**Question 1**

Create a table called Employee & execute the following.

Employee(EMPNO,ENAME,JOB, MANAGER\_NO, SAL, COMMISSION)

Create a user and grant all permissions to the user.

Insert any three records in the employee table contains attributes EMPNO,ENAME JOB, MANAGER\_NO, SAL, COMMISSION and use rollback. Check the result.

Add primary key constraint and not null constraint to the employee table.

Insert null values to the employee table and verify the result.

**Solution**

Lets login with the root account as shown below. Create a database COMPANY and switch to it using the USE command.

$ sudo mysql -u root

**mysql> CREATE DATABASE COMPANY;**

Query OK, 1 row affected (0.14 sec)

**mysql> USE COMPANY;**

Database changed

**Creating the Employee Table**

**Within the Database COMPANY create a table Employee as follows. Use the SHOW TABLES; command to confirm that the table was indeed created.**

**mysql>** **CREATE TABLE COMPANY.Employee (**

**EMPNO INT,**

**ENAME VARCHAR(255),**

**JOB VARCHAR(255),**

**MANAGER\_NO INT,**

**SAL DECIMAL(10, 2),**

**COMMISSION DECIMAL(10, 2)**

**);**

Query OK, 0 rows affected (0.91 sec)

**mysql> SHOW TABLES;**

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

| Tables\_in\_COMPANY |

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

| Employee |

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

1 row in set (0.00 sec)

You can verify the structure of this newly created Employee table using the DESC command.

**mysql> DESC COMPANY.Employee;**

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

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

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

| EMPNO | int | YES | | NULL | |

| ENAME | varchar(255) | YES | | NULL | |

| JOB | varchar(255) | YES | | NULL | |

| MANAGER\_NO | int | YES | | NULL | |

| SAL | decimal(10,2) | YES | | NULL | |

| COMMISSION | decimal(10,2) | YES | | NULL | |

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

6 rows in set (0.00 sec)

**Create a User and Grant Permissions**

**mysql> CREATE USER IF NOT EXISTS 'dbuser'@'localhost' IDENTIFIED BY 'T0p5E(RET';**

**mysql>** **GRANT ALL PRIVILEGES ON COMPANY.Employee TO 'dbuser'@'localhost';**

Now logout and login with the new account credentials. Press Ctrl+D to logout. Command to login with new user account is shown below.

$ mysql -u dbuser -p

Enter password:

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 11

Server version: 8.0.37 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

**mysql>**

Now you have successfully logged with your new account. Change the current database to COMPANY database using USE command. Now we will illustrate how to insert records and also the COMMIT and ROLLBACK facilities.

-- Change the current database to COMPANY

**mysql> USE COMPANY;**

Database changed

**mysql> SELECT \* FROM Employee;**

Query OK, 0 rows affected (0.00 sec)

-- START A TRANSACTION

**mysql> START TRANSACTION;**

Query OK, 0 rows affected (0.00 sec)

**mysql> INSERT INTO Employee (EMPNO, ENAME, JOB, MANAGER\_NO, SAL, COMMISSION)**

**-> VALUES (1, 'Kavana Shetty', 'Manager', NULL, 5000.00, 1000.00);**

Query OK, 1 row affected (0.00 sec)

-- COMMIT DATABASE, db CONTENTS ARE WRITTEN TO THE DISK

**mysql> COMMIT;**

Query OK, 0 rows affected (0.06 sec)

-- DISPLAY TABLE CONTENTS

**mysql> SELECT \* FROM Employee;**

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

| EMPNO | ENAME | JOB | MANAGER\_NO | SAL | COMMISSION |

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

| 1 | Kavana Shetty | Manager | NULL | 5000.00 | 1000.00 |

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

1 row in set (0.00 sec)

-- START ANOTHER TRANSACTION

**mysql> START TRANSACTION;**

-- INSERT MORE RECORDS

**mysql> INSERT INTO Employee (EMPNO, ENAME, JOB, MANAGER\_NO, SAL, COMMISSION)**

**VALUES (2, 'Ram Charan', 'Developer', 1, 4000.00, NULL);**

**mysql> INSERT INTO Employee (EMPNO, ENAME, JOB, MANAGER\_NO, SAL, COMMISSION)**

**VALUES (3, 'Honey Singh', 'Salesperson', 2, 3000.00, 500.00);**

**mysql> SELECT \* FROM Employee;**

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

| EMPNO | ENAME | JOB | MANAGER\_NO | SAL | COMMISSION |

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

| 1 | Kavana Shetty | Manager | NULL | 5000.00 | 1000.00 |

| 2 | Ram Charan | Developer | 1 | 4000.00 | NULL |

| 3 | Honey Singh | Salesperson | 2 | 3000.00 | 500.00 |

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

3 rows in set (0.00 sec)

**mysql> DELETE FROM Employee where ENAME = 'Kavana Shetty';**

Query OK, 1 row affected (0.00 sec)

**mysql> SELECT \* FROM Employee;**

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

| EMPNO | ENAME | JOB | MANAGER\_NO | SAL | COMMISSION |

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

| 2 | Ram Charan | Developer | 1 | 4000.00 | NULL |

| 3 | Honey Singh | Salesperson | 2 | 3000.00 | 500.00 |

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

2 rows in set (0.00 sec)

-- ROLLBACK 2 INSERTS AND 1 DELETE OPERATIONS

**mysql> ROLLBACK;**

Query OK, 0 rows affected (0.06 sec)

**mysql> SELECT \* FROM Employee;**

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

| EMPNO | ENAME | JOB | MANAGER\_NO | SAL | COMMISSION |

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

| 1 | Kavana Shetty | Manager | NULL | 5000.00 | 1000.00 |

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

1 row in set (0.00 sec)

You can now see how the rollback operation can be used above.

Adding Constraints

Add Primary Key Constraint

-- Add Primary Key Constraint

**mysql> ALTER TABLE Employee**

**-> ADD CONSTRAINT pk\_employee PRIMARY KEY (EMPNO);**

Query OK, 0 rows affected (1.65 sec)

-- verify primary key constraint

**mysql> DESC Employee;**

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

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

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

| EMPNO | int | NO | PRI | NULL | |

| ENAME | varchar(255) | YES | | NULL | |

| JOB | varchar(255) | YES | | NULL | |

| MANAGER\_NO | int | YES | | NULL | |

| SAL | decimal(10,2) | YES | | NULL | |

| COMMISSION | decimal(10,2) | YES | | NULL | |

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

6 rows in set (0.00 sec)

**mysql> INSERT INTO Employee (EMPNO, ENAME, JOB, MANAGER\_NO, SAL, COMMISSION)**

**-> VALUES (1, 'Ranjan', 'Manager', NULL, 5000.00, 1000.00);**

ERROR 1062 (23000): Duplicate entry '1' for key 'Employee.PRIMARY'

Since EMPNO field is the primary key it cannot have duplicate values, hence we see that the insert operation fails when provided with a duplicate value.

Add Not Null Constraint

-- Add Not Null Constraints

**mysql> ALTER TABLE Employee**

**-> MODIFY ENAME VARCHAR(255) NOT NULL,**

**-> MODIFY JOB VARCHAR(255) NOT NULL,**

**-> MODIFY SAL DECIMAL(10, 2) NOT NULL;**

Query OK, 0 rows affected (1.08 sec)

**mysql> INSERT INTO Employee (EMPNO, ENAME, JOB, MANAGER\_NO, SAL, COMMISSION)**

**-> VALUES (4, 'Ranjan', 'Manager', NULL, 5000.00, 1000.00);**

Query OK, 1 row affected (0.16 sec)

mysql>

**mysql> SELECT \* FROM Employee;**

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

| EMPNO | ENAME | JOB | MANAGER\_NO | SAL | COMMISSION |

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

| 1 | Kavana Shetty | Manager | NULL | 5000.00 | 1000.00 |

| 4 | Ranjan | Manager | NULL | 5000.00 | 1000.00 |

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

2 rows in set (0.00 sec)

**mysql> INSERT INTO Employee (ENAME, JOB, MANAGER\_NO, SAL, COMMISSION)**

**-> VALUES (NULL, 'Tester', NULL, 3500.00, NULL);**

ERROR 1048 (23000): Column 'ENAME' cannot be null