Tasks 1: Database Design:

1. Create the database named "HMBank"

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

mysql> CREATE DATABASE HMBank;

Query OK, 1 row affected (0.01 sec)

mysql> USE HMBank;

Database changed

mysql> CREATE TABLE Customers (

-> customer\_id INT AUTO\_INCREMENT PRIMARY KEY,

-> 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 TEXT NOT NULL

-> );

Query OK, 0 rows affected (0.01 sec)

mysql> CREATE TABLE Accounts (

-> account\_id INT AUTO\_INCREMENT PRIMARY KEY,

-> customer\_id INT,

-> account\_type VARCHAR(20) NOT NULL CHECK (account\_type IN ('savings', 'current', 'zero\_balance')),

-> balance DECIMAL(12,2) NOT NULL CHECK (balance >= 0),

-> FOREIGN KEY (customer\_id) REFERENCES Customers(customer\_id) ON DELETE SET NULL

-> );

Query OK, 0 rows affected (0.02 sec)

mysql> CREATE TABLE Transactions (

-> transaction\_id INT AUTO\_INCREMENT PRIMARY KEY,

-> account\_id INT NOT NULL,

-> transaction\_type VARCHAR(20) NOT NULL CHECK (transaction\_type IN ('deposit', 'withdrawal', 'transfer')),

-> amount DECIMAL(12,2) NOT NULL CHECK (amount > 0),

-> transaction\_date TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

-> FOREIGN KEY (account\_id) REFERENCES Accounts(account\_id) ON DELETE CASCADE

-> );

Query OK, 0 rows affected (0.01 sec)

mysql> desc Customers;

+--------------+--------------+------+-----+---------+----------------+

| Field | Type | Null | Key | Default | Extra |

+--------------+--------------+------+-----+---------+----------------+

| customer\_id | int | NO | PRI | NULL | auto\_increment |

| 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 | text | NO | | NULL | |

+--------------+--------------+------+-----+---------+----------------+

7 rows in set (0.00 sec)

mysql> desc Accounts;

+--------------+---------------+------+-----+---------+----------------+

| Field | Type | Null | Key | Default | Extra |

+--------------+---------------+------+-----+---------+----------------+

| account\_id | int | NO | PRI | NULL | auto\_increment |

| customer\_id | int | YES | MUL | NULL | |

| account\_type | varchar(20) | NO | | NULL | |

| balance | decimal(12,2) | NO | | NULL | |

+--------------+---------------+------+-----+---------+----------------+

4 rows in set (0.00 sec)

mysql> desc Transactions;

+------------------+---------------+------+-----+-------------------+-------------------+

| Field | Type | Null | Key | Default | Extra |

+------------------+---------------+------+-----+-------------------+-------------------+

| transaction\_id | int | NO | PRI | NULL | auto\_increment |

| account\_id | int | NO | MUL | NULL | |

| transaction\_type | varchar(20) | NO | | NULL | |

| amount | decimal(12,2) | NO | | NULL | |

| transaction\_date | timestamp | YES | | CURRENT\_TIMESTAMP | DEFAULT\_GENERATED |

+------------------+---------------+------+-----+-------------------+-------------------+

5 rows in set (0.01 sec)

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