EX. No. 1 — DDL Commands using CREATE, ALTER, TRUNCATE, and DROP

```
MySQL 8.0 Command Line Cli  ×      +  ⌄                                                          —  ⊡  ×

Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.42 MySQL Community Server - GPL

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owners.

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

mysql> USE collegeDB;
Database changed
mysql> CREATE TABLE Student(
    -> RollNo INT,
    -> Name VARCHAR(50),
    -> Age INT
    -> );
Query OK, 0 rows affected (0.27 sec)

mysql> DESC STUDENT;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| RollNo | int         | YES  |     | NULL    |       |
| Name   | varchar(50) | YES  |     | NULL    |       |
| Age    | int         | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.09 sec)

mysql>
```

```
MySQL 8.0 Command Line Cli  ×      +  ⌄                                                          —  ⊡  ×

mysql> ALTER TABLE Student ADD EmailVARCHAR(100);
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 '(100)' at line 1
mysql> ALTER TABLE Student ADD Email VARCHAR(100);
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC STUDENT;
+--------+--------------+------+-----+---------+-------+
| Field  | Type         | Null | Key | Default | Extra |
+--------+--------------+------+-----+---------+-------+
| RollNo | int          | YES  |     | NULL    |       |
| Name   | varchar(50)  | YES  |     | NULL    |       |
| Age    | int          | YES  |     | NULL    |       |
| Email  | varchar(100) | YES  |     | NULL    |       |
+--------+--------------+------+-----+---------+-------+
4 rows in set (0.01 sec)

mysql> TRUNCATE TABLE Student;
Query OK, 0 rows affected (0.04 sec)

mysql> DESC STUDENT;
+--------+--------------+------+-----+---------+-------+
| Field  | Type         | Null | Key | Default | Extra |
+--------+--------------+------+-----+---------+-------+
| RollNo | int          | YES  |     | NULL    |       |
| Name   | varchar(50)  | YES  |     | NULL    |       |
| Age    | int          | YES  |     | NULL    |       |
| Email  | varchar(100) | YES  |     | NULL    |       |
+--------+--------------+------+-----+---------+-------+
4 rows in set (0.01 sec)

mysql>
```
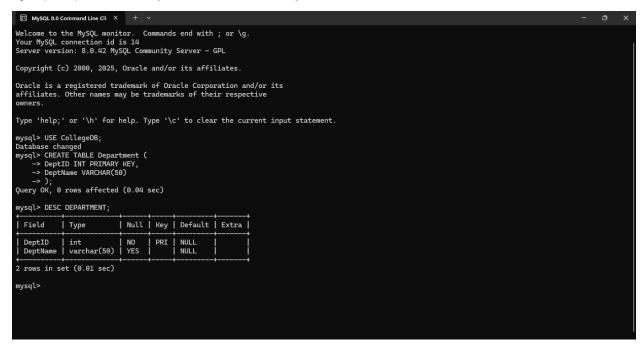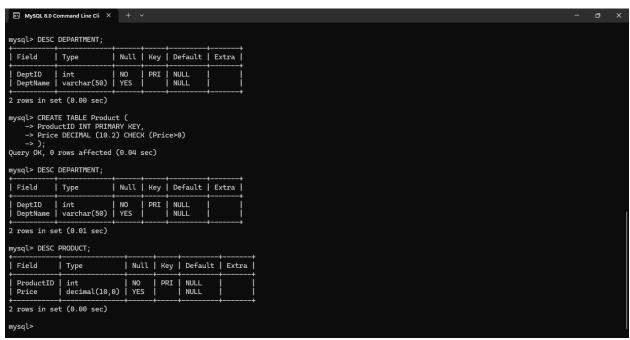
```
4 rows in set (0.01 sec)

mysql> DROP TABLE Student;
Query OK, 0 rows affected (0.03 sec)

mysql> DESC STUDENT;
ERROR 1146 (42S02): Table 'collegedb.student' doesn't exist
mysql>
```
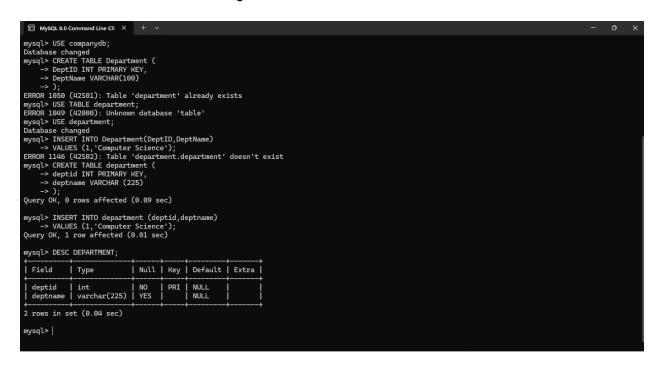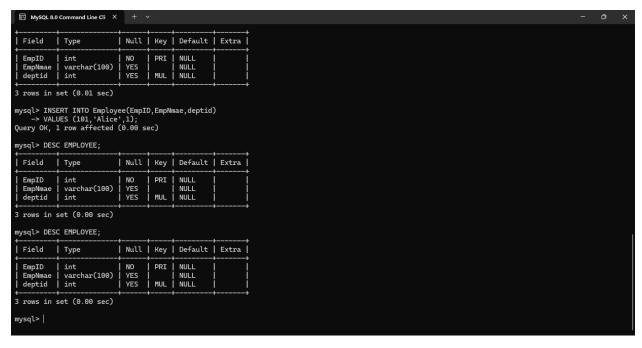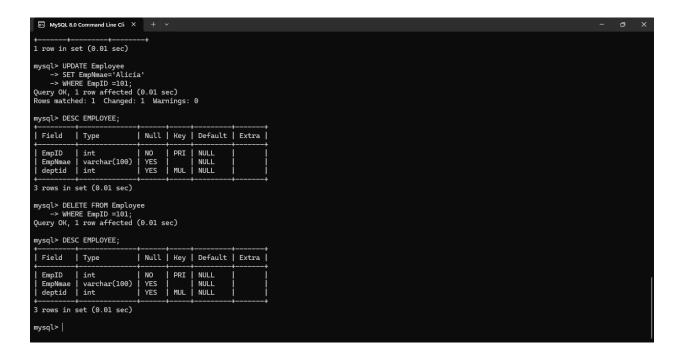
EX. No. 2 – DDL Commands with Constraints

```
MySQL 8.0 Command Line Cli    X    +   ˅                                                                    —   ☐   ✕

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 14
Server version: 8.0.42 MySQL Community Server – GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> USE CollegeDB;
Database changed
mysql> CREATE TABLE Department (
    -> DeptID INT PRIMARY KEY,
    -> DeptName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESC DEPARTMENT;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| DeptID   | int         | NO   | PRI | NULL    |       |
| DeptName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)

mysql>
```
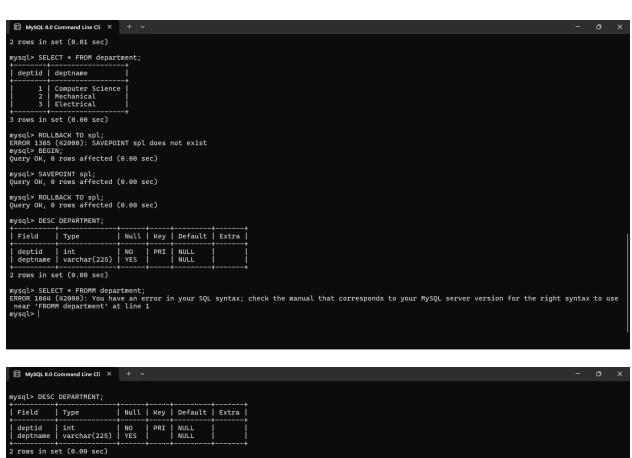
```
MySQL 8.0 Command Line Cli    X    +   ˅                                                                    —   ☐   ✕

mysql> DESC DEPARTMENT;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| DeptID   | int         | NO   | PRI | NULL    |       |
| DeptName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> CREATE TABLE Product (
    -> ProductID INT PRIMARY KEY,
    -> Price DECIMAL (10.2) CHECK (Price>0)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESC DEPARTMENT;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| DeptID   | int         | NO   | PRI | NULL    |       |
| DeptName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)

mysql> DESC PRODUCT;
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| ProductID | int           | NO   | PRI | NULL    |       |
| Price     | decimal(10,0) | YES  |     | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql>
```

```
MySQL 8.0 Command Line Cli    ×    +    ∨                                                                                    —    ☐    ×

mysql> DESC ORDER;
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 'ORDER' at line 1
mysql> DESC ORDERS
    -> DESC ORDERS;
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 'DESC ORDERS' at line 2
mysql> DESC ORDERS;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| OrderID | int         | NO   | PRI | NULL    |       |
| Status  | varchar(20) | YES  |     | Pending |       |
+---------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> CREATE TABLE Course (
    -> CourseID INT PRIMARY KEY,
    -> CourseName VARCHAR(50) NOT NULL
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESC COURSE;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| CourseID   | int         | NO   | PRI | NULL    |       |
| CourseName | varchar(50) | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql>
```

EX 3 DML Commands using INSERT and SELECT

```
MySQL 8.0 Command Line Cli    ×    +    ∨                                                                                    —    ☐    ×

mysql> USE companydb;
Database changed
mysql> CREATE TABLE Department (
    -> DeptID INT PRIMARY KEY,
    -> DeptName VARCHAR(100)
    -> );
ERROR 1050 (42S01): Table 'department' already exists
mysql> USE TABLE department;
ERROR 1049 (42000): Unknown database 'table'
mysql> USE department;
Database changed
mysql> INSERT INTO Department(DeptID,DeptName)
    -> VALUES (1,'Computer Science');
ERROR 1146 (42S02): Table 'department.department' doesn't exist
mysql> CREATE TABLE department (
    -> deptid INT PRIMARY KEY,
    -> deptname VARCHAR (225)
    -> );
Query OK, 0 rows affected (0.09 sec)

mysql> INSERT INTO department (deptid,deptname)
    -> VALUES (1,'Computer Science');
Query OK, 1 row affected (0.01 sec)

mysql> DESC DEPARTMENT;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| deptid   | int          | NO   | PRI | NULL    |       |
| deptname | varchar(225) | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
2 rows in set (0.04 sec)

mysql>
```

```
+---------+--------------+------+-----+---------+-------+
| Field   | Type         | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| EmpID   | int          | NO   | PRI | NULL    |       |
| EmpNmae | varchar(100) | YES  |     | NULL    |       |
| deptid  | int          | YES  | MUL | NULL    |       |
+---------+--------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> INSERT INTO Employee(EmpID,EmpNmae,deptid)
    -> VALUES (101,'Alice',1);
Query OK, 1 row affected (0.00 sec)

mysql> DESC EMPLOYEE;
+---------+--------------+------+-----+---------+-------+
| Field   | Type         | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| EmpID   | int          | NO   | PRI | NULL    |       |
| EmpNmae | varchar(100) | YES  |     | NULL    |       |
| deptid  | int          | YES  | MUL | NULL    |       |
+---------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC EMPLOYEE;
+---------+--------------+------+-----+---------+-------+
| Field   | Type         | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| EmpID   | int          | NO   | PRI | NULL    |       |
| EmpNmae | varchar(100) | YES  |     | NULL    |       |
| deptid  | int          | YES  | MUL | NULL    |       |
+---------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql>
```

```
| Field   | Type         | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| EmpID   | int          | NO   | PRI | NULL    |       |
| EmpNmae | varchar(100) | YES  |     | NULL    |       |
| deptid  | int          | YES  | MUL | NULL    |       |
+---------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> SELECT * FROM Employee;
+-------+---------+--------+
| EmpID | EmpNmae | deptid |
+-------+---------+--------+
|   101 | Alice   |      1 |
+-------+---------+--------+
1 row in set (0.01 sec)

mysql> SELECT EmpNmae,deptid FROM Employee;
+---------+--------+
| EmpNmae | deptid |
+---------+--------+
| Alice   |      1 |
+---------+--------+
1 row in set (0.00 sec)

mysql> SELECT*FROM Employee
    -> WHERE deptid=1;
+-------+---------+--------+
| EmpID | EmpNmae | deptid |
+-------+---------+--------+
|   101 | Alice   |      1 |
+-------+---------+--------+
1 row in set (0.01 sec)

mysql>
```

EX. No. 4 – DML Commands using UPDATE and DELETE

```
+--------+----------+--------+
1 row in set (0.01 sec)

mysql> UPDATE Employee
    -> SET EmpNmae='Alicia'
    -> WHERE EmpID =101;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1   Changed: 1   Warnings: 0

mysql> DESC EMPLOYEE;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| EmpID    | int          | NO   | PRI | NULL    |       |
| EmpNmae  | varchar(100) | YES  |     | NULL    |       |
| deptid   | int          | YES  | MUL | NULL    |       |
+----------+--------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> DELETE FROM Employee
    -> WHERE EmpID =101;
Query OK, 1 row affected (0.01 sec)

mysql> DESC EMPLOYEE;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| EmpID    | int          | NO   | PRI | NULL    |       |
| EmpNmae  | varchar(100) | YES  |     | NULL    |       |
| deptid   | int          | YES  | MUL | NULL    |       |
+----------+--------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql>
```

EX. No. 5 – TCL Commands: COMMIT, SAVEPOINT, ROLLBACK

```
mysql> USE department;
Database changed
mysql> INSERT INTO department (deptid, deptname) VALUES (2,'Mechanical');
Query OK, 1 row affected (0.18 sec)

mysql> DESC DEPARTMENT;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| deptid   | int          | NO   | PRI | NULL    |       |
| deptname | varchar(225) | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
2 rows in set (0.04 sec)

mysql> COMMIT;
Query OK, 0 rows affected (0.01 sec)

mysql> DESC SEPARTMENT;
ERROR 1146 (42S02): Table 'department.separtment' doesn't exist
mysql> DESC DEPARTMENT;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| deptid   | int          | NO   | PRI | NULL    |       |
| deptname | varchar(225) | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> SAVEPOINT spl;
Query OK, 0 rows affected (0.00 sec)

mysql> INSERT INTO department (deptid,deptname) VALUES(3,'Electrical');
Query OK, 1 row affected (0.01 sec)
```

```
2 rows in set (0.01 sec)

mysql> SELECT * FROM department;
+--------+------------------+
| deptid | deptname         |
+--------+------------------+
|      1 | Computer Science |
|      2 | Mechanical       |
|      3 | Electrical       |
+--------+------------------+
3 rows in set (0.00 sec)

mysql> ROLLBACK TO spl;
ERROR 1305 (42000): SAVEPOINT spl does not exist
mysql> BEGIN;
Query OK, 0 rows affected (0.00 sec)

mysql> SAVEPOINT spl;
Query OK, 0 rows affected (0.00 sec)

mysql> ROLLBACK TO spl;
Query OK, 0 rows affected (0.00 sec)

mysql> DESC DEPARTMENT;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| deptid   | int          | NO   | PRI | NULL    |       |
| deptname | varchar(225) | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> SELECT * FROMM department;
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 'FROMM department' at line 1
mysql>
```

```
mysql> DESC DEPARTMENT;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| deptid   | int          | NO   | PRI | NULL    |       |
| deptname | varchar(225) | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> SELECT * FROMM department;
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 'FROMM department' at line 1
mysql> SELECT * FROM department;
+--------+------------------+
| deptid | deptname         |
+--------+------------------+
|      1 | Computer Science |
|      2 | Mechanical       |
|      3 | Electrical       |
+--------+------------------+
3 rows in set (0.00 sec)

mysql> ROLLBACK;
Query OK, 0 rows affected (0.00 sec)

mysql> SELECT * FROM DEPARTMENT;
+--------+------------------+
| deptid | deptname         |
+--------+------------------+
|      1 | Computer Science |
|      2 | Mechanical       |
|      3 | Electrical       |
+--------+------------------+
3 rows in set (0.00 sec)

mysql>
```

EX. No. 6 – DCL Commands: GRANT and REVOKE

```
mysql> CREATE DATABASE University;
Query OK, 1 row affected (0.02 sec)

mysql> USE University;
Database changed
mysql> CREATE TABLE department (
    -> deptid INT PRIMARY KEY;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the righ
t syntax to use near '' at line 2
mysql> CREATE TABLE Department (
    -> deptid INT PRIMARY KEY,
    -> deptname VARCHAR(100)
    -> );
Query OK, 0 rows affected (0.09 sec)

mysql> CREATE USER 'user1'@'localhost' IDENTIFIED BY 'password123';
Query OK, 0 rows affected (0.06 sec)

mysql> DESC DEPARTMENT;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| deptid    | int          | NO   | PRI | NULL    |       |
| deptname  | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
2 rows in set (0.01 sec)

mysql> SELECT*FROM DEPARTMENT;
Empty set (0.00 sec)

mysql> SELECT * FROM Department;
Empty set (0.00 sec)
```

```
ERROR 1146 (42S02): Table 'university.university' doesn't exist
mysql> DESC UNIVERSITY;
ERROR 1146 (42S02): Table 'university.university' doesn't exist
mysql> USE UNIVERSITY;
Database changed
mysql> DESC UNIVERSITY;
ERROR 1146 (42S02): Table 'university.university' doesn't exist
mysql> DESC UNIVERSITY.DEPARTMENT;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| deptid    | int          | NO   | PRI | NULL    |       |
| deptname  | varchar(100) | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> SELECT * FROM UNIVERSITY.DEPARTMENT;
Empty set (0.00 sec)

mysql> SHOW GRANTS FOR 'user1'@'localhost';
+------------------------------------------------------------------------+
| Grants for user1@localhost                                             |
+------------------------------------------------------------------------+
| GRANT USAGE ON *.* TO `user1`@`localhost`                              |
| GRANT SELECT, INSERT ON `university`.`department` TO `user1`@`localhost` |
+------------------------------------------------------------------------+
2 rows in set (0.00 sec)

mysql> REVOKE INSERT ON UNIVERSITY.DEPARTMENT FROM 'user1'@'localhost';
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANT FOR 'user1'@'localhost';
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 'GRANT FOR '
user1'@'localhost'' at line 1
mysql> SHOW GRANTS FOR 'user1'@'localhost';
+------------------------------------------------------------------------+
| Grants for user1@localhost                                             |
+------------------------------------------------------------------------+
| GRANT USAGE ON *.* TO `user1`@`localhost`                              |
| GRANT SELECT ON `university`.`department` TO `user1`@`localhost`       |
+------------------------------------------------------------------------+
2 rows in set (0.00 sec)

mysql>
```

EX. No. 7 – SELECT with Various Clauses: WHERE, Pattern Matching

```
MySQL 8.0 Command Line Cli  X    +  ∨                                                              —   □   X

Your MySQL connection id is 17
Server version: 8.0.42 MySQL Community Server — GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> CREATE DATABASE FilterDemoDB;
Query OK, 1 row affected (0.11 sec)

mysql> USE FilterDemoDB;
Database changed
mysql> CREATE TABLE Employee (
    -> EmpID INT PRIMARY KEY,
    -> EmpName VARCHAR(100),
    -> DeptID INT
    -> );
Query OK, 0 rows affected (0.15 sec)

mysql> DESC EMPLOYEE;
+---------+--------------+------+-----+---------+-------+
| Field   | Type         | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| EmpID   | int          | NO   | PRI | NULL    |       |
| EmpName | varchar(100) | YES  |     | NULL    |       |
| DeptID  | int          | YES  |     | NULL    |       |
+---------+--------------+------+-----+---------+-------+
3 rows in set (0.06 sec)

mysql>
```

```
MySQL 8.0 Command Line Cli  X    +  ∨                                                              —   □   X

| DeptID  | int          | YES  |     | NULL    |       |
+---------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> SELECT * FROM EMPLOYEE;
+-------+-----------+--------+
| EmpID | EmpName   | DeptID |
+-------+-----------+--------+
|   101 | Alice     |      1 |
|   102 | bob       |      2 |
|   103 | Anil      |      1 |
|   104 | catherine |      3 |
|   105 | Amit      |      2 |
|   106 | David     |      1 |
+-------+-----------+--------+
6 rows in set (0.00 sec)

mysql> SELECT column1, column2 FROM table_name
    -> WHERE condition;
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 'condition' at line 2
mysql> SELECT EmpName FROM Employee
    -> WHERE DeptID = 1;
+---------+
| EmpName |
+---------+
| Alice   |
| Anil    |
| David   |
+---------+
3 rows in set (0.00 sec)

mysql>
```

```
|  102 | bob       |      2 |
|  103 | Anil      |      1 |
|  104 | catherine |      3 |
|  105 | Amit      |      2 |
|  106 | David     |      1 |
+------+-----------+--------+
6 rows in set (0.00 sec)

mysql> SELECT column1, column2 FROM table_name
    -> WHERE condition;
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 'condition' at line 2
mysql> SELECT EmpName FROM Employee
    -> WHERE DeptID = 1;
+---------+
| EmpName |
+---------+
| Alice   |
| Anil    |
| David   |
+---------+
3 rows in set (0.00 sec)

mysql> SELECT EmpName FROM Employee
    -> WHERE EmpName LIKE 'A%';
+---------+
| EmpName |
+---------+
| Alice   |
| Anil    |
| Amit    |
+---------+
3 rows in set (0.01 sec)

mysql>
```

EX 8   SELECT with Various Clauses: BETWEEN, IN, Aggregate Function


```
mysql> CREATE DATABASE StoreDB;
Query OK, 1 row affected (0.01 sec)

mysql> USE StoreDB;
Database changed
mysql> CREATE TABLE Product (
    -> ProductID INT PRIMARY KEY,
    -> ProductName VARCHAR(100),
    -> Price DECIMAL (10,2)
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> CREATE TABLE Employee(
    -> EmpID INT PRIMARY KEY,
    -> EmpName VARCHAR(50),
    -> DeptID INT,
    -> Salary DECIMAL(10,2)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESC PRODUCT;
+-------------+---------------+------+-----+---------+-------+
| Field       | Type          | Null | Key | Default | Extra |
+-------------+---------------+------+-----+---------+-------+
| ProductID   | int           | NO   | PRI | NULL    |       |
| ProductName | varchar(100)  | YES  |     | NULL    |       |
| Price       | decimal(10,2) | YES  |     | NULL    |       |
+-------------+---------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> DESC EMPLOYEE;
+---------+---------+------+-----+---------+-------+
| Field   | Type    | Null | Key | Default | Extra |
+---------+---------+------+-----+---------+-------+
```

```
MySQL 8.0 Command Line Cli    X    +    ∨                                                    —    ☐    X

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 ' 'Marker', 80)' at line 7
mysql> INSERT INTO Product VALUES
    -> (1, 'Pen', 20),
    -> (2, 'Pencil', 10),
    -> (3, 'Notebook', 55),
    -> (4, 'Bag', 200),
    -> (5, 'Eraser', 5),
    -> (6, 'Marker', 80);
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 ' 'Marker', 80)' at line 7
mysql> INSERT INTO Product VALUES
    -> (1,'Pen',20),
    -> (2,'Pencil',10),
    -> (3,'NoteBook',55),
    -> (4,'Bag',200),
    -> (5,'Eraser',5),
    -> (6,'Marker',80);
Query OK, 6 rows affected (0.01 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM PRODUCT;
+-----------+-------------+--------+
| ProductID | ProductName | Price  |
+-----------+-------------+--------+
|         1 | Pen         |  20.00 |
|         2 | Pencil      |  10.00 |
|         3 | NoteBook    |  55.00 |
|         4 | Bag         | 200.00 |
|         5 | Eraser      |   5.00 |
|         6 | Marker      |  80.00 |
+-----------+-------------+--------+
6 rows in set (0.00 sec)

mysql>
```

```
MySQL 8.0 Command Line Cli    X    +    ∨                                                    —    ☐    X

mysql> SELECT * FROM PRODUCT;
+-----------+-------------+--------+
| ProductID | ProductName | Price  |
+-----------+-------------+--------+
|         1 | Pen         |  20.00 |
|         2 | Pencil      |  10.00 |
|         3 | NoteBook    |  55.00 |
|         4 | Bag         | 200.00 |
|         5 | Eraser      |   5.00 |
|         6 | Marker      |  80.00 |
+-----------+-------------+--------+
6 rows in set (0.00 sec)

mysql> INSERT INTO Employee VALUES
    -> (101,'Alice',1,30000),
    -> (102,'Bob',2,28000),
    -> (103,'Charlie',3,25000),
    -> (104,'David',1,35000),
    -> (105,'Eve',2,32000);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM EMPLOYEE;
+-------+---------+--------+----------+
| EmpID | EmpName | DeptID | Salary   |
+-------+---------+--------+----------+
|   101 | Alice   |      1 | 30000.00 |
|   102 | Bob     |      2 | 28000.00 |
|   103 | Charlie |      3 | 25000.00 |
|   104 | David   |      1 | 35000.00 |
|   105 | Eve     |      2 | 32000.00 |
+-------+---------+--------+----------+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> SELECT ProductName, Price
    -> FROM Product
    -> WHERE Price BETWEEN 10 AND 100;
+-------------+-------+
| ProductName | Price |
+-------------+-------+
| Pen         | 20.00 |
| Pencil      | 10.00 |
| NoteBook    | 55.00 |
| Marker      | 80.00 |
+-------------+-------+
4 rows in set (0.00 sec)

mysql> SELECT EmpName, DeptID
    -> FROM Employee
    -> WHERE DeptID IN (1,2);
+---------+--------+
| EmpName | DeptID |
+---------+--------+
| Alice   |      1 |
| Bob     |      2 |
| David   |      1 |
| Eve     |      2 |
+---------+--------+
4 rows in set (0.00 sec)

mysql> SELECT AVG(Price) AS AveragePrice FROM Product;
+--------------+
| AveragePrice |
+--------------+
|    61.666667 |
+--------------+
1 row in set (0.01 sec)

mysql>
```

```
mysql> SELECT SUM(Salary) AS TotalSalary FROM Employee;
+-------------+
| TotalSalary |
+-------------+
|   150000.00 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT MAX(Price) AS MaxPrice FROM Product;
+----------+
| MaxPrice |
+----------+
|   200.00 |
+----------+
1 row in set (0.01 sec)

mysql>
```

EX. No. 9 – SELECT with Various Clauses: GROUP BY, HAVING, ORDER BY

```
MySQL 8.0 Command Line Cli    X    +    v                                                    —    □    ×

mysql>  CREATE DATABASE CompanyDB;
Query OK, 1 row affected (0.07 sec)

mysql> USE CompanyDB;
Database changed
mysql> CREATE TABLE Employee (
    -> EmpID INT PRIMARY KEY,
    -> EmpName VARCHAR(1000),
    -> DeptID INT,
    -> Salary DECIMAL(10,2)
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> DESC EMPLOYEE;
+---------+---------------+------+-----+---------+-------+
| Field   | Type          | Null | Key | Default | Extra |
+---------+---------------+------+-----+---------+-------+
| EmpID   | int           | NO   | PRI | NULL    |       |
| EmpName | varchar(1000) | YES  |     | NULL    |       |
| DeptID  | int           | YES  |     | NULL    |       |
| Salary  | decimal(10,2) | YES  |     | NULL    |       |
+---------+---------------+------+-----+---------+-------+
4 rows in set (0.01 sec)

mysql> INSERT INTO Employee VALUES
    -> (101,'Alice',1,30000),
    -> (102,'Bob',2,28000),
    -> (103,'Charlie',1,25000),
    -> (104,'David',3,22000),
    -> (105,'Eve',2,32000),
    -> (106,'Frank',1,26000),
    -> (107,'Grace',3,24000);
Query OK, 7 rows affected (0.02 sec)
Records: 7  Duplicates: 0  Warnings: 0
```

```
MySQL 8.0 Command Line Cli    X    +    v                                                    —    □    ×

+-------+---------+--------+----------+
| EmpID | EmpName | DeptID | Salary   |
+-------+---------+--------+----------+
|   101 | Alice   |      1 | 30000.00 |
|   102 | Bob     |      2 | 28000.00 |
|   103 | Charlie |      1 | 25000.00 |
|   104 | David   |      3 | 22000.00 |
|   105 | Eve     |      2 | 32000.00 |
|   106 | Frank   |      1 | 26000.00 |
|   107 | Grace   |      3 | 24000.00 |
+-------+---------+--------+----------+
7 rows in set (0.00 sec)

mysql> SELECT DeptID, COUNT(*) AS EmployeeCount
    -> FROM Employee
    -> GROUP BY DeptID;
+--------+---------------+
| DeptID | EmployeeCount |
+--------+---------------+
|      1 |             3 |
|      2 |             2 |
|      3 |             2 |
+--------+---------------+
3 rows in set (0.01 sec)

mysql> SELECT DeptID, COUNT(*) AS EmployeeCount
    -> FROM Employee
    -> GROUP BY DeptID
    -> HAVING COUNT(*) > 2;
+--------+---------------+
| DeptID | EmployeeCount |
+--------+---------------+
|      1 |             3 |
+--------+---------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT EmpName, Salary
    -> FROM Employee
    -> ORDER BY Salary DESC;
+---------+----------+
| EmpName | Salary   |
+---------+----------+
| Eve     | 32000.00 |
| Alice   | 30000.00 |
| Bob     | 28000.00 |
| Frank   | 26000.00 |
| Charlie | 25000.00 |
| Grace   | 24000.00 |
| David   | 22000.00 |
+---------+----------+
7 rows in set (0.00 sec)

mysql>
```

EX. No. 10 — Query with Subquery and Correlated Query

```
mysql> USE UniversityDB;
Database changed
mysql> CREATE TABLE Department (
    -> DeptID INT PRIMARY KEY,
    -> DeptName VARCHAR(100)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> CREATE TABLE Employee (
    -> EmpID INT PRIMARY KEY,
    -> EmpName VARCHAR (50),
    -> DeptID INT,
    -> FOREIGN KEY (DeptID) REFERENCES Department(DeptID)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Department VALUES
    -> (1,'Computer Science'),
    -> (2,'Mechanical'),
    -> (3,'Civil'),
    -> (4,'Electrical');
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM DEPARTMENT;
+--------+------------------+
| DeptID | DeptName         |
+--------+------------------+
|      1 | Computer Science |
|      2 | Mechanical       |
|      3 | Civil            |
|      4 | Electrical       |
+--------+------------------+
4 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Employee VALUES
    -> (101,'Alice',1),
    -> (102,'Bob',2),
    -> (103,'Charlie',1),
    -> (104,'David',3),
    -> (105,'Eve',2),
    -> (106,'Frank',4);
Query OK, 6 rows affected (0.01 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM EMPLOYEE
    -> ;
+-------+---------+--------+
| EmpID | EmpName | DeptID |
+-------+---------+--------+
|   101 | Alice   |      1 |
|   102 | Bob     |      2 |
|   103 | Charlie |      1 |
|   104 | David   |      3 |
|   105 | Eve     |      2 |
|   106 | Frank   |      4 |
+-------+---------+--------+
6 rows in set (0.00 sec)

mysql> SELECT EmpName
    -> FROM Employee
    -> WHERE DeptID IN (
    -> SELECT DeptID
    -> FROM Department
    -> WHERE DeptName = 'Computer science'
    -> );
+---------+
| EmpName |
+---------+
| Alice   |
+---------+

mysql> SELECT EmpName
    -> FROM Employee
    -> WHERE DeptID IN (
    -> SELECT DeptID
    -> FROM Department
    -> WHERE DeptName = 'Computer science'
    -> );
+---------+
| EmpName |
+---------+
| Alice   |
| Charlie |
+---------+
2 rows in set (0.01 sec)
mysql> SELECT EmpName
    -> FROM Employee e
    -> WHERE DeptID = (
    -> SELECT DeptID
    -> FROM Department d
    -> WHERE d. DeptName = 'Electrical'
    -> );
+---------+
| EmpName |
+---------+
| Frank   |
+---------+
1 row in set (0.01 sec)

mysql>
```

EX. No. 11 – Query with Joins: EquiJoin, InnerJoin, OuterJoin

```
MySQL 8.0 Command Line Cli  ×  +  ∨
```

```
mysql> USE CompanyDB;
Database changed
mysql> SHOW TABLES;
+----------------------+
| Tables_in_companydb  |
+----------------------+
| employee             |
+----------------------+
1 row in set (0.03 sec)

mysql> DESC EMPLOYEE;
+---------+---------------+------+-----+---------+-------+
| Field   | Type          | Null | Key | Default | Extra |
+---------+---------------+------+-----+---------+-------+
| EmpID   | int           | NO   | PRI | NULL    |       |
| EmpName | varchar(1000) | YES  |     | NULL    |       |
| DeptID  | int           | YES  |     | NULL    |       |
| Salary  | decimal(10,2) | YES  |     | NULL    |       |
+---------+---------------+------+-----+---------+-------+
4 rows in set (0.01 sec)

mysql>  CREATE TABLE Department (
    -> DeptID INT PRIMARY KEY,
    -> DeptName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> SELECT * FROM EMPLOYEE;
+-------+---------+--------+----------+
| EmpID | EmpName | DeptID | Salary   |
+-------+---------+--------+----------+
|   101 | Alice   |      1 | 30000.00 |
|   102 | Bob     |      2 | 28000.00 |
|   103 | Charlie |      1 | 25000.00 |
```

```
MySQL 8.0 Command Line Cli  ×  +  ∨
```

```
mysql> SELECT * FROM EMPLOYEE;
+-------+---------+--------+----------+
| EmpID | EmpName | DeptID | Salary   |
+-------+---------+--------+----------+
|   101 | Alice   |      1 | 30000.00 |
|   102 | Bob     |      2 | 28000.00 |
|   103 | Charlie |      1 | 25000.00 |
|   104 | David   |      3 | 22000.00 |
|   105 | Eve     |      2 | 32000.00 |
|   106 | Frank   |      1 | 26000.00 |
|   107 | Grace   |      3 | 24000.00 |
+-------+---------+--------+----------+
7 rows in set (0.01 sec)

mysql> INSERT INTO Department ( DeprID,DeptName ) VALUES
    -> (10,'HR'),
    -> (20,'IT'),
    -> (40,'Marketing');
ERROR 1054 (42S22): Unknown column 'DeprID' in 'field list'
mysql> DESC DEPARTMENT;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| DeptID   | int         | NO   | PRI | NULL    |       |
| DeptName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.04 sec)

mysql> INSERT INTO Department ( DeptID,DeptName ) VALUES
    -> (10,'HR'),
    -> (20,'IT'),
    -> (40,'Marketing');
Query OK, 3 rows affected (0.03 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

```
MySQL 8.0 Command Line Cli    ×    +    ∨                                                    —    ☐    ✕

mysql> INSERT INTO Department ( DeptID, DeptName) VALUES
    -> (1,'HR'),
    -> (2,'IT'),
    -> (3,'Marketing');
Query OK, 3 rows affected (0.07 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM DEPARTMENT;
+--------+------------+
| DeptID | DeptName   |
+--------+------------+
|      1 | HR         |
|      2 | IT         |
|      3 | Marketing  |
|     10 | HR         |
|     20 | IT         |
|     40 | Marketing  |
+--------+------------+
6 rows in set (0.00 sec)

mysql> SELECT Employee.EmpName,Department.DeptName
    -> FROM Employee,Department
    -> WHERE Employee.DeptID =Department.DeptID;
+---------+------------+
| EmpName | DeptName   |
+---------+------------+
| Alice   | HR         |
| Bob     | IT         |
| Charlie | HR         |
| David   | Marketing  |
| Eve     | IT         |
| Frank   | HR         |
| Grace   | Marketing  |
+---------+------------+
7 rows in set (0.01 sec)

7 rows in set (0.01 sec)

mysql> SELECT Employee.EmpName,Department.DeptName
    -> FROM Employee
    -> INNER JOIN Department ON Employee.DeptID = Department.DeptID;
+---------+------------+
| EmpName | DeptName   |
+---------+------------+
| Alice   | HR         |
| Bob     | IT         |
| Charlie | HR         |
| David   | Marketing  |
| Eve     | IT         |
| Frank   | HR         |
| Grace   | Marketing  |
+---------+------------+
7 rows in set (0.01 sec)
```

EX. No. 12 — Query with VIEW and INDEX

```
| Frank   | HR        |
| Grace   | Marketing |
+---------+-----------+
7 rows in set (0.01 sec)

mysql> SELECT Employee.EmpName,Department.DeptName
    -> FROM Employee
    -> LEFT OUTER JOIN Department ON Employee.DeptID = Departent.DeptID;
ERROR 1054 (42S22): Unknown column 'Departent.DeptID' in 'on clause'
mysql>  CREATE VIEW EmpDept AS
    -> SELECT EmpName, DeptName
    -> FROM Employee
    -> INNER JOIN Department ON Employee.DeptID = Department.DeptID;
Query OK, 0 rows affected (0.26 sec)

mysql> SELECT * FROM EmpDept;
+---------+-----------+
| EmpName | DeptName  |
+---------+-----------+
| Alice   | HR        |
| Bob     | IT        |
| Charlie | HR        |
| David   | Marketing |
| Eve     | IT        |
| Frank   | HR        |
| Grace   | Marketing |
+---------+-----------+
7 rows in set (0.06 sec)

mysql> CREATE INDEX idx_deptid ON Employee(DeptID);
Query OK, 0 rows affected (0.19 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> CREATE INDEX idx_deptid ON Employee(DeptID);
Query OK, 0 rows affected (0.19 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> SHOW INDEX FROM Employee;
+----------+------------+------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+-----
---------+---------+------------+
| Table    | Non_unique | Key_name   | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Inde
x_comment | Visible | Expression |
+----------+------------+------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+-----
---------+---------+------------+
| employee |          0 | PRIMARY    |            1 | EmpID       | A         |           7 |     NULL | NULL   |      | BTREE      |         |
          | YES     | NULL       |
| employee |          1 | idx_deptid |            1 | DeptID      | A         |           3 |     NULL | NULL   | YES  | BTREE      |         |
          | YES     | NULL       |
+----------+------------+------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+-----
---------+---------+------------+
2 rows in set (0.06 sec)

mysql>
```

EX. No. 13 — Query with AUTO_INCREMENT SEQUENCES

```
mysql> CREATE DATABASE Mycompany;
Query OK, 1 row affected (0.03 sec)

mysql> USE Mycompany;
Database changed
mysql> CREATE TABLE EMPLOYEE;
ERROR 4028 (HY000): A table must have at least one visible column.
mysql> CREATE TABLE EMPLOYEE (
    -> EmpID IN AUTO_INCREMENT,
    -> EmpName VARCHAR(50),
    -> DeptID INT,
    -> PRIMARY KEY (EmpID)
    -> );
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 'IN AUTO_INCREMENT,
EmpName VARCHAR(50),
DeptID INT,
PRIMARY KEY (EmpID)
)' at line 2
mysql> CREATE TABLE EMPLOYEE (
    -> EmpID INT AUTO_INCREMENT,
    -> EmpName VARCHAR(50),
    -> DeptID INT,
    -> PRIMARY KEY (EmpID)
    -> );
Query OK, 0 rows affected (0.12 sec)

mysql> DESC EMPLOYEE;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| EmpID   | int         | NO   | PRI | NULL    | auto_increment |
| EmpName | varchar(50) | YES  |     | NULL    |                |
| DeptID  | int         | YES  |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
```

```
    -> EmpID INT AUTO_INCREMENT,
    -> EmpName VARCHAR(50),
    -> DeptID INT,
    -> PRIMARY KEY (EmpID)
    -> );
Query OK, 0 rows affected (0.12 sec)

mysql> DESC EMPLOYEE;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| EmpID   | int         | NO   | PRI | NULL    | auto_increment |
| EmpName | varchar(50) | YES  |     | NULL    |                |
| DeptID  | int         | YES  |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
3 rows in set (0.08 sec)

mysql> INSERT INTO EMPLOYEE (EmpName, DeptID) VALUES ('Alice',10);
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO EMPLOYEE (EmpName, DeptID) VALUES ('Bob',20),
    -> INSERT INTO EMPLOYEE (EmpName, DeptID) VALUES ('Charlie',30),
    -> INSERT INTO EMPLOYEE (EmpName, DeptID) VALUES ('David',NULL);
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 'INSERT INTO EMPLOYEE (EmpName, DeptID) VALUES ('Charlie',30),
INSERT INTO EMPLOY' at line 2
mysql> SELECT * FROM EMPLOYEE;
+-------+---------+--------+
| EmpID | EmpName | DeptID |
+-------+---------+--------+
|     1 | Alice   |     10 |
+-------+---------+--------+
1 row in set (0.00 sec)

mysql>
```

EX. No. 14 – Simple Programming using REPEAT and WHILE


```
mysql> DROP DATABASE companydb;
Query OK, 3 rows affected (0.36 sec)

mysql> CREATE DATABASE Companydb;
Query OK, 1 row affected (0.01 sec)

mysql> USE Companydb;
Database changed
mysql> CREATE TABLE Employee (
    -> EmpID  INT AUTO_INCREMENT PRIMARY KEY,
    -> EmpName VAECHAR(50),
    -> DeptID INT
    -> );
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 'VAECHAR(50),
DeptID INT
)' at line 3
mysql> CREATE TABLE Employee (
    -> EmpID  INT AUTO_INCREMENT PRIMARY KEY,
    -> EmpName VARCHAR(50),
    -> DeptID INT
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> DESC EMPLOYEE;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| EmpID   | int         | NO   | PRI | NULL    | auto_increment |
| EmpName | varchar(50) | YES  |     | NULL    |                |
| DeptID  | int         | YES  |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
3 rows in set (0.08 sec)

mysql>
```

EX. No. 15 – Simple Programming using CASE and LOOP


```
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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> CREATE DATABASE Stall;
Query OK, 1 row affected (0.03 sec)

mysql> USE Stall;
Database changed
mysql> CREATE TABLE Employee (
    -> EmpID INT AUTO_INCREMENT PRIMARY KEY,
    -> EmpName VARCHAR (50),
    -> DeptID INT,
    -> Salary INT
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> CREATE PROCEDURE Loop_insert ()
    -> BEGIN
    -> DECLARE counter INT DEFAULT 1;
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 '' at line 3
mysql> INSERT INTO Employee (EmpName, DeptID,Salary) VALUES
    -> ('Employee1' , 3, 1000),
    -> ('Employee2' , 3, 2000),
    -> ('Employee3' , 3, 3000),
    -> ('Employee4' , 3, 4000),
    -> ('Employee5' , 3, 5000);
Query OK, 5 rows affected (0.17 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql>
```

```
|      1 | Employee1 |       3 |   1000 |
|      2 | Employee2 |       3 |   2000 |
|      3 | Employee3 |       3 |   3000 |
|      4 | Employee4 |       3 |   4000 |
|      5 | Employee5 |       3 |   5000 |
+--------+-----------+---------+--------+
5 rows in set (0.08 sec)

mysql> SELECT EmpName,
    -> CASE
    -> WHEN Salary >5000 THEN 'High'
    -> WHEN Salary BETWEEN 3000 AND 5000 THEN 'Medium'
    -> ELSE 'Low'
    -> END AS Salary_Level
    -> FROM Employee;
+-----------+--------------+
| EmpName   | Salary_Level |
+-----------+--------------+
| Employee1 | Low          |
| Employee2 | Low          |
| Employee3 | Medium       |
| Employee4 | Medium       |
| Employee5 | Medium       |
+-----------+--------------+
5 rows in set (0.01 sec)

mysql> SET @counter = 1;
Query OK, 0 rows affected (0.01 sec)

mysql> LOOP
    -> INSERT INTO Employee (EmpName,DeptID) VALUES ('Employee' + @counter,3);
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 'LOOP
INSERT INTO Employee (EmpName,DeptID) VALUES ('Employee' + @counter,3)' at line 1
mysql>
```

EX. No. 16 – High-Level Programming Extensions – Procedures

```
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 28
Server version: 8.0.42 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> CREATE DATABASE CompanyDB;
Query OK, 1 row affected (0.03 sec)

mysql> USE CompanyDB;
Database changed
mysql> CREATE TABLE Employee (
    -> EmpID INT PRIMARY KEY,
    -> EmpName VARCHAR (50),
    -> DeptID INT
    -> );
Query OK, 0 rows affected (0.19 sec)

mysql> DESC EMPLOYEE;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| EmpID   | int         | NO   | PRI | NULL    |       |
| EmpName | varchar(50) | YES  |     | NULL    |       |
| DeptID  | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.12 sec)
```

EX. No. 17 – High-Level Programming Extensions – Function

```
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 406
Server version: 8.0.42 MySQL Community Server - GPL

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owners.

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

mysql> USE COMPANY;
Database changed
mysql> DROP COMPANY;
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 'COMPANY' at line 1
mysql> DROP DATABASE COMPANY;
Query OK, 1 row affected (0.09 sec)

mysql> CREATE DATABASE CompanyDB;
ERROR 1007 (HY000): Can't create database 'companydb'; database exists
mysql> USE Companydb;
Database changed
mysql> SHOW TABLES;
+----------------------+
| Tables_in_companydb  |
+----------------------+
| employee             |
+----------------------+
1 row in set (0.06 sec)

mysql> SELECT * FROM EMPLOYEE;
Empty set (0.00 sec)
```

```
+---------+-------------+------+-----+---------+-------+
| EmpID   | int         | NO   | PRI | NULL    |       |
| EmpName | varchar(50) | YES  |     | NULL    |       |
| DeptID  | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)

mysql> DROP TABLE Employee;
Query OK, 0 rows affected (0.03 sec)

mysql> CREATE TABLE Employee (
    ->     EmpID INT PRIMARY KEY,
    ->     EmpName VARCHAR(50),
    ->     Salary INT
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Employee (EmpID, EmpName, Salary) VALUES
    -> (1, 'John Doe', 50000),
    -> (2, 'Jane Smith', 60000),
    -> (3, 'Alice Johnson', 70000);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Employee;
+-------+---------------+--------+
| EmpID | EmpName       | Salary |
+-------+---------------+--------+
|     1 | John Doe      |  50000 |
|     2 | Jane Smith    |  60000 |
|     3 | Alice Johnson |  70000 |
+-------+---------------+--------+
3 rows in set (0.00 sec)

mysql> D
```

```
mysql> DELIMITER //
mysql>
mysql> CREATE FUNCTION CalculateSalary(emp_id INT)
    -> RETURNS INT
    -> DETERMINISTIC
    -> BEGIN
    ->     DECLARE salary INT;
    ->     SELECT Salary INTO salary FROM Employee WHERE EmpID = emp_id;
    ->     RETURN salary;
    -> END //
Query OK, 0 rows affected (0.02 sec)

mysql> DELIMITER ;
mysql> SELECT CalculateSalary(1) AS Salary;
+--------+
| Salary |
+--------+
|   NULL |
+--------+
1 row in set (0.02 sec)

mysql> SELECT CalculateSalary(1) AS Salary;
+--------+
| Salary |
+--------+
|   NULL |
+--------+
1 row in set (0.00 sec)

mysql> SELECT CalculateSalary(2) AS Salary;
+--------+
| Salary |
+--------+
|   NULL |
+--------+
```

EX. No. 18 — High-Level Programming Extensions — Cursors

```
mysql> DELIMITER //
mysql>
mysql> CREATE FUNCTION CalculateSalary(emp_id INT)
    -> RETURNS INT
    -> DETERMINISTIC
    -> BEGIN
    ->     DECLARE salary INT;
    ->     SELECT Salary INTO salary FROM Employee WHERE EmpID = emp_id;
    ->     RETURN salary;
    -> END //
ERROR 1304 (42000): FUNCTION CalculateSalary already exists
mysql>
mysql> DELIMITER ;
mysql> DELIMITER //
mysql>
mysql> CREATE PROCEDURE ShowAllEmployeeNames()
    -> BEGIN
    ->     DECLARE done INT DEFAULT 0;
    ->     DECLARE emp_name VARCHAR(50);
    ->     DECLARE employee_cursor CURSOR FOR SELECT EmpName FROM Employee;
    ->     DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = 1;
    ->
    ->     OPEN employee_cursor;
    ->
    ->     read_loop: LOOP
    ->         FETCH employee_cursor INTO emp_name;
    ->         IF done THEN
    ->             LEAVE read_loop;
    ->         END IF;
    ->         SELECT emp_name AS EmployeeName;
    ->     END LOOP;
    ->
    ->     CLOSE employee_cursor;
    -> END //
```

```
    ->        END IF;
    ->        SELECT emp_name AS EmployeeName;
    ->    END LOOP;
    ->
    ->    CLOSE employee_cursor;
    -> END //
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> DELIMITER ;
mysql> CALL ShowAllEmployeeNames();
+--------------+
| EmployeeName |
+--------------+
| John Doe     |
+--------------+
1 row in set (0.01 sec)

+--------------+
| EmployeeName |
+--------------+
| Jane Smith   |
+--------------+
1 row in set (0.01 sec)

+----------------+
| EmployeeName   |
+----------------+
| Alice Johnson  |
+----------------+
1 row in set (0.01 sec)

Query OK, 0 rows affected (0.01 sec)

mysql>
```

EX. No. 19 – High-Level Programming Extensions – Triggers

```
    -> BEGIN
    ->    INSERT INTO AuditLog (Action, EmpID, Date)
    ->    VALUES ('INSERT', NEW.EmpID, NOW());
    -> END //
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> INSERT INTO Employee (EmpID, EmpName, Salary)
    -> VALUES (101, 'David Miller', 55000);
    -> );
    -> DELIMITER ;
    -> VALUES (101, 'David Miller', 55000);
    -> END //
Query OK, 1 row affected (0.02 sec)

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 ');
DELIMITER ;VALUES (101, 'David Miller', 55000);
END' at line 1
mysql> DELIMITER ;
mysql> INSERT INTO Employee (EmpID, EmpName, Salary)
    -> VALUES (101, 'David Miller', 55000);
ERROR 1062 (23000): Duplicate entry '101' for key 'employee.PRIMARY'
mysql> INSERT INTO Employee (EmpID, EmpName, Salary)
    -> VALUES (101, 'David Miller', 55000);
ERROR 1062 (23000): Duplicate entry '101' for key 'employee.PRIMARY'
mysql> SELECT * FROM AuditLog;
+-------+--------+-------+---------------------+
| LogID | Action | EmpID | Date                |
+-------+--------+-------+---------------------+
|     1 | INSERT |   101 | 2025-07-01 11:44:35 |
+-------+--------+-------+---------------------+
1 row in set (0.00 sec)

mysql>
```

```
mysql> CREATE TABLE AuditLog (
    ->     LogID INT AUTO_INCREMENT PRIMARY KEY,
    ->     Action VARCHAR(10),
    ->     EmpID INT,
    ->     Date DATETIME
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> DESC AUDITLOG;
+--------+-------------+------+-----+---------+----------------+
| Field  | Type        | Null | Key | Default | Extra          |
+--------+-------------+------+-----+---------+----------------+
| LogID  | int         | NO   | PRI | NULL    | auto_increment |
| Action | varchar(10) | YES  |     | NULL    |                |
| EmpID  | int         | YES  |     | NULL    |                |
| Date   | datetime    | YES  |     | NULL    |                |
+--------+-------------+------+-----+---------+----------------+
4 rows in set (0.01 sec)

mysql> DELIMITER //
mysql>
mysql> CREATE TRIGGER EmployeeInsert
    -> AFTER INSERT ON Employee
    -> FOR EACH ROW
    -> BEGIN
    ->     INSERT INTO AuditLog (Action, EmpID, Date)
    ->     VALUES ('INSERT', NEW.EmpID, NOW());
    -> END //
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> INSERT INTO Employee (EmpID, EmpName, Salary)
    -> VALUES (101, 'David Miller', 55000);
    -> );
```

EX. No. 20 – MySQL String Functions – REPLACE, REPEAT, REVERSE, RIGHT, LEFT, RPAD, LPAD

```
mysql> CREATE DATABASE IF NOT EXISTS StringDemoDB;
Query OK, 1 row affected (0.01 sec)

mysql> USE StringDemoDB;
Database changed
mysql> CREATE TABLE DemoStrings (
    ->     SampleText VARCHAR(100)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql>
mysql> INSERT INTO DemoStrings (SampleText)
    -> VALUES ('Hello World'), ('MySQL Programming'), ('String Functions');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> DESC DemoStrings;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| SampleText | varchar(100) | YES  |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
1 row in set (0.00 sec)

mysql> SELECT * FROM DemoStrings;
+-------------------+
| SampleText        |
+-------------------+
| Hello World       |
| MySQL Programming |
| String Functions  |
+-------------------+
3 rows in set (0.00 sec)

mysql>
```

```
+-------------------+
3 rows in set (0.00 sec)

mysql> SELECT REPLACE('Hello World', 'World', 'MySQL') AS Result;
+-------------+
| Result      |
+-------------+
| Hello MySQL |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT REPEAT('Hello ', 3) AS Result;
+---------------------+
| Result              |
+---------------------+
| Hello Hello Hello   |
+---------------------+
1 row in set (0.00 sec)

mysql> SELECT REVERSE('MySQL') AS Result;
+--------+
| Result |
+--------+
| LQSyM  |
+--------+
1 row in set (0.00 sec)

mysql> SELECT RIGHT('Hello World', 5) AS Result;
+--------+
| Result |
+--------+
| World  |
+--------+
1 row in set (0.00 sec)
```

```
3 rows in set (0.00 sec)

mysql> SELECT REPLACE('Hello World', 'World', 'MySQL') AS Result;
+-------------+
| Result      |
+-------------+
| Hello MySQL |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT REPEAT('Hello ', 3) AS Result;
+--------------------+
| Result             |
+--------------------+
| Hello Hello Hello  |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT REVERSE('MySQL') AS Result;
+--------+
| Result |
+--------+
| LQSyM  |
+--------+
1 row in set (0.00 sec)

mysql> SELECT RIGHT('Hello World', 5) AS Result;
+--------+
| Result |
+--------+
| World  |
+--------+
1 row in set (0.00 sec)
```

```
+-------------------+
3 rows in set (0.00 sec)

mysql> SELECT REPLACE('Hello World', 'World', 'MySQL') AS Result;
+-------------+
| Result      |
+-------------+
| Hello MySQL |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT REPEAT('Hello ', 3) AS Result;
+--------------------+
| Result             |
+--------------------+
| Hello Hello Hello  |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT REVERSE('MySQL') AS Result;
+--------+
| Result |
+--------+
| LQSyM  |
+--------+
1 row in set (0.00 sec)

mysql> SELECT RIGHT('Hello World', 5) AS Result;
+--------+
| Result |
+--------+
| World  |
+--------+
1 row in set (0.00 sec)
```

EX. No. 21 – MySQL String Functions – SPACE, SUBSTR, UPPER, LOWER, TRIM, LENGTH

```
Database changed
mysql> CREATE TABLE text_samples (
    ->     id INT AUTO_INCREMENT PRIMARY KEY,
    ->     input_text VARCHAR(255)
    -> );
Query OK, 0 rows affected (0.08 sec)

mysql> INSERT INTO text_samples (input_text) VALUES
    -> ('  Hello World  '),
    -> ('mysql STRING Function'),
    -> ('    DataBase    ');
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM text_samples;
+----+-----------------------+
| id | input_text            |
+----+-----------------------+
|  1 |    Hello World        |
|  2 | mysql STRING Function |
|  3 |      DataBase         |
+----+-----------------------+
3 rows in set (0.00 sec)

mysql> SELECT id, CONCAT('X', SPACE(5), 'Y') AS spaced_text FROM text_samples;
+----+-------------+
| id | spaced_text |
+----+-------------+
|  1 | X     Y     |
|  2 | X     Y     |
|  3 | X     Y     |
+----+-------------+
3 rows in set (0.01 sec)

mysql> SELECT id, SUBSTR(input_text, 1, 5) AS first_5_chars FROM text_samples;
```

```
3 rows in set (0.01 sec)

mysql> SELECT id, SUBSTR(input_text, 1, 5) AS first_5_chars FROM text_samples;
+----+---------------+
| id | first_5_chars |
+----+---------------+
|  1 |    Hel        |
|  2 | mysql         |
|  3 |      D        |
+----+---------------+
3 rows in set (0.00 sec)

mysql> SELECT id, UPPER(input_text) AS uppercase_text FROM text_samples;
+----+-----------------------+
| id | uppercase_text        |
+----+-----------------------+
|  1 |    HELLO WORLD        |
|  2 | MYSQL STRING FUNCTION |
|  3 |      DATABASE         |
+----+-----------------------+
3 rows in set (0.00 sec)

mysql> SELECT id, LOWER(input_text) AS lowercase_text FROM text_samples;
+----+-----------------------+
| id | lowercase_text        |
+----+-----------------------+
|  1 |    hello world        |
|  2 | mysql string function |
|  3 |      database         |
+----+-----------------------+
3 rows in set (0.01 sec)

mysql> SELECT id, TRIM(input_text) AS trimmed_text FROM text_samples;
+----+-----------------------+
| id | trimmed_text          |
+----+-----------------------+

mysql> SELECT id, TRIM(input_text) AS trimmed_text FROM text_samples;
+----+-----------------------+
| id | trimmed_text          |
+----+-----------------------+
|  1 | Hello World           |
|  2 | mysql STRING Function |
|  3 | DataBase              |
+----+-----------------------+
3 rows in set (0.00 sec)

mysql> SELECT id, LENGTH(input_text) AS text_length FROM text_samples;
+----+-------------+
| id | text_length |
+----+-------------+
|  1 |          15 |
|  2 |          21 |
|  3 |          15 |
+----+-------------+
3 rows in set (0.00 sec)
```

EX. No. 22 – Database Connectivity Using PHP and MySQL


```
mysql> SELECT * FROM STUDEN
+----+---------+-------+
| id | name    | grade |
+----+---------+-------+
|  1 | Alice   | A     |
|  2 | Bob     | B     |
|  3 | Charlie | A     |
+----+---------+-------+
3 rows in set (0.01 sec)
```

EX. No. 23 – Case Scenario: MySQL Queries Implementation for Train Ticket Reservation System to
Receive Tickets through Social Network


```
MySQL 8.0 Command Line Cli  ×  +  ∨                                                                    —  □  ×
Query OK, 1 row affected (0.01 sec)

mysql> USE TrainReservationDB;
Database changed
mysql> CREATE TABLE TicketReservation (
    ->     TicketID INT AUTO_INCREMENT PRIMARY KEY,
    ->     CustomerName VARCHAR(100),
    ->     TrainNumber VARCHAR(50),
    ->     DateOfJourney DATE,
    ->     SocialNetwork VARCHAR(100),
    ->     TicketStatus VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> INSERT INTO TicketReservation
    -> (CustomerName, TrainNumber, DateOfJourney, SocialNetwork, TicketStatus)
    -> VALUES
    -> ('John Doe', '101', '2025-05-01', 'Facebook', 'Booked'),
    -> ('Alice Smith', '102A', '2025-05-03', 'Instagram', 'Booked'),
    -> ('Robert Lee', '103B', '2025-05-05', 'Twitter', 'Cancelled');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM TicketReservation;
+----------+--------------+-------------+---------------+---------------+--------------+
| TicketID | CustomerName | TrainNumber | DateOfJourney | SocialNetwork | TicketStatus |
+----------+--------------+-------------+---------------+---------------+--------------+
|        1 | John Doe     | 101         | 2025-05-01    | Facebook      | Booked       |
|        2 | Alice Smith  | 102A        | 2025-05-03    | Instagram     | Booked       |
|        3 | Robert Lee   | 103B        | 2025-05-05    | Twitter       | Cancelled    |
+----------+--------------+-------------+---------------+---------------+--------------+
3 rows in set (0.00 sec)

mysql>
```

EX. No. 24 – Case Scenario: MySQL Queries Implementation for College Admission Form

```
        ->      Email VARCHAR(100),
        ->      AdmissionStatus VARCHAR(50)
        -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO AdmissionForm
        -> (StudentName, Gender, DateOfBirth, CourseApplied, Email, AdmissionStatus)
        -> VALUES
        -> ('Riya Sharma', 'Female', '2004-07-15', 'B.Sc Computer Science', 'riya@example.com', 'Applied'),
        -> ('Amit Verma', 'Male', '2003-11-22', 'BBA', 'amitv@example.com', 'Approved'),
        -> ('Sneha Patel', 'Female', '2005-01-10', 'B.Com', 'sneha.p@example.com', 'Rejected');
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> INSERT INTO AdmissionForm
        -> (StudentName, Gender, DateOfBirth, CourseApplied, Email, AdmissionStatus)
        -> VALUES
        -> ('Riya Sharma', 'Female', '2004-07-15', 'B.Sc Computer Science', 'riya@example.com', 'Applied'),
        -> ('Amit Verma', 'Male', '2003-11-22', 'BBA', 'amitv@example.com', 'Approved'),
        -> ('Sneha Patel', 'Female', '2005-01-10', 'B.Com', 'sneha.p@example.com', 'Rejected');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM AdmissionForm;
+-----------+--------------+--------+-------------+-----------------------+---------------------+-----------------+
| StudentID | StudentName  | Gender | DateOfBirth | CourseApplied         | Email               | AdmissionStatus |
+-----------+--------------+--------+-------------+-----------------------+---------------------+-----------------+
|         1 | Riya Sharma  | Female | 2004-07-15  | B.Sc Computer Science | riya@example.com    | Applied         |
|         2 | Amit Verma   | Male   | 2003-11-22  | BBA                   | amitv@example.com   | Approved        |
|         3 | Sneha Patel  | Female | 2005-01-10  | B.Com                 | sneha.p@example.com | Rejected        |
|         4 | Riya Sharma  | Female | 2004-07-15  | B.Sc Computer Science | riya@example.com    | Applied         |
|         5 | Amit Verma   | Male   | 2003-11-22  | BBA                   | amitv@example.com   | Approved        |
|         6 | Sneha Patel  | Female | 2005-01-10  | B.Com                 | sneha.p@example.com | Rejected        |
+-----------+--------------+--------+-------------+-----------------------+---------------------+-----------------+
6 rows in set (0.00 sec)
```

EX. No. 25 – Case Scenario: MySQL Queries Implementation for QR Enabled Automatic Bus Ticket

Booking System

```
Query OK, 1 row affected (0.01 sec)

mysql> USE BusTicketSystemDB;
Database changed
mysql> CREATE TABLE BusTicketBooking (
        ->      BookingID INT AUTO_INCREMENT PRIMARY KEY,
        ->      PassengerName VARCHAR(100),
        ->      BusNumber VARCHAR(50),
        ->      TravelDate DATE,
        ->      QRCode VARCHAR(255),
        ->      Status VARCHAR(50)
        -> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO BusTicketBooking
        -> (PassengerName, BusNumber, TravelDate, QRCode, Status)
        -> VALUES
        -> ('Arjun Mehta', 'BUS-101', '2025-07-20', 'QR123XYZ789', 'Booked'),
        -> ('Priya Nair', 'BUS-205', '2025-07-22', 'QR456ABC321', 'Cancelled'),
        -> ('Karan Singh', 'BUS-303', '2025-07-25', 'QR789LMN654', 'Booked');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM BusTicketBooking;
+-----------+---------------+-----------+------------+-------------+-----------+
| BookingID | PassengerName | BusNumber | TravelDate | QRCode      | Status    |
+-----------+---------------+-----------+------------+-------------+-----------+
|         1 | Arjun Mehta   | BUS-101   | 2025-07-20 | QR123XYZ789 | Booked    |
|         2 | Priya Nair    | BUS-205   | 2025-07-22 | QR456ABC321 | Cancelled |
|         3 | Karan Singh   | BUS-303   | 2025-07-25 | QR789LMN654 | Booked    |
+-----------+---------------+-----------+------------+-------------+-----------+
3 rows in set (0.00 sec)
```