

Data and Applications

Project Phase 1

Team No. - 57

Introduction to the Mini-World : -

We have created a Mini-World on the topic "BANKING SYSTEM". Basically in this Mini-World,

we are storing all the information regarding bank and the customers who are connected to

the bank. Any customer or the people involved in the management of the Bank can view

deposit, withdrawal, balance, loan of the customer, etc. from the database.

The main purpose of the database is to provide efficient access to all the users.

The users of

the database are all the people who have account (customers), Managers and Employees of

the bank, etc. They can efficiently view the balance, loan amount, etc. from any place without

visiting the Bank Branch physically. Data requirements include the Data of all the Attributes related to the 6 Entities (4 Strong and 2 Weak) mentioned below.

DATABASE REQUIREMENTS : -

Database "BANK MANAGEMENT"

Note :- Entity has been shown in Bold while all the attributes have been shown under the corresponding Entity Type.

Strong Entities:

Bank :

1. Name (Composite Attribute and NOT NULL) - Varchar(50)

2. Code (Primary key) - Varchar(50)
3. Address (Composite Attribute) - Varchar(200)

Account Details:

1. Account no. (Primary key) - Varchar(20)
2. Deposit - Float
3. Withdrawal - Float
4. Balance (Derived Attribute) – Float
5. Customer Aadhaar (Foreign Key references Aadhaar card Customer Table) - Varchar(20)

Customer :

1. Name (Composite key , First name, Middle name, Last name) (NOT NULL) - Varchar(30)
2. Phone no. (Multi-Valued) - Varchar(15)
3. Aadhaar card no. (Primary Key) - Varchar(20)
4. Pan Card no. (Candidate Key) - Varchar(20)
5. Address (Composite Attribute) – Varchar(200)
6. Nominee_ID - Varchar(20)

Note – It is assumed that a Customer can not have a bank account if he/she does not have an Aadhaar Card No.

Loan :

1. Amount - Float
2. Date of sanction - Varchar(15)
3. Loan ID (Primary key) - Varchar(20)
4. Account no. (Foreign key references Account no. in Account Details Table) – Varchar(20)

Weak Entities:

Bank_Branch :

1. Branch_ID (Partial key) – Varchar(30)
2. Branch_code (Foreign key references Bank Code in Bank Table) - Varchar(50)
3. Address (Composite Attribute) - Varchar(30)
4. Phone no. (Multi-Valued attribute) - Varchar(15)

Nominee :

1. Name (Composite key, First name, Middle name, Last name) (NOT NULL) - Varchar(30)
2. Nominee_ID (Foreign key References Aadhaar card no. parameter in Customer Entity)
3. Relation (NOT NULL) - Varchar(50)
4. Gender (NOT NULL) – Varchar(20)
5. Age (NOT NULL) – Int
 - Customer : Entity with two key attributes
 - Relationship Types

Relationship Types:

1. Bank : has Branches in : Branch (1:1) (1:N) Degree 2
2. Bank_Branch : Offers : Loan (1:1) (0:N) Degree 2
3. Bank_Branch : Maintains : Account (1:1) (0:N) Degree 2
4. Account : Made By : Customer (1:N) (1:M) Degree 2
5. Customer : Nominates : Nominee (1:N) (0:1) Degree 2
6. Loan : Availed by : Customer (1:N) (1:1) Degree 2

Note: It is assumed that there can not be more than 1 Nominee for a particular Customer but it is possible that no Nominee has been made. Also, it is assumed

that

a Customer can take N number of loans but a loan can not be availed by more than 1

Customer.

Degree > 3 Relationship

Account Made by a customer who has availed loans and nominated a nominee.

Loan is a Subclass. The reason is that Loan can be classified into many types and therefore can itself be expressed as a class(Education loan, Home Loan, Farming Loan etc.).

Functional Requirements : -

RETRIEVAL

1. SELECTION : -

Select all the customers who have availed loan in past one year.

Select all the customers' names who have nominated male nominee(s).

2. PROJECTION : -

Customers whose balance $\geq 50,000.0$

All accounts whose associated loan value $\leq 10,00,000.0$.

3. AGGREGATE : -

Avg. of balance of all customers in a particular bank branch.

Max loan amount sanctioned in any Bank Branch.

4. SEARCH : -

Select all the Customers in a Branch whose Name contain "xyz".

ANALYSIS : -

1. Total number of Loans Sanctioned in an Year in a Branch

2. Select all the Customers who have not given
Phone Number for opening of Bank Account.

MODIFICATION : -

- a) Insert data of a new customer in a bank branch.
- b) Update the Phone no. of a customer.
- c) Delete account of a particular Customer.