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**Course Title: Database Systems**

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# Project title:

**“Bank Management System”**

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# description:

**BANK MANAGEMENT SYSTEM:**

This Bank ER diagram illustrates key information about bank, including entities such as bank, service, employees, customers, account, accountants, transactions and a weak branch entity. It allows us to understand the relationships between entities.

Entities and their Attributes are:

* **Bank Entity:**

Attributes of Bank entity are Bank Name, Code and Address.

Code is Primary key for Bank Entity.

* **Branch Entity:**

Attributes of Branch entity are Branch Name, Code and Area.

Code is a Primary key for Branch Entity.

* **Employees Entity:**

Attributes of Employees entity are Employee ID, Employee Full Name, Address, Salary, Age, CNIC Number, Hire Date and Birth Date.

Employee ID is a primary key for Employees Entity.

* **Customers Entity:**

Attributes of Customers Entity are Customer ID, Customer Name, Account ID, Account No, CNIC number, Phone Number, Pin Code, Address and Birth Date.

Customer ID is a primary key for Customers Entity.

Account Id and Account Number is a foreign key.

* **Account Entity:**

Attributes of Account Entity are Account ID, Account No and Total Batch.

Account ID is a primary key for Account Entity.

* **Accountant Entity:**

Attributes of Account Entity are Account No, Check Account, Customer ID and Transaction No.

Account No is a primary key for Accountant Entity.

* **Transaction Entity:**

Attributes of Transaction Entity are Customer ID, Account ID, Account No, Date, Amount and Transaction No.

Transaction No is a primary key for Transaction Entity.

* **Services Entity:**

Attributes of Service Entity are Policy and Loan.

Loan contains some Composite key that are Issue Date, Expiry Date, Amount of Loan, Customer ID and Account No.

Relationships are:

* Bank has Branches:

One Bank can have many Branches but one branch cannot belong to many banks, so the relationship between Bank and Branch is one to many relationships.

* Branches have Employees:

Many Branches are related with Many Employees but an employee only related to one branch. So, Branches and Employee is many to one relationship.

* Branches Provide Services:

Branch can provide many services but that one service only provides from that particular branch. Therefore, the relation between branches and services is Many to One.

* Services Provide to Customers:

One Customer can have one or many services but it is not necessary that many service cannot be provide to only one customer. Loan availed to Customer as a Bank service. Customer and Services has One to Many relations.

* Accounts held by Customer:

One Customer can have more than one Accounts and also One Account can be held by one or more Customers, so the relationship between Account and Customers is many to many relationships.

* Accounts Maintain by Accountants:

One Account is maintained by one accountant but one accountant is maintaining many accounts of Customers. The relation between Account and Accountant is One to Many relations.

* Account and Transactions:

One Account can have many transactions but that one transaction is only passed by one account. So, the Account and Transaction has One to Many relations.

# Project erd:

**Bank\_Code**

**Bank\_Name**

**Bank\_Address**

**Bank**

**Loan\_DueDate**

**Loan\_Duration**

**Loan\_IssueDate**

**Contact\_No**

**Employees**

**has**

**Amount**

**Branch\_Code**

**Loan**

**Branch\_Area**



**Employee\_ID**

**Online\_Billing**

**Branch\_Name**

**Last Name**

**First Name**

**Online\_Banking**



**Branch**

**Employment**

**Online\_Shopping**

**Age**

**Provide Services**

**Account\_No**

**CNIC\_NO**

**Birth\_Date**



**Address**

**Account**

**Manage**

**Salary**



**CNIC\_NO**

**Services**

**Full\_Name**

**Hire\_Date**

**Customer avail**



**Customer\_ID**



**Account\_ID**

**Account\_No**

**Customers**

**Customer own**

**Account**

**Accountant**

**Address**

**Transactions**

**E-mail**

**Types**

**Accountant\_ID**

**Pin\_Code**



**Transaction\_ID**



**Name**

**Phone\_No**

**Account**

**Password**

**Account\_No**

**Account\_ID**

**Account\_ID**

**Account\_No**

**Transaction\_Date**

**Customer\_ID**

**Range\_of\_Amount**

**Account\_No**

**Balance**

**Transactions**