INSTITUTE OF ENGINEERING & MANAGEMENT

SALT LAKE, KOLKATA

LAB MANUAL

Year : 2022 - 2026

Course Name : Database Management Systems Lab

Course Code : PCCCS 591
Semester : V

Branch : CSBS

Database Management Systems Lab (PCCCS 591)

Name: ……..

University Roll No: ……Class Roll……

Year: …… Semester: ……..

Session: ……..

LAB WORK

1. **Create a Database:**
   a. **Theory:** The CREATE DATABASE statement is used to create a new SQL database.
   b. **Syntax :** create database UMS_CSBS;
   c. **Output:**

```
mysql> create database UMS_CSBS_52;
Query OK, 1 row affected (0.03 sec)
```

2. **Print the existing databases in the system:**
   a. **Theory:** SHOW DATABASES lists the databases on the MySQL server host
   b. **Syntax:** show databases;
   c. **Output:**

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
| ums_csbs           |
| ums_csbs_52        |
+--------------------+
6 rows in set (0.04 sec)
```

3. **Create a Table:**
   a. **Theory:** The CREATE TABLE statement is used to create a new table in a database.
   b. **Syntax:** CREATE TABLE table_name (
      column1 datatype,
      column2 datatype,
      column3 datatype,
      ....
      );
   c. **Output:**

```
mysql> create table student(
    -> name CHAR(25),
    -> contact_number INT(11),
    -> stream CHAR(25),
    -> address VARCHAR(50));
Query OK, 0 rows affected, 1 warning (0.07 sec)

mysql> create table subject(
    -> subject_name CHAR(25),
    -> code CHAR(25),
    -> credit INT(10),
    -> lectures INT(10));
Query OK, 0 rows affected, 2 warnings (0.05 sec)
```

4. **Describe the Table:**
    a. **Theory :**desc command describes the fields and type in a table
    b. **Syntax:** desc [name];
    c. **Output:**

```
mysql> desc student;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| name           | char(25)    | YES  |     | NULL    |       |
| contact_number | int         | YES  |     | NULL    |       |
| stream         | char(25)    | YES  |     | NULL    |       |
| address        | varchar(50) | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
4 rows in set (0.03 sec)

mysql> desc subject;
+--------------+----------+------+-----+---------+-------+
| Field        | Type     | Null | Key | Default | Extra |
+--------------+----------+------+-----+---------+-------+
| subject_name | char(25) | YES  |     | NULL    |       |
| code         | char(25) | YES  |     | NULL    |       |
| credit       | int      | YES  |     | NULL    |       |
| lectures     | int      | YES  |     | NULL    |       |
+--------------+----------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

5. **Insert values into the Table:**
    a. **Theory:** insert into lets you insert record(s) into the table
    b. **Syntax:** insert into [table_name] values ([values]);
    c. **Output:**

```
mysql> insert into student values("Prajukti", 987654323, "CSBS", "Agartala");
Query OK, 1 row affected (0.04 sec)

mysql> insert into student values("XYZ", 76342764, "CSE", "Kolkata");
Query OK, 1 row affected (0.03 sec)

mysql> insert into student values("DFG", 876643638, "ECE", "Delhi");
Query OK, 1 row affected (0.03 sec)
```

6. **Delete a record:**
    a. **Theory:**delete from is used to delete records from the table
    b. **Syntax:** delete from [table_name] where [condition];

c. **Output:**

```
mysql> delete from student where name="XYZ";
Query OK, 1 row affected (0.03 sec)

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

mysql> select* from student;
+----------+----------------+--------+----------+
| name     | contact_number | stream | address  |
+----------+----------------+--------+----------+
| Prajukti |      987654323 | CSBS   | Agartala |
| DFG      |      876643638 | ECE    | Delhi    |
+----------+----------------+--------+----------+
2 rows in set (0.00 sec)
```

LAB PRACTICE ASSIGNMENT:

1. **Create a table EMPLOYEE with following schema: (Emp_no, E_name, E_address, E_ph_no, Dept_no, Dept_name,Job_id , Salary)**
    a. **Theory:** Create table will be used here
    b. **Syntax:** create table employee (Emp_no varchar(5), E_name char(15),E_address char(200),E_ph_no int(10),dept_no int(2),dept_name char(20),job_id int(5),salary int(10));
    c. **Output:**

```
mysql> create table EMPLOYEE(
    -> Emp_no INT(5),
    -> E_name CHAR(25),
    -> E_address VARCHAR(50),
    -> E_ph_no INT(11),
    -> Dept_no INT(5),
    -> Dept_name CHAR(25),
    -> Job_id CHAR(25),
    -> Salary INT(11));
Query OK, 0 rows affected, 4 warnings (0.05 sec)
```

2. **Insert at least 5 rows in the table**
    a. **Theory:** Insert Into is used to insert record(s) into the table
    b. **Syntax:** insert into [table_name] values ([values]);
    c. **Output:**

```
mysql> insert into EMPLOYEE values(11, "ABC", "Kolkata", 6543234, 10, "CSE", "J2378", 65000);
Query OK, 1 row affected (0.03 sec)

mysql> insert into EMPLOYEE values(12, "XYZ", "Gurgaon", 65487554, 18, "SDE", "J8987", 50000);
Query OK, 1 row affected (0.03 sec)

mysql> insert into EMPLOYEE values(13, "HYUT", "Delhi", 98765432, 17, "SALES", "J9876", 55000);
Query OK, 1 row affected (0.03 sec)

mysql> insert into EMPLOYEE values(14, "James", "Dehradun", 98767854, 16, "ECE", "J6754", 40000);
Query OK, 1 row affected (0.03 sec)

mysql> insert into EMPLOYEE values(15, "PQER", "Agra", 879867544, 15, "MECH", "J8976", 30000);
Query OK, 1 row affected (0.03 sec)
```

3. **Display all the information of EMP table.**
    a. **Theory:** Select * allows to display all the records with all the fields from the specified table
    b. **Syntax:** select * from [table_name];
    c. **Output:**

```
mysql> select* from EMPLOYEE;
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
| Emp_no | E_name | E_address | E_ph_no   | Dept_no | Dept_name | Job_id | Salary |
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
|     11 | ABC    | Kolkata   |   6543234 |      10 | CSE       | J2378  |  65000 |
|     12 | XYZ    | Gurgaon   |  65487554 |      18 | SDE       | J8987  |  50000 |
|     13 | HYUT   | Delhi     |  98765432 |      17 | SALES     | J9876  |  55000 |
|     14 | James  | Dehradun  |  98767854 |      16 | ECE       | J6754  |  40000 |
|     15 | PQER   | Agra      | 879867544 |      15 | MECH      | J8976  |  30000 |
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
5 rows in set (0.00 sec)
```

4. **Display the record of each employee who works in department D10.**
    a. **Theory:** select * is used to fetch all records from table and where clause is used to specify the condition
    b. **Syntax:** select * from [table_name] where [condition];
    c. **Output:**

```
mysql> select* from EMPLOYEE where Dept_no="10";
+--------+--------+-----------+---------+---------+-----------+--------+--------+
| Emp_no | E_name | E_address | E_ph_no | Dept_no | Dept_name | Job_id | Salary |
+--------+--------+-----------+---------+---------+-----------+--------+--------+
|     11 | ABC    | Kolkata   | 6543234 |      10 | CSE       | J2378  |  65000 |
+--------+--------+-----------+---------+---------+-----------+--------+--------+
1 row in set (0.00 sec)
```

5. **Update the city of Emp_no-12 with current city as Nagpur.**
    a. **Theory:** update table set command will be used here
    b. **Syntax:** update [table_name] set [value] where [condition];
    c. **Output:**

```
mysql> update EMPLOYEE set E_address="Nagpur" where Emp_no="12";
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select* from EMPLOYEE;
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
| Emp_no | E_name | E_address | E_ph_no   | Dept_no | Dept_name | Job_id | Salary |
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
|     11 | ABC    | Kolkata   |   6543234 |      10 | CSE       | J2378  |  65000 |
|     12 | XYZ    | Nagpur    |  65487554 |      18 | SDE       | J8987  |  50000 |
|     13 | HYUT   | Delhi     |  98765432 |      17 | SALES     | J9876  |  55000 |
|     14 | James  | Dehradun  |  98767854 |      16 | ECE       | J6754  |  40000 |
|     15 | PQER   | Agra      | 879867544 |      15 | MECH      | J8976  |  30000 |
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
5 rows in set (0.00 sec)
```

6. **Display the details of Employee who works in department MECH.**
    a. **Theory:** select * is used to fetch all records from table and where clause is used to specify the condition
    b. **Syntax:** select * from [table_name] where [condition];
    c. **Output:**

```
mysql> select* from EMPLOYEE where Dept_name="MECH";
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
| Emp_no | E_name | E_address | E_ph_no   | Dept_no | Dept_name | Job_id | Salary |
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
|     15 | PQER   | Agra      | 879867544 |      15 | MECH      | J8976  |  30000 |
+--------+--------+-----------+-----------+---------+-----------+--------+--------+
1 row in set (0.00 sec)
```

7. **Delete the email_id of employee James.**
    a. **Theory:** update… set is to be used here
    b. **Syntax:** update [table_name] set [value] where [condition];
    c. **Output:**

```
mysql> update EMPLOYEE set E_ph_no=NULL where E_name="James";
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from EMPLOYEE where E_name="James";
+--------+--------+-----------+---------+---------+-----------+--------+--------+
| Emp_no | E_name | E_address | E_ph_no | Dept_no | Dept_name | Job_id | Salary |
+--------+--------+-----------+---------+---------+-----------+--------+--------+
|     14 | James  | Dehradun  |    NULL |      16 | ECE       | J6754  |  40000 |
+--------+--------+-----------+---------+---------+-----------+--------+--------+
1 row in set (0.00 sec)
```

8. **Display the complete record of employees working in SALES Department.**
    a. **Theory:** select * is used to fetch all records from table and where clause is used to specify the condition.
    b. **Syntax:** select * from [table_name] where [condition];
    c. **Output:**

```
mysql> select * from EMPLOYEE where Dept_name="SALES";
+--------+--------+-----------+----------+---------+-----------+--------+--------+
| Emp_no | E_name | E_address | E_ph_no  | Dept_no | Dept_name | Job_id | Salary |
+--------+--------+-----------+----------+---------+-----------+--------+--------+
|     13 | HYUT   | Delhi     | 98765432 |      17 | SALES     | J9876  |  55000 |
+--------+--------+-----------+----------+---------+-----------+--------+--------+
1 row in set (0.00 sec)
```