ER Diagram Of Bank Management System

Phd Shamiljon Rustamov1 and Norboyev Bexzod2

1Dean of the Faculty of Computer Engineering,
Karshi branch of the Tashkent University of Information Technologies
shamiljon1988@gmail.com
2Master's 1st stage student,
Karshi branch of the Tashkent University of Information Technologies
norboyevbexzod98@gmail.com

Abstract: Entity is a thing or an object in real world. As the name suggests that Entity Relationship model uses collection of basic objects called entities & relationships.It develops a very simple and easy to design view of data. Entity relationship model is widely used in Database design.

Keywords: Emp ID, Ename, Employee, Salary, DeptID, DName, Department.

Introduction

ER Diagram is known as Entity-Relationship Diagram, it is used to analyze to structure of the Database. It shows relationships between entities and their attributes. An ER Model provides a means of communication.

ER diagram of Company has the following description :

- Company has several departments.

- Each department may have several Location.

- Departments are identified by a name, D_no, Location.

- A Manager control a particular department.

- Each department is associated with number of projects.

- Employees are identified by name, id, address, dob, dat e_of_joining.

- An employee works in only one department but can work on several project.

- We also keep track of number of hours worked by an employee on a single project.

- Each employee has dependent

- Dependent has D_name, Gender and relationship.

ER Diagram of Company :
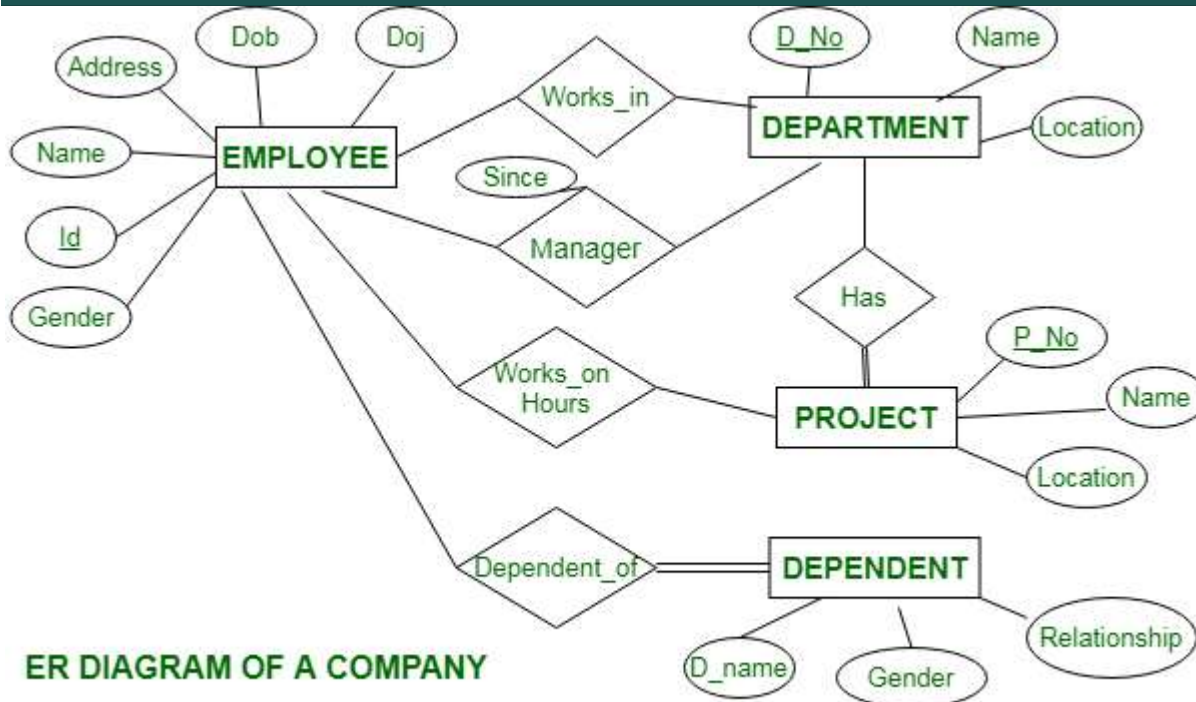
This Company ER diagram illustrates key information about Company, including entities such as employee, department, project and dependent. It allows to understand the relationships between entities.

Entities and their **Attributes** are

- **Employee Entity :** Attributes of Employee Entity are Name, Id, Address, Gender, Dob and Doj.
  Id is Primary Key for Employee Entity.

- **Department Entity :** Attributes of Department Entity are D_no, Name and Location.
  D_no is Primary Key for Department Entity.

- **Project Entity :** Attributes of Project Entity are P_No, Name and Location.
  P_No is Primary Key for Project Entity.

- **Dependent Entity :** Attributes of Dependent Entity are D_no, Gender and relationship.
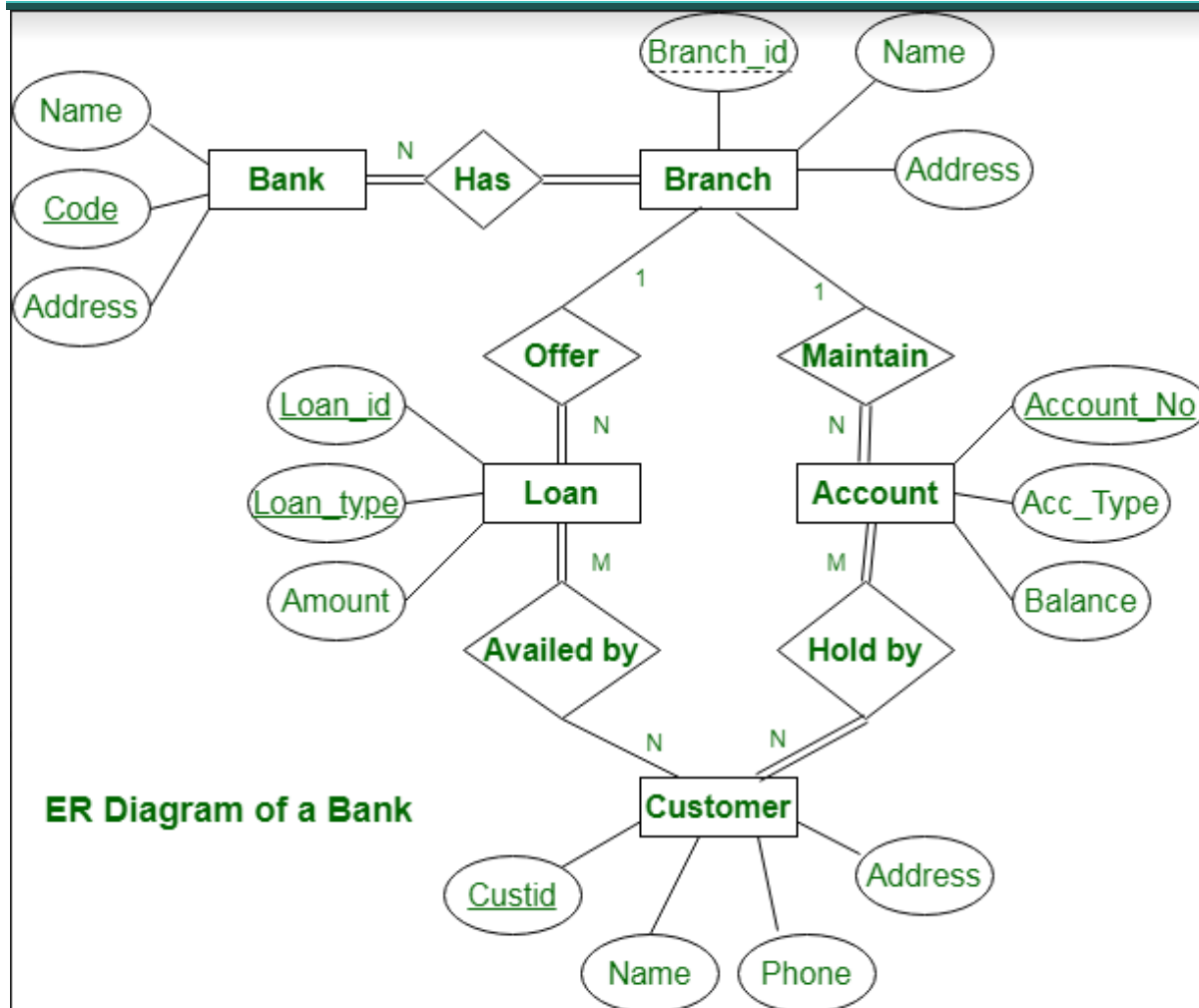
Relationships are :

- **Employees works in Departments –**
  Many employee works in one Department but one employee can not work in many departments.

- **Manager controls a Department –**
  employee works under the manager of the Department and the manager records the date of joining of employee in the department.

- **Department has many Projects –**
  One department has many projects but one project can not come under many departments.

- **Employee works on project –**
  One employee works on several projects and the number of hours worked by the employee on a single project is recorded.

- **Employee has dependents –**
  Each Employee has dependents. Each dependent is dependent of only one employee.

ER diagram is known as Entity-Relationship diagram. It is used to analyze to structure of the Database. It shows relationships between entities and their attributes. An ER model provides a means of communication.

ER diagram of Bank has the following description :

- Bank have Customer.

- Banks are identified by a name, code, address of main office.

- Banks have branches.

- Branches are identified by a branch_no., branch_name, address.

- Customers are identified by name, cust-id, phone number, address.

- Customer can have one or more accounts.

- Accounts are identified by account_no., acc_type, balance.

- Customer can avail loans.

- Loans are identified by loan_id, loan_type and amount.

- Account and loans are related to bank's branch.

ER Diagram of Bank Management System :

ER Diagram of a Bank

This bank ER diagram illustrates key information about bank, including entities such as branches, customers, accounts, and loans. 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.

- **Customer Entity :** Attributes of Customer Entity are Customer_id, Name, Phone Number and Address.
  Customer_id is Primary Key for Customer Entity.

- **Branch Entity :** Attributes of Branch Entity are Branch_id, Name and Address.
  Branch_id is Primary Key for Branch Entity.

- **Account Entity :** Attributes of Account Entity are Account_number, Account_Type and Balance.
  Account_number is Primary Key for Account Entity.

- **Loan Entity :** Attributes of Loan Entity are Loan_id, Loan_Type and Amount.
  Loan_id is Primary Key for Loan Entity.

Relationships are :

- **Bank has Branches => 1 : N**
  One Bank can have many Branches but one Branch can not belong to many Banks, so the relationship between Bank and Branch is one to many relationship.

- **Branch maintain Accounts => 1 : N**
  One Branch can have many Accounts but one Account can not belong to many Branches, so the relationship between Branch and Account is one to many relationship.

- **Branch offer Loans => 1 : N**
  One Branch can have many Loans but one Loan can not belong to many Branches, so the relationship between Branch and Loan is one to many relationship.

- **Account held by Customers => M : N**
  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 relationship.

- **Loan availed by Customer => M : N**
  (Assume loan can be jointly held by many Customers).
  One Customer can have more than one Loans and also One Loan can be availed by one or more Customers, so the relationship between Loan and Customers is many to many relationship.

Conclusion
An Entity-Relationship (ER) diagram for a bank management system typically includes entities such as Customer, Account, Transaction, Employee, Branch, and Loan. Relationships between these entities illustrate how they interact, like a customer owning an account, an account being associated with a branch, transactions being conducted by customers, and employees managing accounts or branches. Attributes for each entity detail the specific information stored about them, like customer name, account number, transaction date, etc.

References

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3. Banking Technology: Research on the impact of technology on banking operations, including digital banking, mobile payments, blockchain, and artificial intelligence.

4. Banking History: Books and articles detailing the historical evolution of banking systems, key events, and influential figures in banking history.

5. Banking Economics: Economic analyses of banking systems, including discussions on monetary policy, interest rates, inflation, and their effects on banks and the economy.

6. Banking Ethics: Literature examining ethical issues in banking, such as responsible lending practices, corporate social responsibility, and ethical decision-making in banking institutions.