NAME: M S GOWRISH SHANKAR REDDY

REG NO:192424270

COURSE: CSA0504 FOR TRANSACTION MANAGEMENT

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

```
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 (0.02 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 (0.00 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> DROP TABLE Student;
Query OK, 0 rows affected (0.03 sec)

mysql> desc student;
ERROR 1146 (42S02): Table 'student.student' doesn't exist
mysql>
```

EX. No. 2 – DDL Commands with Constraints

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

mysql> use college;
Database changed
mysql> CREATE TABLE Department (
    ->      DeptID INT PRIMARY KEY,
    ->      DeptName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.03 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> CREATE TABLE Employee (
    ->      EmpID INT PRIMARY KEY,
    ->      EmpName VARCHAR(50),
    ->      DeptID INT,
    ->      FOREIGN KEY (DeptID) REFERENCES Department(DeptID)
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> desc employee;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| EmpID   | int         | NO   | PRI | NULL    |       |
| EmpName | varchar(50) | YES  |     | NULL    |       |
| DeptID  | int         | YES  | MUL | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

```
mysql> CREATE TABLE Users (
    ->      UserID INT PRIMARY KEY,
    ->      Email VARCHAR(100) UNIQUE
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> desc users;
+--------+--------------+------+-----+---------+-------+
| Field  | Type         | Null | Key | Default | Extra |
+--------+--------------+------+-----+---------+-------+
| UserID | int          | NO   | PRI | NULL    |       |
| Email  | varchar(100) | YES  | UNI | NULL    |       |
+--------+--------------+------+-----+---------+-------+
2 rows in set (0.01 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 product;
+-----------+---------------+------+-----+---------+-------+
| Field     | Type          | Null | Key | Default | Extra |
+-----------+---------------+------+-----+---------+-------+
| ProductID | int           | NO   | PRI | NULL    |       |
| Price     | decimal(10,2) | YES  |     | NULL    |       |
+-----------+---------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> CREATE TABLE Orders (
    ->      OrderID INT PRIMARY KEY,
    ->      Status VARCHAR(20) DEFAULT 'Pending'
    -> );
Query OK, 0 rows affected (0.04 sec)

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)
```

EX. No. 3 – DML Commands using INSERT and SELECT

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

mysql> create database employee;
Query OK, 1 row affected (0.02 sec)

mysql> use department;
Database changed
mysql> create table department(deptid int,deptname varchar(50));
Query OK, 0 rows affected (0.05 sec)

mysql> INSERT INTO Department (DeptID, DeptName)
    -> VALUES (1, 'Computer Science');
Query OK, 1 row affected (0.02 sec)

mysql> use employee;
Database changed
mysql> create table employee(empid int,empname varchar(50),deptid int);
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Employee (EmpID, EmpName, DeptID)
    -> VALUES (101, 'Alice', 1);
Query OK, 1 row affected (0.02 sec)

mysql> select *from department;
ERROR 1146 (42S02): Table 'employee.department' doesn't exist
mysql> select *from employee;
+-------+---------+--------+
| empid | empname | deptid |
+-------+---------+--------+
|   101 | Alice   |      1 |
+-------+---------+--------+
1 row in set (0.00 sec)

mysql> use department;
Database changed
mysql> select *from department;
+--------+------------------+
| deptid | deptname         |
+--------+------------------+
|      1 | Computer Science |
+--------+------------------+
1 row in set (0.00 sec)
```

```
mysql> use employee;
Database changed
mysql> SELECT * FROM Employee;
+-------+---------+--------+
| empid | empname | deptid |
+-------+---------+--------+
|   101 | Alice   |      1 |
+-------+---------+--------+
1 row in set (0.00 sec)

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

mysql> SELECT * FROM Employee
    -> WHERE DeptID = 1;
+-------+---------+--------+
| empid | empname | deptid |
+-------+---------+--------+
|   101 | Alice   |      1 |
+-------+---------+--------+
1 row in set (0.02 sec)
```

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

```
mysql> UPDATE Employee
    -> SET EmpName = 'Alicia'
    -> WHERE EmpID = 101;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select *from employee;
+-------+---------+--------+
| empid | empname | deptid |
+-------+---------+--------+
|   101 | Alicia  |      1 |
+-------+---------+--------+
1 row in set (0.00 sec)

mysql> DELETE FROM Employee
    -> WHERE EmpID = 101;
Query OK, 1 row affected (0.02 sec)

mysql> select *from employee;
Empty set (0.00 sec)
```

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 (0.02 sec)

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

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

mysql> SAVEPOINT sp1;
Query OK, 0 rows affected (0.00 sec)

mysql> INSERT INTO Department (DeptID, DeptName) VALUES (3, 'Electrical');
Query OK, 1 row 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> ROLLBACK TO sp1;
Query OK, 0 rows affected (0.02 sec)

mysql> select *from department;
+--------+------------------+
| deptid | deptname         |
+--------+------------------+
|      1 | Computer Science |
|      2 | Mechanical       |
+--------+------------------+
2 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       |
+--------+------------------+
2 rows in set (0.00 sec)
```

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

```
mysql> create database university;
Query OK, 1 row affected (0.01 sec)

mysql> use university;
Database changed
mysql> CREATE TABLE Department (
    ->      DeptID INT PRIMARY KEY,
    ->      DeptName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> create 'user1'@'localhost' identified by 'user123';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
1
mysql> create user 'user1'@'localhost' identified by 'user123';
Query OK, 0 rows affected (0.04 sec)

mysql> GRANT SELECT, INSERT ON Department TO 'user1';
ERROR 1410 (42000): You are not allowed to create a user with GRANT
mysql> GRANT SELECT, INSERT ON univesity.Department TO 'user1'@'localhost';
ERROR 1146 (42S02): Table 'univesity.Department' doesn't exist
mysql> GRANT SELECT, INSERT ON university.Department TO 'user1'@'localhost';
Query OK, 0 rows affected (0.02 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 (0.02 sec)

mysql> show ggrants for 'user1'@'localhost';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
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)
```

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

```
mysql> use Employee;
Database changed
mysql> SELECT EmpName FROM Employee WHERE DeptID = 1;
Empty set (0.00 sec)

mysql> INSERT INTO Employee (EmpID, EmpName, DeptID)
    -> VALUES (101, 'Alice', 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Employee (EmpID, EmpName, DeptID) values(102,'Kalyan',2);
Query OK, 1 row affected (0.02 sec)

mysql> select *from employee;
+-------+---------+--------+
| empid | empname | deptid |
+-------+---------+--------+
|   101 | Alice   |      1 |
|   102 | Kalyan  |      2 |
+-------+---------+--------+
2 rows in set (0.00 sec)

mysql>  SELECT EmpName FROM Employee WHERE DeptID = 1;
+---------+
| EmpName |
+---------+
| Alice   |
+---------+
1 row in set (0.00 sec)

mysql> SELECT EmpName FROM Employee WHERE EmpName LIKE 'A%';
+---------+
| EmpName |
+---------+
| Alice   |
+---------+
1 row in set (0.00 sec)
```

EX. No. 8 – SELECT with Various Clauses: BETWEEN, IN, Aggregate Function

```
mysql> use shop;
Database changed
mysql> CREATE TABLE Product (
    ->      ProductID INT PRIMARY KEY,
    ->      ProductName VARCHAR(50),
    ->      Price DECIMAL(10,2),
    ->      Quantity INT
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Product VALUES
    -> (1, 'Soap', 25.00, 100),
    -> (2, 'Shampoo', 95.50, 50),
    -> (3, 'Toothpaste', 45.00, 80);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> SELECT Price FROM Product WHERE Price BETWEEN 50 AND 100;
+-------+
| Price |
+-------+
| 95.50 |
+-------+
1 row in set (0.00 sec)

mysql> use employee;
Database changed
mysql> SELECT EmpName FROM Employee WHERE DeptID IN (1, 2);
+---------+
| EmpName |
+---------+
| Alice   |
| Kalyan  |
+---------+
2 rows in set (0.00 sec)

mysql> use shop;
Database changed
mysql> SELECT AVG(Price) FROM Product;
+------------+
| AVG(Price) |
+------------+
|  55.166667 |
+------------+
1 row in set (0.02 sec)
```

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

```
mysql> use employee;
Database changed
mysql> SELECT DeptID, COUNT(*) FROM Employee GROUP BY DeptID;
+--------+----------+
| DeptID | COUNT(*) |
+--------+----------+
|      1 |        1 |
|      2 |        1 |
+--------+----------+
2 rows in set (0.01 sec)

mysql> SELECT DeptID, COUNT(*) FROM Employee GROUP BY DeptID HAVING COUNT(*) > 1;
Empty set (0.00 sec)

mysql> SELECT EmpName, empid FROM Employee ORDER BY Empid DESC;
+---------+-------+
| EmpName | empid |
+---------+-------+
| Kalyan  |   102 |
| Alice   |   101 |
+---------+-------+
2 rows in set (0.00 sec)

mysql> SELECT DeptID, COUNT(*) FROM Employee GROUP BY DeptID HAVING COUNT(*) > 0;
+--------+----------+
| DeptID | COUNT(*) |
+--------+----------+
|      1 |        1 |
|      2 |        1 |
+--------+----------+
2 rows in set (0.00 sec)
```

```
mysql> use school;
Database changed
mysql> CREATE TABLE Department (
    ->     DeptID INT PRIMARY KEY,
    ->     DeptName VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.04 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 (0.05 sec)

mysql> INSERT INTO Department VALUES (1, 'Computer Science');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Department VALUES (2, 'Mechanical');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Department VALUES (3, 'Electrical');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee VALUES (101, 'Alice', 1);
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO Employee VALUES (102, 'Bob', 2);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee VALUES (103, 'Charlie', 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee VALUES (104, 'David', 3);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee VALUES (105, 'Eve', 2);
Query OK, 1 row affected (0.00 sec)

mysql> SELECT EmpName FROM Employee WHERE DeptID IN (SELECT DeptID FROM Department WHERE DeptName = 'Computer Science');
+---------+
| EmpName |
+---------+
| Alice   |
| Charlie |
+---------+
2 rows in set (0.00 sec)
```

```
2 rows in set (0.00 sec)

mysql> SELECT EmpName FROM Employee e WHERE EXISTS (SELECT 1 FROM Department d WHERE e.DeptID = d.DeptID AND d.DeptName = 'Mechanical');
+---------+
| EmpName |
+---------+
| Bob     |
| Eve     |
+---------+
2 rows in set (0.02 sec)
```

```
mysql> SELECT Employee.EmpName, Department.DeptName
    -> FROM Employee, Department
    -> WHERE Employee.DeptID = Department.DeptID;
+---------+------------------+
| EmpName | DeptName         |
+---------+------------------+
| Alice   | Computer Science |
| Charlie | Computer Science |
| Bob     | Mechanical       |
| Eve     | Mechanical       |
| David   | Electrical       |
+---------+------------------+
5 rows in set (0.00 sec)

mysql> SELECT Employee.EmpName, Department.DeptName
    -> FROM Employee
    -> INNER JOIN Department ON Employee.DeptID = Department.DeptID;
+---------+------------------+
| EmpName | DeptName         |
+---------+------------------+
| Alice   | Computer Science |
| Charlie | Computer Science |
| Bob     | Mechanical       |
| Eve     | Mechanical       |
| David   | Electrical       |
+---------+------------------+
5 rows in set (0.00 sec)

mysql> SELECT Employee.EmpName, Department.DeptName
    -> FROM Employee
    -> LEFT OUTER JOIN Department ON Employee.DeptID = Department.DeptID;
+---------+------------------+
| EmpName | DeptName         |
+---------+------------------+
| Alice   | Computer Science |
| Bob     | Mechanical       |
| Charlie | Computer Science |
| David   | Electrical       |
| Eve     | Mechanical       |
+---------+------------------+
5 rows in set (0.02 sec)

mysql> 
```

```
mysql> use school;
Database changed
mysql> CREATE VIEW EmpDept AS
    -> SELECT EmpName, DeptName
    -> FROM Employee
    -> INNER JOIN Department ON Employee.DeptID = Department.DeptID;
Query OK, 0 rows affected (0.01 sec)

mysql> select *from empdept;
+---------+------------------+
| EmpName | DeptName         |
+---------+------------------+
| Alice   | Computer Science |
| Bob     | Mechanical       |
| Charlie | Computer Science |
| David   | Electrical       |
| Eve     | Mechanical       |
+---------+------------------+
5 rows in set (0.02 sec)

mysql> CREATE INDEX idx_deptname ON Employee(DeptID);
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select *from idx_deptname;
ERROR 1146 (42S02): Table 'school.idx_deptname' doesn't exist
mysql> show index from employee;
+----------+------------+--------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+
| Table    | Non_unique | Key_name     | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+----------+------------+--------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+
| employee |          0 | PRIMARY      |            1 | EmpID       | A         |           5 | NULL     | NULL   |      | BTREE      |         |               | YES     | NULL       |
| employee |          1 | idx_deptname |            1 | DeptID      | A         |           3 | NULL     | NULL   | YES  | BTREE      |         |               | YES     | NULL       |
+----------+------------+--------------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+---------+------------+
2 rows in set (0.01 sec)
```

```
mysql> use employee;
Database changed
mysql> CREATE TABLE Employee (
    ->      EmpID INT AUTO_INCREMENT,
    ->      EmpName VARCHAR(50),
    ->      DeptID INT,
    ->      PRIMARY KEY (EmpID)
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO Employee (EmpName, DeptID) VALUES ('Alice', 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (EmpName, DeptID) VALUES ('Bob', 2);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (EmpName, DeptID) VALUES ('Charlie', 1);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (EmpName, DeptID) VALUES ('David', 3);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (EmpName, DeptID) VALUES ('Eva', 2);
Query OK, 1 row affected (0.00 sec)

mysql> select *from employee;
+-------+---------+--------+
| EmpID | EmpName | DeptID |
+-------+---------+--------+
|     1 | Alice   |      1 |
|     2 | Bob     |      2 |
|     3 | Charlie |      1 |
|     4 | David   |      3 |
|     5 | Eva     |      2 |
+-------+---------+--------+
5 rows in set (0.00 sec)
```

```
mysql> DROP PROCEDURE IF EXISTS repeat_insert;
Query OK, 0 rows affected (0.03 sec)

mysql> DELIMITER //
mysql>
mysql> CREATE PROCEDURE repeat_insert()
    -> BEGIN
    ->     DECLARE counter INT DEFAULT 1;
    ->     REPEAT
    ->         INSERT INTO Employee (EmpName, DeptID)
    ->         VALUES (CONCAT('Employee', counter), 1);
    ->
    ->         SET counter = counter + 1;
    ->     UNTIL counter > 5
    ->     END REPEAT;
    -> END;
    -> //
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> DELIMITER ;
mysql> ;
ERROR:
No query specified

mysql> CALL repeat_insert();
Query OK, 1 row affected (0.04 sec)

mysql> SELECT * FROM Employee;
+-------+-----------+--------+
| EmpID | EmpName   | DeptID |
+-------+-----------+--------+
|     1 | Employee1 |      1 |
|     2 | Employee2 |      1 |
|     3 | Employee3 |      1 |
|     4 | Employee4 |      1 |
|     5 | Employee5 |      1 |
+-------+-----------+--------+
5 rows in set (0.00 sec)
```

```
mysql> DELIMITER //
mysql>
mysql> CREATE PROCEDURE insert_with_while()
    -> BEGIN
    ->       DECLARE counter INT DEFAULT 1;
    ->       WHILE counter <= 5 DO
    ->           INSERT INTO Employee (EmpName, DeptID)
    ->           VALUES (CONCAT('Employee', counter), 1);
    ->           SET counter = counter + 1;
    ->       END WHILE;
    -> END;
    -> //
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> DELIMITER ;
mysql>
mysql> CALL insert_with_while();
Query OK, 1 row affected (0.01 sec)

mysql> select *from employee;
+-------+-----------+--------+
| EmpID | EmpName   | DeptID |
+-------+-----------+--------+
|     1 | Employee1 |      1 |
|     2 | Employee2 |      1 |
|     3 | Employee3 |      1 |
|     4 | Employee4 |      1 |
|     5 | Employee5 |      1 |
|     6 | Employee1 |      1 |
|     7 | Employee2 |      1 |
|     8 | Employee3 |      1 |
|     9 | Employee4 |      1 |
|    10 | Employee5 |      1 |
+-------+-----------+--------+
10 rows in set (0.00 sec)
```

```
mysql> create database university2;
Query OK, 1 row affected (0.01 sec)

mysql> use university2;
Database changed
mysql> CREATE TABLE Employee (
    ->     EmpID INT AUTO_INCREMENT PRIMARY KEY,
    ->     EmpName VARCHAR(50),
    ->     DeptID INT,
    ->     Salary DECIMAL(10, 2)
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO Employee (EmpName, DeptID, Salary) VALUES
    -> ('Alice', 1, 6000),
    -> ('Bob', 1, 4500),
    -> ('Charlie', 2, 3000),
    -> ('David', 2, 2500),
    -> ('Eva', 3, 7000);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

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 |
+---------+--------------+
| Alice   | High         |
| Bob     | Medium       |
| Charlie | Medium       |
| David   | Low          |
| Eva     | High         |
+---------+--------------+
```

```
mysql> DELIMITER //
mysql>
mysql> CREATE PROCEDURE insert_using_loop()
    -> BEGIN
    ->     SET @counter = 1;
    ->     loop_label: LOOP
    ->         INSERT INTO Employee (EmpName, DeptID) VALUES (CONCAT('Employee', @counter), 3);
    ->         SET @counter = @counter + 1;
    ->         IF @counter > 5 THEN
    ->             LEAVE loop_label;
    ->         END IF;
    ->     END LOOP;
    -> END //
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> DELIMITER ;
mysql> ;
ERROR:
No query specified

mysql> call insert_using-loop;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to y
mysql> CALL insert_using_loop();
Query OK, 0 rows affected (0.03 sec)

mysql> select *from employee;
+-------+-----------+--------+---------+
| EmpID | EmpName   | DeptID | Salary  |
+-------+-----------+--------+---------+
|     1 | Alice     |      1 | 6000.00 |
|     2 | Bob       |      1 | 4500.00 |
|     3 | Charlie   |      2 | 3000.00 |
|     4 | David     |      2 | 2500.00 |
|     5 | Eva       |      3 | 7000.00 |
|     6 | Employee1 |      3 |    NULL |
|     7 | Employee2 |      3 |    NULL |
|     8 | Employee3 |      3 |    NULL |
|     9 | Employee4 |      3 |    NULL |
|    10 | Employee5 |      3 |    NULL |
+-------+-----------+--------+---------+
10 rows in set (0.00 sec)
```

```
mysql> use college1;
Database changed
mysql> CREATE TABLE Employee (
    ->     EmpID INT AUTO_INCREMENT,
    ->     EmpName VARCHAR(50),
    ->     DeptID INT,
    ->     PRIMARY KEY (EmpID)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DELIMITER //
mysql>
mysql> CREATE PROCEDURE InsertEmployee(
    ->     IN emp_name VARCHAR(50),
    ->     IN dept_id INT
    -> )
    -> BEGIN
    ->     INSERT INTO Employee (EmpName, DeptID) VALUES (emp_name, dept_id);
    -> END //
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> DELIMITER ;
mysql> ;
ERROR:
No query specified

mysql> CALL InsertEmployee('John Doe', 1);
Query OK, 1 row affected (0.01 sec)

mysql> select *from employee;
+-------+-----------+--------+
| EmpID | EmpName   | DeptID |
+-------+-----------+--------+
|     1 | John Doe  |      1 |
+-------+-----------+--------+
1 row in set (0.00 sec)
```

```
mysql> use college2;
Database changed
mysql> CREATE TABLE Employee (
    ->      EmpID INT AUTO_INCREMENT,
    ->      EmpName VARCHAR(50),
    ->      DeptID INT,
    ->      PRIMARY KEY (EmpID)
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> ALTER TABLE Employee ADD Salary INT;
Query OK, 0 rows affected (0.07 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> INSERT INTO Employee (EmpName, DeptID, Salary)
    -> VALUES
    -> ('Alice', 1, 6000),
    -> ('Bob', 2, 4500),
    -> ('Charlie', 3, 2500);
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

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 (0.01 sec)

mysql>
mysql> DELIMITER ;
mysql> ;
ERROR:
No query specified

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

```
mysql>
mysql> CREATE PROCEDURE process_employee_names()
    -> 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;
    ->         -- You can replace this with any action (e.g., insert into log table)
    ->         SELECT emp_name;
    ->     END LOOP;
    ->
    ->     CLOSE employee_cursor;
    -> END;
    -> //
Query OK, 0 rows affected (0.02 sec)

mysql>
mysql> DELIMITER ;
mysql> ;
ERROR:
No query specified

mysql> CALL process_employee_names();
+-----------+
| emp_name |
+-----------+
| Alice     |
+-----------+
1 row in set (0.00 sec)

+-----------+
| emp_name |
+-----------+
| Bob       |
+-----------+
1 row in set (0.00 sec)

+-----------+
| emp_name |
+-----------+
| Charlie  |
+-----------+
1 row in set (0.01 sec)
```

```
mysql> create database school1;
Query OK, 1 row affected (0.02 sec)

mysql> CREATE TABLE AuditLog (
    ->      LogID INT AUTO_INCREMENT PRIMARY KEY,
    ->      Action VARCHAR(20),
    ->      EmpID INT,
    ->      Date DATETIME
    -> );
Query OK, 0 rows affected (0.03 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 (0.01 sec)

mysql>
mysql> DELIMITER ;
mysql> ;
ERROR:
No query specified

mysql> INSERT INTO Employee (EmpID, EmpName, DeptID)
    -> VALUES (101, 'Alice', 1);
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM AuditLog;
+-------+--------+-------+---------------------+
| LogID | Action | EmpID | Date                |
+-------+--------+-------+---------------------+
|     1 | INSERT |   101 | 2025-08-05 13:54:26 |
+-------+--------+-------+---------------------+
1 row in set (0.00 sec)

mysql>
```

```
mysql> USE StringFunctionsDB;
Database changed
mysql> CREATE TABLE Messages (
    ->     id INT AUTO_INCREMENT PRIMARY KEY,
    ->     text VARCHAR(100)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO Messages (text) VALUES
    -> ('Hello World'),
    -> ('MySQL is powerful'),
    -> ('Welcome to Database'),
    -> ('Pad this'),
    -> ('Reverse me');
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

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

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

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

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

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

mysql> SELECT RPAD('Hello', 10, '!');
+------------------------+
| RPAD('Hello', 10, '!') |
+------------------------+
| Hello!!!!!              |
+------------------------+
```

```
mysql> SELECT RPAD('Hello', 10, '!');
+-----------------------+
| RPAD('Hello', 10, '!') |
+-----------------------+
| Hello!!!!!            |
+-----------------------+
1 row in set (0.00 sec)

mysql> SELECT LPAD('Hello', 10, '!');
+-----------------------+
| LPAD('Hello', 10, '!') |
+-----------------------+
| !!!!!Hello            |
+-----------------------+
1 row in set (0.00 sec)

mysql> |
```

21

```
mysql> SELECT CONCAT('Start', SPACE(5), 'End') AS Result;
+----------------+
| Result         |
+----------------+
| Start     End  |
+----------------+
1 row in set (0.00 sec)

mysql> SELECT SUBSTR(text, 1, 5) AS Substring FROM Messages;
+-------------+
| Substring   |
+-------------+
| Hello       |
| MySQL       |
| Welco       |
| Pad t       |
| Rever       |
+-------------+
5 rows in set (0.00 sec)

mysql> SELECT UPPER(text) AS UpperText FROM Messages;
+----------------------+
| UpperText            |
+----------------------+
| HELLO WORLD          |
| MYSQL IS POWERFUL    |
| WELCOME TO DATABASE  |
| PAD THIS             |
| REVERSE ME           |
+----------------------+
5 rows in set (0.00 sec)

mysql> SELECT LOWER(text) AS LowerText FROM Messages;
+----------------------+
| LowerText            |
+----------------------+
| hello world          |
| mysql is powerful    |
| welcome to database  |
| pad this             |
| reverse me           |
+----------------------+
5 rows in set (0.00 sec)

mysql> SELECT TRIM('   Hello World   ') AS Trimmed;
+--------------+
| Trimmed      |
+--------------+
| Hello World  |
+--------------+
1 row in set (0.00 sec)

mysql> SELECT text, LENGTH(text) AS TextLength FROM Messages;
+----------------------+------------+
| text                 | TextLength |
+----------------------+------------+
| Hello World          |         11 |
| MySQL is powerful    |         17 |
| Welcome to Database  |         19 |
| Pad this             |          8 |
| Reverse me           |         10 |
+----------------------+------------+
5 rows in set (0.00 sec)
```

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

mysql>
mysql> USE new_college;
Database changed
mysql>
mysql> CREATE TABLE students (
    ->      id INT AUTO_INCREMENT PRIMARY KEY,
    ->      name VARCHAR(50),
    ->      department VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> INSERT INTO students (name, department) VALUES
    -> ('Rahul', 'Computer Science'),
    -> ('Priya', 'Electronics'),
    -> ('Anil', 'Mechanical');
Query OK, 3 rows affected (0.00 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> |
```

Connected successfully
ID: 1 - Name: Rahul - Department: Computer Science
ID: 2 - Name: Priya - Department: Electronics
ID: 3 - Name: Anil - Department: Mechanical

23

```
mysql> create database train;
ERROR 1007 (HY000): Can't create database 'train'; database exists
mysql> use train;
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 (0.02 sec)

mysql> INSERT INTO TicketReservation (CustomerName, TrainNumber, DateOfJourney, SocialNetwork, TicketStatus)
    -> VALUES ('John Doe', '101', '2025-05-01', 'Facebook', 'Booked');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM TicketReservation;
+----------+--------------+-------------+---------------+---------------+--------------+
| TicketID | CustomerName | TrainNumber | DateOfJourney | SocialNetwork | TicketStatus |
+----------+--------------+-------------+---------------+---------------+--------------+
|        1 | John Doe     | 101         | 2025-05-01    | Facebook      | Booked       |
+----------+--------------+-------------+---------------+---------------+--------------+
1 row in set (0.00 sec)

mysql>
```

24

```
mysql> create database college5;
Query OK, 1 row affected (0.01 sec)

mysql> ^C
mysql> use college5;
Database changed
mysql> CREATE TABLE CollegeAdmission (
    ->      StudentID INT AUTO_INCREMENT PRIMARY KEY,
    ->      StudentName VARCHAR(100),
    ->      Course VARCHAR(100),
    ->      AdmissionDate DATE,
    ->      Status VARCHAR(50)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO CollegeAdmission (StudentName, Course, AdmissionDate, Status)
    -> VALUES ('Alice Smith', 'Computer Science', '2025-05-10', 'Admitted');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM CollegeAdmission;
+-----------+--------------+------------------+---------------+-----------+
| StudentID | StudentName  | Course           | AdmissionDate | Status    |
+-----------+--------------+------------------+---------------+-----------+
|         1 | Alice Smith  | Computer Science | 2025-05-10    | Admitted  |
+-----------+--------------+------------------+---------------+-----------+
1 row in set (0.00 sec)

mysql>
```

```
mysql> create database bus;
Query OK, 1 row affected (0.02 sec)

mysql> use bus;
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 ('Michael Johnson', 'B123', '2025-06-01', 'QR1234567890', 'Booked');
Query OK, 1 row affected (0.01 sec)

mysql> select *from busticketbooking;
+-----------+-----------------+-----------+------------+--------------+--------+
| BookingID | PassengerName   | BusNumber | TravelDate | QRCode       | Status |
+-----------+-----------------+-----------+------------+--------------+--------+
|         1 | Michael Johnson | B123      | 2025-06-01 | QR1234567890 | Booked |
+-----------+-----------------+-----------+------------+--------------+--------+
1 row in set (0.00 sec)

mysql>
```

🎫 Ticket Booked Successfully!
Booking ID: **1**
Name: **Gowrish**
Bus: **AP29AT5176**
Date: **2025-08-23**
Seat: **16U**

Scan Your QR Ticket:

🔗 Open QR Code in New Tab