

# ASSIGNMENT-BANKING SYSTEM

## TASK 1

### Database Tables

#### 1. Customers:

- customer\_id (Primary Key)
- first\_name
- last\_name
- DOB (Date of Birth)
- email
- phone\_number
- address

#### 2. Accounts:

- account\_id (Primary Key)
- customer\_id (Foreign Key)
- account\_type (e.g., savings, current, zero\_balance)
- balance

#### 3. Transactions:

- transaction\_id (Primary Key)
- account\_id (Foreign Key)
- transaction\_type (e.g., deposit, withdrawal, transfer)
- amount
- transaction\_date

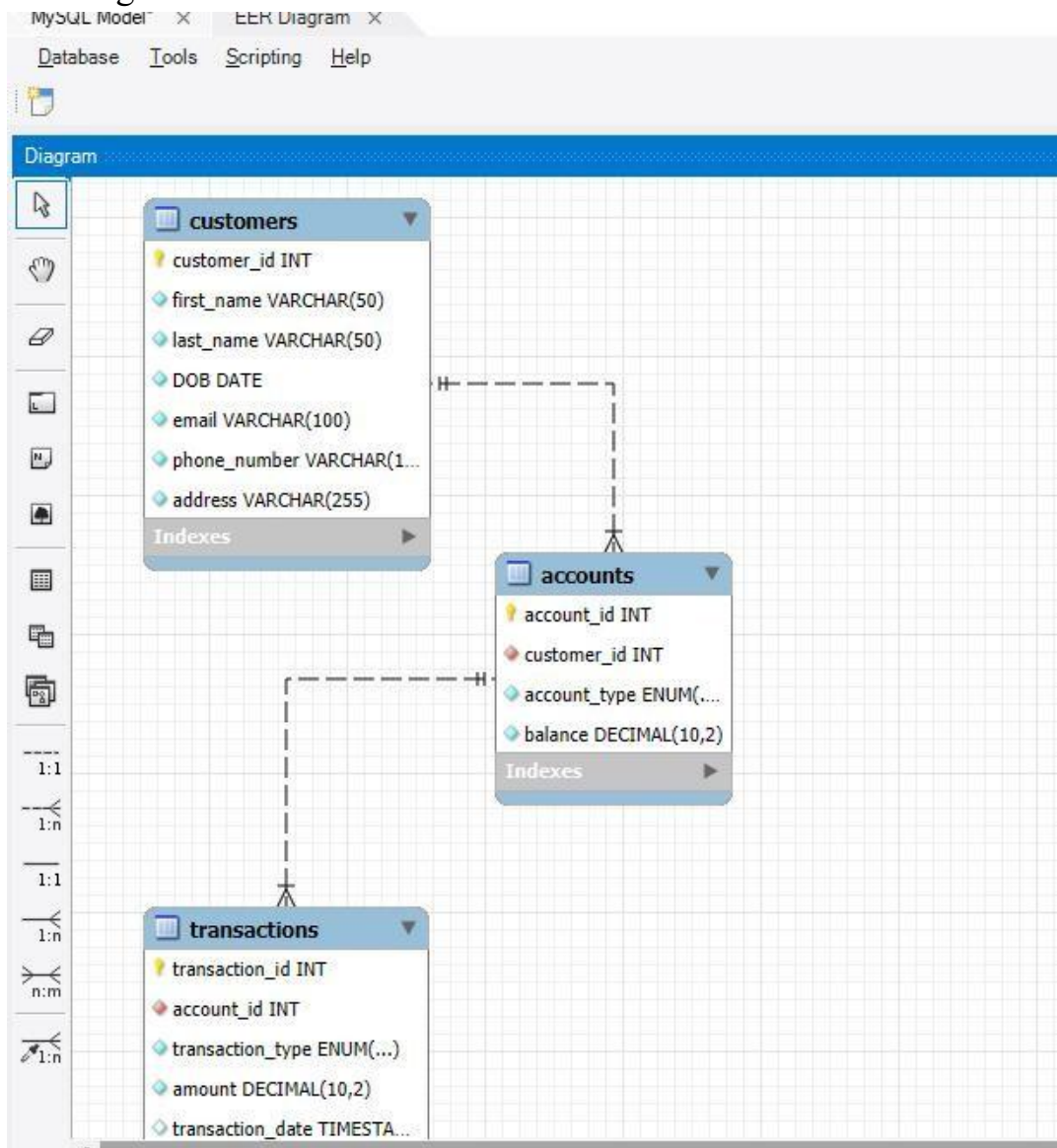
#### 1. Create the database named "HMBank"

```
mysql> create database HMBank;  
Query OK, 1 row affected (0.03 sec)
```

#### 2. Define the schema for the Customers, Accounts, and Transactions tables based on the provided schema.

4. Create an ERD (Entity Relationship Diagram) for the database.
  5. Create appropriate Primary Key and Foreign Key constraints for referential integrity.
  6. Write SQL scripts to create the mentioned tables with appropriate data types, constraints, and relationships.
- Customers
  - Accounts
  - Transactions

ER Diagram for HMBank:



### Customers table creation:

```
-->CREATE TABLE Customers (  
    customer_id INT PRIMARY KEY AUTO_INCREMENT,  
    first_name VARCHAR(50) NOT NULL,  
    last_name VARCHAR(50) NOT NULL,  
    DOB DATE NOT NULL,  
    email VARCHAR(100) UNIQUE NOT NULL,  
    phone_number VARCHAR(15) UNIQUE NOT NULL,  
    address VARCHAR(255) NOT NULL  
);
```

```
mysql> ALTER TABLE Customers  
    -> ADD COLUMN address VARCHAR(255) NOT NULL;  
Query OK, 0 rows affected (0.26 sec)  
Records: 0 Duplicates: 0 Warnings: 0  
  
mysql> DESCRIBE Customers;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| customer_id | int           | NO   | PRI | NULL    |       |  
| first_name  | varchar(50)   | NO   |     | NULL    |       |  
| last_name   | varchar(50)   | NO   |     | NULL    |       |  
| DOB         | date          | NO   |     | NULL    |       |  
| email       | varchar(100)  | NO   | UNI | NULL    |       |  
| phone_number | varchar(15)   | NO   | UNI | NULL    |       |  
| address     | varchar(255)  | NO   |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
7 rows in set (0.01 sec)
```

### Accounts table creation:

```
-->CREATE TABLE Accounts (  
    account_id INT PRIMARY KEY AUTO_INCREMENT,  
    customer_id INT NOT NULL,  
    account_type ENUM('savings', 'current', 'zero_balance') NOT NULL,  
    balance DECIMAL(10,2) NOT NULL DEFAULT 0.00,  
    FOREIGN KEY (customer_id) REFERENCES Customers(customer_id) ON  
DELETE CASCADE  
);
```

```
mysql> DESCRIBE Accounts;
```

| Field        | Type                                     | Null | Key | Default | Extra |
|--------------|--|------|-----|---------|-------|
| account_id   | int                                      | NO   | PRI | NULL    |       |
| customer_id  | int                                      | NO   | MUL | NULL    |       |
| account_type | enum('savings','current','zero_balance') | NO   |     | NULL    |       |
| balance      | decimal(10,2)                            | NO   |     | 0.00    |       |

```
4 rows in set (0.27 sec)
```

## Transaction Table Creation:

```
CREATE TABLE Transactions (
  transaction_id INT PRIMARY KEY AUTO_INCREMENT,
  account_id INT NOT NULL,
  transaction_type ENUM('deposit', 'withdrawal', 'transfer') NOT NULL,
  amount DECIMAL(10,2) NOT NULL CHECK (amount > 0),
  transaction_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
  FOREIGN KEY (account_id) REFERENCES Accounts(account_id)
);
```

| Field            | Type                                    | Null | Key | Default           | Extra             |
|------------------|---|------|-----|-------------------|-------------------|
| transaction_id   | int                                     | NO   | PRI | NULL              | auto_increment    |
| account_id       | int                                     | NO   | MUL | NULL              |                   |
| transaction_type | enum('deposit','withdrawal','transfer') | NO   |     | NULL              |                   |
| amount           | decimal(10,2)                           | NO   |     | NULL              |                   |
| transaction_date | timestamp                               | YES  |     | CURRENT_TIMESTAMP | DEFAULT_GENERATED |

```
5 rows in set (0.13 sec)
```

