

# PROPOSAL ON BANK MANAGEMENT SYSTEM

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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 Manages 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

**Relationship :**

**One customer can hold multiple accounts**

### **3. transactions**

<b>Fields</b>	<b>Datatype</b>	<b>Description</b>
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**

<b>Fields</b>	<b>Datatype</b>	<b>Description</b>
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



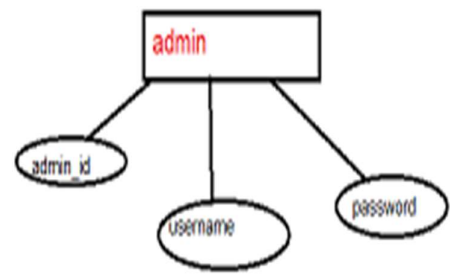
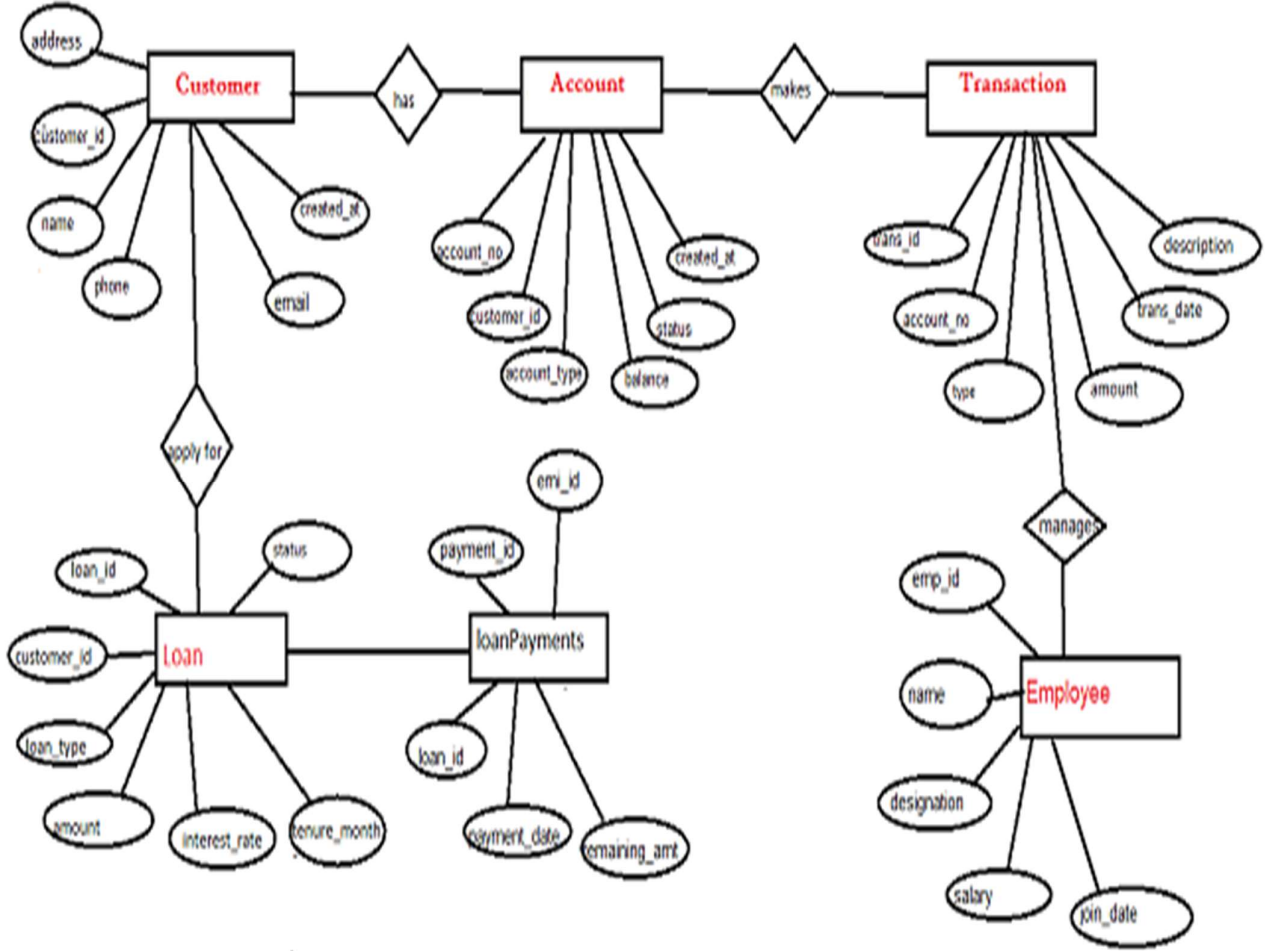
## 6. employee

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

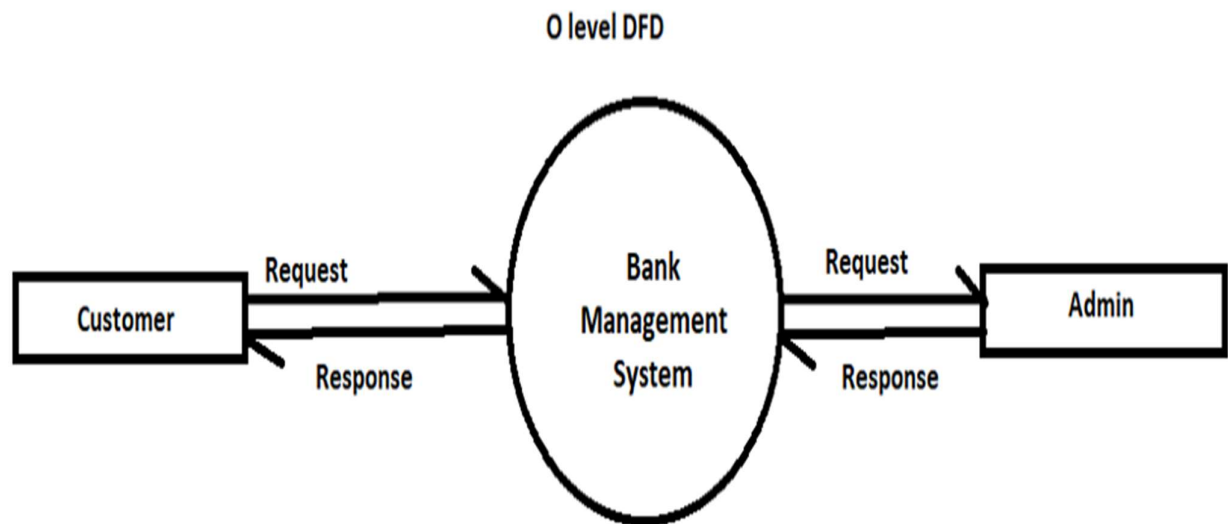
# ER Diagram



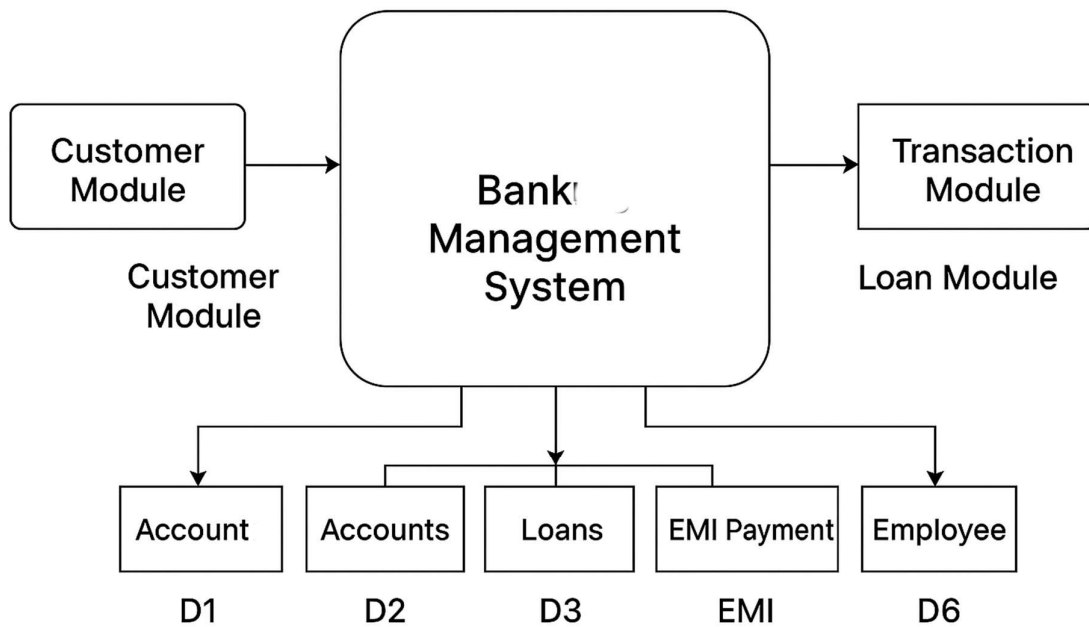
# Data Flow Diagram (DFD)

## DFD Level 0

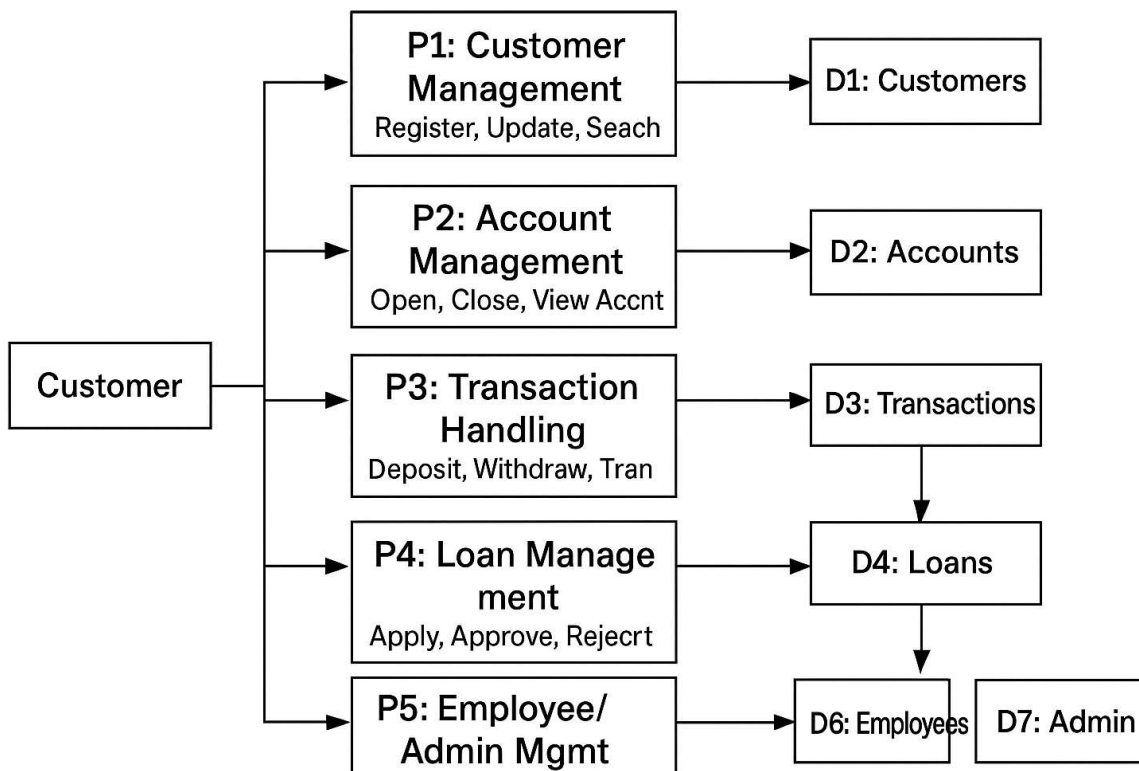
- User/Admin interacts with the Banking System
- The system communicates with all respective database modules



## DFD Level 1



## DFD Level 2



## **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