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DBMS Assignment 2

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Q1.

Question 1: Create the tables described below:

- Employee (Name (32 Varchar), ECode (Integer), Sex, Age, Salary, Manager_Code(Integer), Dept_num

  Primary key Ecode

  Foreign key Dept_num reference to Dept_num of Department relation

- Department (Dname (32Varchar), Dept_num (Integer), Manager_code)

  Primary key Dept_num

  Foreign key Manager_code reference to Ecode

Fill the tables with valid 10 entries in Employee and 4 entries in Department table.

Answer :

a)

```
mysql> CREATE TABLE Employee(Name VARCHAR(32),Ecode INTEGER PRIMARY KEY, SEX CHAR(1), AGE INTEGER,Salary
DECIMAL(10, 2),Manager_Code INTEGER,Dept_num INTEGER);
Query OK, 0 rows affected (0.02 sec)

mysql> SHOW TABLES;
+----------------------+
| Tables_in_EmployeeDB |
+----------------------+
| Department           |
| Employee             |
+----------------------+
2 rows in set (0.01 sec)

mysql> ALTER TABLE EMPLOYEE
    ->
    -> ;
ERROR 1146 (42S02): Table 'EmployeeDB.EMPLOYEE' doesn't exist
mysql> ALTER TABLE Employee;
Query OK, 0 rows affected (0.02 sec)

mysql> ALTER TABLE Employee
    -> ADD CONSTRAINT fk_Dept_num FOREIGN KEY (Dept_num)
    -> REFERENCES Department(Dept_num);
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

b)

```
mysql> CREATE TABLE Department(Dname VARCHAR(32),Dept_num INTEGER PRIMARY KEY,Manager_code INTEGER);
Query OK, 0 rows affected (0.04 sec)

mysql> SHOW TABLES;
+----------------------+
| Tables_in_EmployeeDB |
+----------------------+
| Department           |
+----------------------+
1 row in set (0.00 sec)
```

```
mysql> ALTER TABLE Department
    -> ADD CONSTRAINT fk_Manager_code FOREIGN KEY (Manager_code)
    -> REFERENCES Employee(Ecode);
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

c)

```
mysql> partment (Dname,INSERT INTO Department (Dname, Dept_num, Manager_code)
    -> VALUES
    -> ('HR', 101, NULL),
    -> ('Finance', 102, NULL),
    -> ('Engineering', 103, NULL),
    -> ('Marketing', 104, NULL);
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Department;
+-------------+----------+--------------+
| Dname       | Dept_num | Manager_code |
+-------------+----------+--------------+
| HR          |      101 |         NULL |
| Finance     |      102 |         NULL |
| Engineering |      103 |         NULL |
| Marketing   |      104 |         NULL |
+-------------+----------+--------------+
4 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Employee (Name, Ecode, Sex, Age, Salary, Manager_Code, Dept_num)
UES
('John Doe'    -> VALUES
    -> ('John Doe', 1, 'M', 34, 60000, NULL, 101),
    -> ('Jane Smith', 2, 'F', 28, 52000, 1, 102),
    -> ('Robert Brown', 3, 'M', 45, 75000, 1, 103),
    -> ('Emily White', 4, 'F', 32, 58000, 1, 101),
    -> ('Michael Green', 5, 'M', 41, 67000, 3, 104),
    -> ('Sophia Black', 6, 'F', 26, 49000, 3, 102),
    -> ('James Bond', 7, 'M', 50, 85000, NULL, 104),
    -> ('David Miller', 8, 'M', 39, 61000, 5, 103),
    -> ('Amy Adams', 9, 'F', 33, 62000, 2, 104),
    -> ('Liam Scott', 10, 'M', 29, 55000, 4, 102);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Employee;
+--------------+-------+------+------+----------+--------------+----------+
| Name         | Ecode | SEX  | AGE  | Salary   | Manager_Code | Dept_num |
+--------------+-------+------+------+----------+--------------+----------+
| John Doe     |     1 | M    |   34 | 60000.00 |         NULL |      101 |
| Jane Smith   |     2 | F    |   28 | 52000.00 |            1 |      102 |
| Robert Brown |     3 | M    |   45 | 75000.00 |            1 |      103 |
| Emily White  |     4 | F    |   32 | 58000.00 |            1 |      101 |
| Michael Green|     5 | M    |   41 | 67000.00 |            3 |      104 |
| Sophia Black |     6 | F    |   26 | 49000.00 |            3 |      102 |
| James Bond   |     7 | M    |   50 | 85000.00 |         NULL |      104 |
| David Miller |     8 | M    |   39 | 61000.00 |            5 |      103 |
| Amy Adams    |     9 | F    |   33 | 62000.00 |            2 |      104 |
| Liam Scott   |    10 | M    |   29 | 55000.00 |            4 |      102 |
+--------------+-------+------+------+----------+--------------+----------+
10 rows in set (0.00 sec)
```

Q2.

Question 2: Create a Banking Enterprise Database. Information stored in a database consisting of 6 Tables:

1. BRANCH: stores description of each branch of the bank
2. ACCOUNT: stores information about accounts
3. CUSTOMER: stores information about customers
4. LOAN: stores loans details for each customers
5. DEPOSITOR: stores information about which customer owns which account
6. BORROWER: associates customer with loan taken

Task - Table Creation

Create all the necessary tables with the columns name. Choose the appropriate data types for the columns as per the information given.

ANSWER:

```
mysql> CREATE DATABASE Banking_Enterprise_DB
    -> ;
Query OK, 1 row affected (0.00 sec)

mysql> show databases;
+------------------------+
| Database               |
+------------------------+
| Banking_Enterprise_DB  |
| EmployeeDB             |
| information_schema     |
| mysql                  |
| performance_schema     |
| sys                    |
+------------------------+
6 rows in set (0.00 sec)
```

a)

```
mysql> CREATE TABLE customer (customer_name VARCHAR(15) NOT NULL, customer_street VARCHAR(15), customer_c
ity VARCHAR(15) NOT NULL, PRIMARY KEY(customer_name) );
Query OK, 0 rows affected (0.06 sec)
```

b)

```
mysql> CREATE TABLE BRANCH  (branch_name VARCHAR(15) NOT NULL PRIMARY KEY, branch_city VARCHAR(15) NOT NU
LL, assets INTEGER(8) NOT NULL);
Query OK, 0 rows affected, 1 warning (0.06 sec)

mysql> SHOW TABLES;
+---------------------------------+
| Tables_in_Banking_Enterprise_DB |
+---------------------------------+
| BRANCH                          |
| customer                        |
+---------------------------------+
2 rows in set (0.01 sec)
```

c)

```
mysql> CREATE TABLE ACCOUNT
    -> (account_number INTEGER(8) NOT NULL PRIMARY KEY,
    -> branch_name VARCHAR(15) NOT NULL ,
    -> balance INTEGER(8) NOT NULL,
    -> DATE DATE NOT NULL,
    -> FOREIGN KEY (branch_name) REFERENCES BRANCH(branch_name)
    -> );
Query OK, 0 rows affected, 2 warnings (0.08 sec)

mysql> SHOW TABLES;
+---------------------------------+
| Tables_in_Banking_Enterprise_DB |
+---------------------------------+
| ACCOUNT                         |
| BRANCH                          |
| customer                        |
+---------------------------------+
```

d)

```
mysql> CREATE TABLE LOAN
    -> (loan_number INTEGER NOT NULL PRIMARY KEY,
    -> branch_name VARCHAR(15) NOT NULL,
    -> amount INTEGER(8) NOT NULL
    -> FOREIGN KEY (branch_name) REFERENCES BRANCH(branch_name),
    -> );
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL
 server version for the right syntax to use near 'FOREIGN KEY (branch_name) REFERENCES BRANCH(branch_name
)
)' at line 5
mysql> CREATE TABLE LOAN (loan_number INTEGER NOT NULL PRIMARY KEY, branch_name VARCHAR(15) NOT NULL, amo
unt INTEGER(8) NOT NULL, FOREIGN KEY (branch_name) REFERENCES BRANCH(branch_name) );
Query OK, 0 rows affected, 1 warning (0.13 sec)

mysql> SHOW TABLES
    -> ;
+--------------------------------+
| Tables_in_Banking_Enterprise_DB |
+--------------------------------+
| ACCOUNT                        |
| BRANCH                         |
| LOAN                           |
| customer                       |
+--------------------------------+
4 rows in set (0.01 sec)
```

e)

```
mysql> CREATE TABLE DEPOSITOR
    -> (customer_name VARCHAR(15) NOT NULL,
    -> account_number INTEGER(8) NOT NULL,
    -> FOREIGN KEY (customer_name) REFERENCES customer(customer_name),
    -> FOREIGN KEY (account_number) REFERENCES ACCOUNT(account_number)
    -> );
Query OK, 0 rows affected, 1 warning (0.10 sec)

mysql> SHOW TABLES
    -> ;
+--------------------------------+
| Tables_in_Banking_Enterprise_DB |
+--------------------------------+
| ACCOUNT                        |
| BRANCH                         |
| DEPOSITOR                      |
| LOAN                           |
| customer                       |
+--------------------------------+
5 rows in set (0.00 sec)
```

f)

```
mysql> CREATE TABLE BORROWER
    -> (customer_name VARCHAR(15) NOT NULL,
    -> loan_number INTEGER NOT NULL,
    -> FOREIGN KEY (customer_name) REFERENCES customer(customer_name),
    -> FOREIGN KEY (loan_number) REFERENCES LOAN(loan_number)
    -> );
Query OK, 0 rows affected (0.08 sec)

mysql> show tables;
+---------------------------------+
| Tables_in_Banking_Enterprise_DB |
+---------------------------------+
| ACCOUNT                         |
| BORROWER                        |
| BRANCH                          |
| DEPOSITOR                       |
| LOAN                            |
| customer                        |
+---------------------------------+
6 rows in set (0.01 sec)
```