCHAR(15)	Contact number
address	VARCHAR(200)	Address
created_at	DATETIME	Registration date

2. accounts

Fields	Datatype	Description
account_no	BIGINT(PK)	Unique account number
customer_id	INT(FK)	Linked customer ID
account_type	VARCHAR(20)	Savings/Current
balance	DOUBLE	Current balance
status	VARCHAR(20)	Active/Closed
created_at	DATETIME	Account creation date

Reltionship :

One customer can hold multiple accounts

3. transactions

Fields	Datatype	Description
trans_id	INT (PK)	Unique transaction ID
account_no	BIGINT (FK)	Account involved
type	VARCHAR(20)	Deposit/Withdraw/Transfer
amount	DOUBLE	Transaction amount
trans_date	DATETIME	Transaction date
description	VARCHAR(200)	Notes/details

Relationship :

One account can have many transactions

4. loan

Fields	Datatype	Description
loan_id	INT(PK)	Unique loan ID
customer_id	INT(FK)	Customer linked to loan
loan_type	VARCHAR(50)	Type of loan

amount	DOUBLE	Loan amount
interest_rate	DOUBLE	Interest percentage
tenure_months	INT	Tenure in months
status	VARCHAR(20)	Approved/Pending/Rejected

Relationship :

One customer can apply for multiple loans.

5. loanPayment

Fields	Datatype	Description
payment_id	VARCHAR(PK)	Payment ID
loan_id	INT(FK)	Linked loan ID
emi_amount	DOUBLE	EMI amount paid
payment_date	DATETIME	Date of payment
remaining_amt	DOUBLE	Remaining balance

Relationship :

One loan can have multiple EMI payments

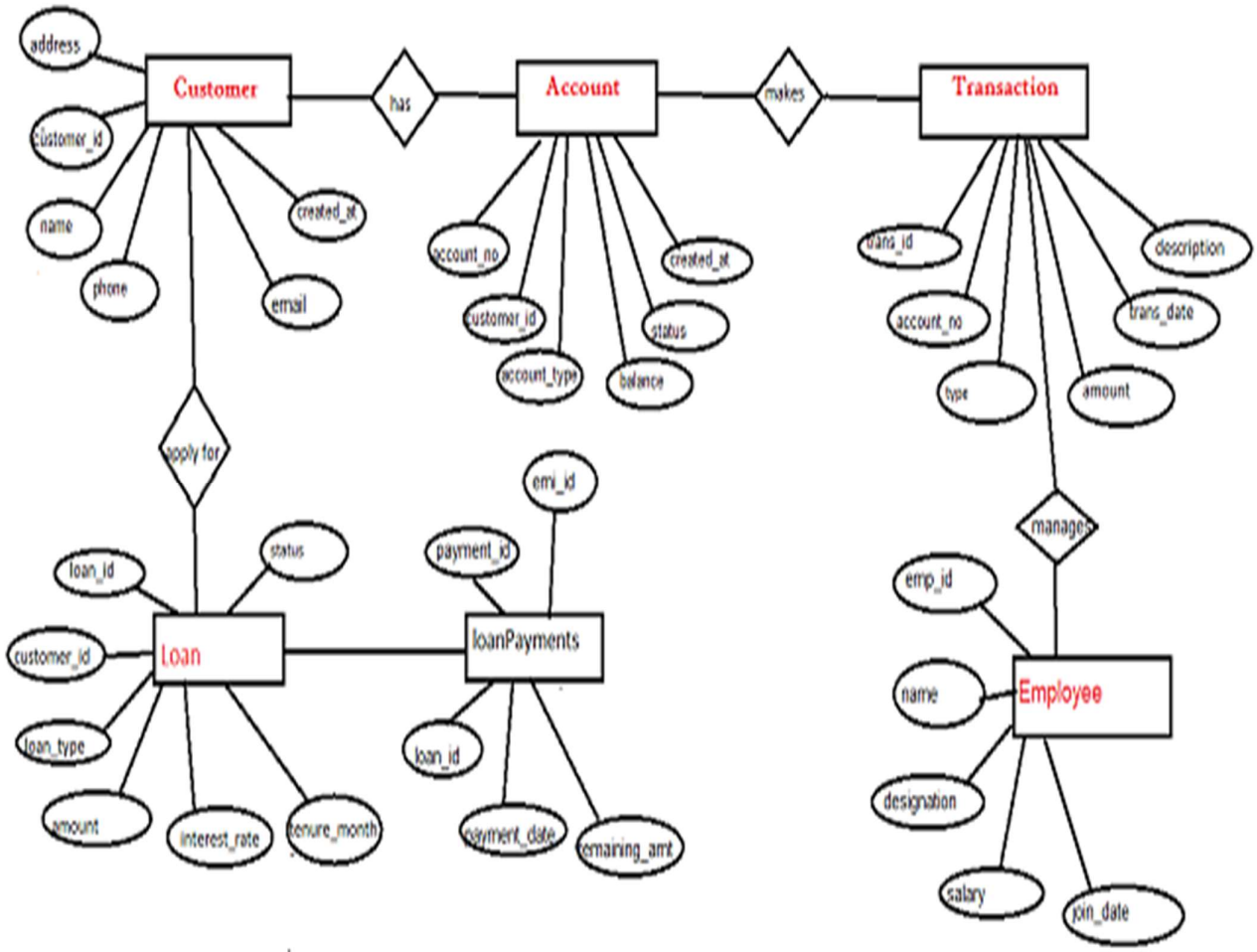
6. employee

Fields	Datatype	Description
emp_id	VARCHAR(PK)	Employee ID
name	VARCHAR(100)	Employee name
designation	VARCHAR(50)	Job role
salary	DOUBLE	Salary
join_date	DATE	Joining date

7. admin

Fields	Datatype	Description
admin_id	VARCHAR(PK)	ID of admin
username	VARCHAR(50)	Login username
password	VARCHAR(100)	password

ER Diagram

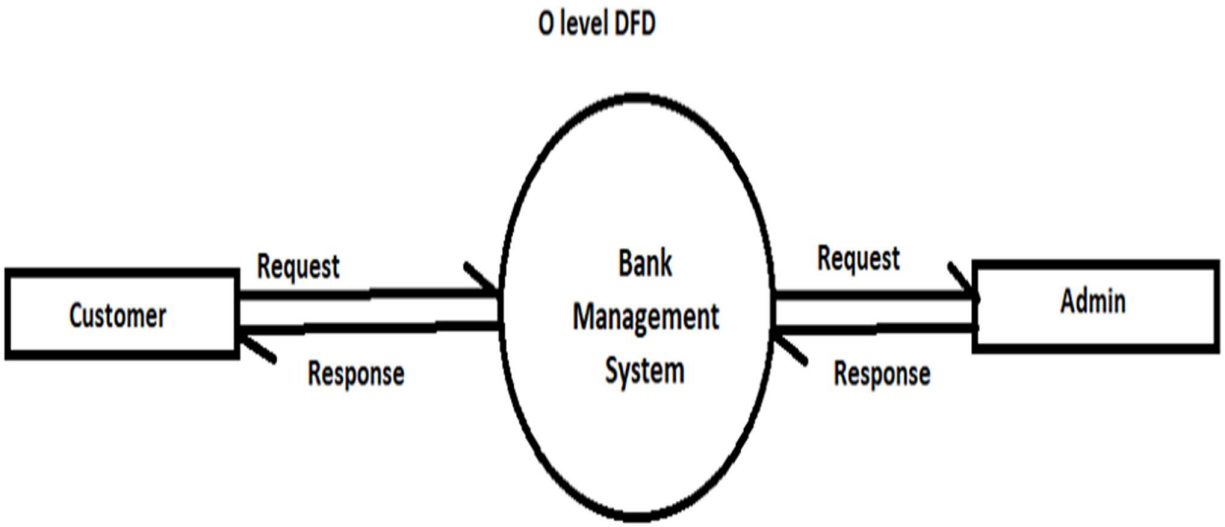

address
Customer
has
Account
makes
Transaction
Customer_id
name
phone
email
created_at
account_no
customer_id
account_type
balance
status
created_at
trans_id
account_no
type
amount
trans_date
description
apply for
loan_id
status
customer_id
Loan
loan_type
amount
interest_rate
tenure_month
emi_id
payment_id
loanPayments
loan_id
payment_date
emaining_amt
manages
emp_id
name
Employee
designation
salary
join_date


admin
admin_id
username
password

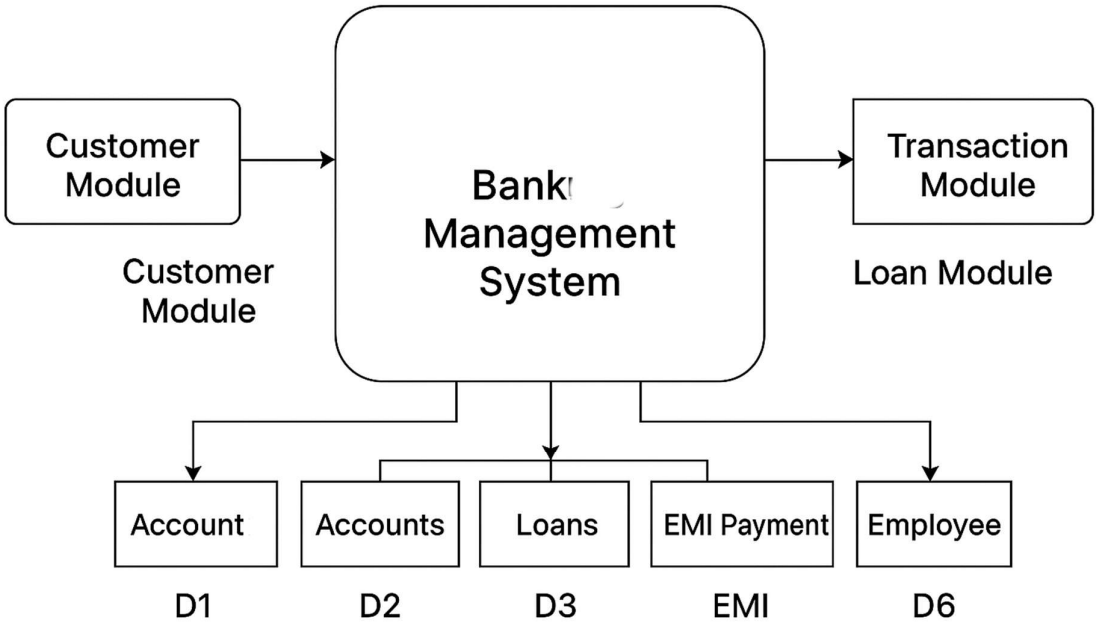
Data Flow Diagram (DFD)

DFD Level 0

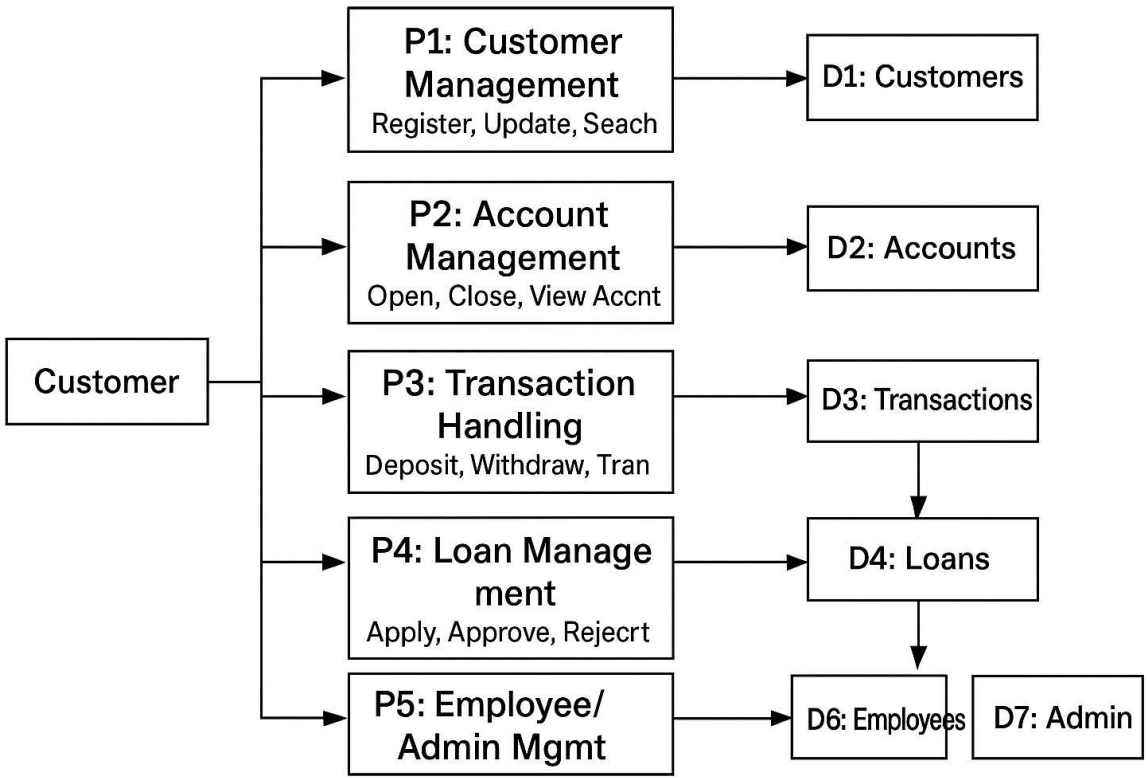
- User/Admin interacts with the Banking System
- The system communicates with all respective database modules



DFD Level 1


Customer Module
Bank Management System
Transaction Module
Customer Module
Loan Module
Account
Accounts
Loans
EMI Payment
Employee
D1
D2
D3
EMI
D6

DFD Level 2


Customer
P1: Customer Management
Register, Update, Seach
P2: Account Management
Open, Close, View Accnt
P3: Transaction Handling
Deposit, Withdraw, Tran
P4: Loan Manage ment
Apply, Approve, Rejecrt
P5: Employee/ Admin Mgmt
D1: Customers
D2: Accounts
D3: Transactions
D4: Loans
D6: Employees
D7: Admin

6. Complete Structure

Process Logical Diagram:

- Admin login
- Manage customers
- Manage accounts
- Perform transactions
- Store data and generate output

7. Platform Used

Hardware Requirements:

- Processor : Intel i5
- RAM : 4GB minimum
- Storage : 2GB

Software Requirements:

- Java
- JDK
- IDE : Eclipse enterprise edition for java development
- MySQL Server : 8.0
- JDBC Connector

8. Future Scope

- ATM integration
- Net banking features
- Loan management module
- SMS/Email alerts

9. Bibliography

- Oracle Java Documentation
- MySQL Official Documentation
- DBMS Concepts by Korth
- Online educational resources