DBMS Lab Assignment
WRC078BEI048

1.(Exercise: retrieve the records from the table)

EMPLOYEES (Employee_Id, First_Name, Last_Name,
Email, Phone_Number, Hire_Date, Job_Id, Salary, Commission_Pct, Manager_Id, Department_Id)
1. create an employee's table with the following fields: (Emp_id, First_name, Last_name,
Phone_No,Hire_date,Job_id,Emp_Salary,Comission_Pct,manager _id,Department_id)
2. Insert five records into the table employees
3. Display the table Employees
4. Find out the employee id, names, salaries of all the employees
5. Find the names of the employees who have a salary greater than or equal to 4800
6. List out the employees whose last name is 'AUSTIN'
7. Find the names of the employees who works in departments 60,70 and 80
8. Display the unique Manager_Id from employees table

PRACTICE 1

```
Microsoft Windows [Version 10.0.22631.3880]
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C:\Users\Sriyanka Baral>mysql -u root -p
Enter password: ********
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.37 MySQL Community Server - GPL

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owners.

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

mysql> create database WRC;
Query OK, 1 row affected (0.06 sec)

mysql> use WRC;
Database changed
mysql> CREATE TABLE Employees (
->     Emp_id INT PRIMARY KEY,
```

```
->     First_name VARCHAR(50),
->     Last_name VARCHAR(50),
->     Phone_No VARCHAR(20),
->     Hire_date DATE,
->     Job_id VARCHAR(10),
->     Emp_Salary DECIMAL(10, 2),
->     Commission_Pct DECIMAL(5, 2),
->     Manager_id INT,
->     Department_id INT
-> );
Query OK, 0 rows affected (0.07 sec)

mysql> INSERT INTO Employees (Emp_id, First_name, Last_name, Phone_No, Hire_date, Job_id, Emp_Salary, Commission_Pct, Manager_id, Department_id)
-> VALUES
-> (1, 'John', 'Doe', '123-456-7890', '2020-01-15', 'J101', 5000, 0.10, 101, 60),
-> (2, 'Jane', 'Smith', '123-456-7891', '2019-02-20', 'J102', 4800, 0.12, 102, 70),
-> (3, 'Robert', 'Johnson', '123-456-7892', '2021-03-25', 'J103', 4600, 0.15, 103, 80),
-> (4, 'Michael', 'Austin', '123-456-7893', '2018-04-30', 'J104', 5100, 0.20, 104, 60),
-> (5, 'Emily', 'Davis', '123-456-7894', '2017-05-10', 'J105', 4700, 0.25, 105, 70);
Query OK, 5 rows affected (0.02 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Employees;
+--------+------------+-----------+--------------+------------+--------+------------+----------------+------------+--------------+
| Emp_id | First_name | Last_name | Phone_No     | Hire_date  | Job_id | Emp_Salary | Commission_Pct | Manager_id | Department_id |
+--------+------------+-----------+--------------+------------+--------+------------+----------------+------------+--------------+
|      1 | John       | Doe       | 123-456-7890 | 2020-01-15 | J101   |    5000.00 |           0.10 |        101 |
60 |
|      2 | Jane       | Smith     | 123-456-7891 | 2019-02-20 | J102   |    4800.00 |           0.12 |        102 |
70 |
|      3 | Robert     | Johnson   | 123-456-7892 | 2021-03-25 | J103   |    4600.00 |           0.15 |        103 |
80 |
|      4 | Michael    | Austin    | 123-456-7893 | 2018-04-30 | J104   |    5100.00 |           0.20 |        104 |
60 |
|      5 | Emily      | Davis     | 123-456-7894 | 2017-05-10 | J105   |    4700.00 |           0.25 |        105 |
70 |
+--------+------------+-----------+--------------+------------+--------+------------+----------------+------------+--------------+
5 rows in set (0.01 sec)

mysql> SELECT Emp_id, First_name, Last_name, Emp_Salary FROM Employees;
+--------+------------+-----------+------------+
| Emp_id | First_name | Last_name | Emp_Salary |
```

```
+--------+------------+-----------+------------+
|      1 | John       | Doe       |    5000.00 |
|      2 | Jane       | Smith     |    4800.00 |
|      3 | Robert     | Johnson   |    4600.00 |
|      4 | Michael    | Austin    |    5100.00 |
|      5 | Emily      | Davis     |    4700.00 |
+--------+------------+-----------+------------+
5 rows in set (0.01 sec)

mysql> SELECT First_name, Last_name FROM Employees WHERE Emp_Salary >= 4800;
+------------+-----------+
| First_name | Last_name |
+------------+-----------+
| John       | Doe       |
| Jane       | Smith     |
| Michael    | Austin    |
+------------+-----------+
3 rows in set (0.01 sec)

mysql> SELECT * FROM Employees WHERE Last_name = 'Austin';
+--------+------------+-----------+--------------+------------+--------+------------+----------------+------------+---------------+
| Emp_id | First_name | Last_name | Phone_No     | Hire_date  | Job_id | Emp_Salary | Commission_Pct | Manager_id | Department_id |
+--------+------------+-----------+--------------+------------+--------+------------+----------------+------------+---------------+
|      4 | Michael    | Austin    | 123-456-7893 | 2018-04-30 | J104   |    5100.00 |           0.20 |        104 |
60 |
+--------+------------+-----------+--------------+------------+--------+------------+----------------+------------+---------------+
1 row in set (0.01 sec)

mysql> SELECT First_name, Last_name FROM Employees WHERE Department_id IN (60, 70, 80);
+------------+-----------+
| First_name | Last_name |
+------------+-----------+
| John       | Doe       |
| Jane       | Smith     |
| Robert     | Johnson   |
| Michael    | Austin    |
| Emily      | Davis     |
+------------+-----------+
5 rows in set (0.00 sec)

mysql> SELECT DISTINCT Manager_id FROM Employees;
+------------+
| Manager_id |
```

```
+------------+
|       101 |
|       102 |
|       103 |
|       104 |
|       105 |
+------------+
5 rows in set (0.01 sec)
```

2. (Exercise: update the records in the table)

Create Client_master with the following fields (ClientNO,
Name, Address, City, State, bal_due)

1. create a client master table with attributes
2. insert five records into the Client_Master
3. Display Client Master Table
4. Find the name of Clients whose balance_due >5000
5. Change the bal_due of ClientNO “C123” to Rs. 5100
6. Change the name of Client_master to Client12
7. Display the bal_due heading as “BALANCE” Client master table

PRACTICE 2

```
mysql> CREATE TABLE Client_Master (
    ->     ClientNO VARCHAR(10) PRIMARY KEY,
    ->     Name VARCHAR(100),
    ->     Address VARCHAR(255),
    ->     City VARCHAR(50),
    ->     State VARCHAR(50),
    ->     bal_due DECIMAL(10, 2)
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> INSERT INTO Client_Master (ClientNO, Name, Address, City, State, bal_due)
    -> VALUES
    -> ('C101', 'Alice Johnson', '123 Elm St', 'Springfield', 'IL', 4500.00),
    -> ('C102', 'Bob Smith', '456 Oak St', 'Centerville', 'OH', 6000.00),
    -> ('C103', 'Charlie Brown', '789 Pine St', 'Shelbyville', 'IN', 3000.00),
    -> ('C104', 'Diana Prince', '321 Maple St', 'Metropolis', 'NY', 7500.00),
    -> ('C105', 'Evan Davis', '654 Birch St', 'Gotham', 'NJ', 4000.00);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM Client_Master;
+----------+---------------+-------------+-------------+-------+---------+
```

```
| ClientNO | Name          | Address      | City        | State | bal_due |
+----------+---------------+--------------+-------------+-------+---------+
| C101     | Alice Johnson | 123 Elm St   | Springfield | IL    | 4500.00 |
| C102     | Bob Smith     | 456 Oak St   | Centerville | OH    | 6000.00 |
| C103     | Charlie Brown | 789 Pine St  | Shelbyville | IN    | 3000.00 |
| C104     | Diana Prince  | 321 Maple St | Metropolis  | NY    | 7500.00 |
| C105     | Evan Davis    | 654 Birch St | Gotham      | NJ    | 4000.00 |
+----------+---------------+--------------+-------------+-------+---------+
5 rows in set (0.00 sec)

mysql> SELECT Name FROM Client_Master WHERE bal_due > 5000;
+--------------+
| Name         |
+--------------+
| Bob Smith    |
| Diana Prince |
+--------------+
2 rows in set (0.00 sec)

mysql> UPDATE Client_Master
    -> SET bal_due = 5100.00
    -> WHERE ClientNO = 'C123';
Query OK, 0 rows affected (0.01 sec)
Rows matched: 0  Changed: 0  Warnings: 0

mysql> ALTER TABLE Client_Master RENAME TO Client12;
Query OK, 0 rows affected (0.05 sec)

mysql> SELECT ClientNO, Name, Address, City, State, bal_due AS BALANCE
    -> FROM Client12;
+----------+---------------+--------------+-------------+-------+---------+
| ClientNO | Name          | Address      | City        | State | BALANCE |
+----------+---------------+--------------+-------------+-------+---------+
| C101     | Alice Johnson | 123 Elm St   | Springfield | IL    | 4500.00 |
| C102     | Bob Smith     | 456 Oak St   | Centerville | OH    | 6000.00 |
| C103     | Charlie Brown | 789 Pine St  | Shelbyville | IN    | 3000.00 |
| C104     | Diana Prince  | 321 Maple St | Metropolis  | NY    | 7500.00 |
| C105     | Evan Davis    | 654 Birch St | Gotham      | NJ    | 4000.00 |
+----------+---------------+--------------+-------------+-------+---------+
5 rows in set (0.01 sec)
```

3. Commands of Rollback and Commit :

Create Teacher table with the following fields (Name, DeptNo,

Date of joining, DeptName, Location, Salary)
1. Create Teacher table with the following fields (Id,Name, DeptNo, Date of joining, DeptName, Location, Salary)
2. Insert five records
3. Give Increment of 25% salary for Mathematics Department.
4. Perform Rollback command
5. Give Increment of 15% salary for Commerce Department
6. Perform commit command

PRACTICE 3

```
mysql> CREATE TABLE Teacher (
    ->     Id INT PRIMARY KEY AUTO_INCREMENT,
    ->     Name VARCHAR(100),
    ->     DeptNo INT,
    ->     Date_of_joining DATE,
    ->     DeptName VARCHAR(50),
    ->     Location VARCHAR(100),
    ->     Salary DECIMAL(10, 2)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Teacher (Name, DeptNo, Date_of_joining, DeptName, Location, Salary)
    -> VALUES
    -> ('John Smith', 101, '2020-01-15', 'Mathematics', 'New York', 5000.00),
    -> ('Jane Doe', 102, '2019-02-20', 'Science', 'Boston', 4500.00),
    -> ('Emily Davis', 103, '2021-03-25', 'Commerce', 'Chicago', 6000.00),
    -> ('Michael Brown', 104, '2018-04-30', 'Mathematics', 'Los Angeles', 5200.00),
    -> ('Sarah Wilson', 105, '2017-05-10', 'Commerce', 'San Francisco', 5800.00);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from Teacher;
+----+---------------+--------+-----------------+-------------+---------------+---------+
| Id | Name          | DeptNo | Date_of_joining | DeptName    | Location      | Salary  |
+----+---------------+--------+-----------------+-------------+---------------+---------+
|  1 | John Smith    |    101 | 2020-01-15      | Mathematics | New York      | 5000.00 |
|  2 | Jane Doe      |    102 | 2019-02-20      | Science     | Boston        | 4500.00 |
|  3 | Emily Davis   |    103 | 2021-03-25      | Commerce    | Chicago       | 6000.00 |
|  4 | Michael Brown |    104 | 2018-04-30      | Mathematics | Los Angeles   | 5200.00 |
|  5 | Sarah Wilson  |    105 | 2017-05-10      | Commerce    | San Francisco | 5800.00 |
+----+---------------+--------+-----------------+-------------+---------------+---------+
5 rows in set (0.00 sec)
```

```
mysql> UPDATE Teacher
    -> SET Salary = Salary * 1.25
    -> WHERE DeptName = 'Mathematics';
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0

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

mysql> UPDATE Teacher
    -> SET Salary = Salary * 1.15
    -> WHERE DeptName = 'Commerce';
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0

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

mysql> select * from Teacher;
+----+---------------+--------+-----------------+-------------+---------------+---------+
| Id | Name          | DeptNo | Date_of_joining | DeptName    | Location      | Salary  |
+----+---------------+--------+-----------------+-------------+---------------+---------+
|  1 | John Smith    |    101 | 2020-01-15      | Mathematics | New York      | 6250.00 |
|  2 | Jane Doe      |    102 | 2019-02-20      | Science     | Boston        | 4500.00 |
|  3 | Emily Davis   |    103 | 2021-03-25      | Commerce    | Chicago       | 6900.00 |
|  4 | Michael Brown |    104 | 2018-04-30      | Mathematics | Los Angeles   | 6500.00 |
|  5 | Sarah Wilson  |    105 | 2017-05-10      | Commerce    | San Francisco | 6670.00 |
+----+---------------+--------+-----------------+-------------+---------------+---------+
5 rows in set (0.01 sec)
```

4. (Exercise on the group by and order by clauses)

Create Sales table with the following fields (Sales
No, Salesname, Branch, Salesamount, DOB)
1. Create a Sales Table with the following fields
(Sales_No,Sales_Name,Branch,Sales_Amount,DOB)
2. Insert five records
3. Calculate total salesamount in each branch
4. Calculate average salesamount in each branch
5. Display all the salesmen, DOB who are born in the month of December as day in
character format i.e. 21-Dec-09
6. Display the name and DOB of salesman in alphabetical order of the month.

PRACTICE 4

```
mysql> CREATE TABLE Sales (
    ->     Sales_No INT PRIMARY KEY AUTO_INCREMENT,
    ->     Sales_Name VARCHAR(100),
    ->     Branch VARCHAR(50),
    ->     Sales_Amount DECIMAL(10, 2),
    ->     DOB DATE
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO Sales (Sales_Name, Branch, Sales_Amount, DOB)
    -> VALUES
    -> ('Alice Johnson', 'North', 12000.00, '1985-12-15'),
    -> ('Bob Smith', 'South', 15000.00, '1990-06-22'),
    -> ('Charlie Brown', 'North', 8000.00, '1979-12-10'),
    -> ('Diana Prince', 'East', 20000.00, '1982-11-05'),
    -> ('Emily Davis', 'South', 18000.00, '1988-12-25');
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from Sales;
+----------+---------------+--------+--------------+------------+
| Sales_No | Sales_Name    | Branch | Sales_Amount | DOB        |
+----------+---------------+--------+--------------+------------+
|        1 | Alice Johnson | North  |     12000.00 | 1985-12-15 |
|        2 | Bob Smith     | South  |     15000.00 | 1990-06-22 |
|        3 | Charlie Brown | North  |      8000.00 | 1979-12-10 |
|        4 | Diana Prince  | East   |     20000.00 | 1982-11-05 |
|        5 | Emily Davis   | South  |     18000.00 | 1988-12-25 |
+----------+---------------+--------+--------------+------------+
5 rows in set (0.00 sec)

mysql> SELECT Branch, SUM(Sales_Amount) AS Total_Sales_Amount
    -> FROM Sales
    -> GROUP BY Branch;
+--------+--------------------+
| Branch | Total_Sales_Amount |
+--------+--------------------+
| North  |           20000.00 |
| South  |           33000.00 |
| East   |          20000.00 |
```

```
+--------+--------------------+
3 rows in set (0.01 sec)

mysql> SELECT Branch, AVG(Sales_Amount) AS Average_Sales_Amount
   -> FROM Sales
   -> GROUP BY Branch;
+--------+----------------------+
| Branch | Average_Sales_Amount |
+--------+----------------------+
| North  |        10000.000000 |
| South  |        16500.000000 |
| East   |        20000.000000 |
+--------+----------------------+
3 rows in set (0.01 sec)

mysql> SELECT Sales_Name, DATE_FORMAT(DOB, '%d-%b-%y') AS DOB
   -> FROM Sales
   -> WHERE MONTH(DOB) = 12;
+---------------+-----------+
| Sales_Name    | DOB       |
+---------------+-----------+
| Alice Johnson | 15-Dec-85 |
| Charlie Brown | 10-Dec-79 |
| Emily Davis   | 25-Dec-88 |
+---------------+-----------+
3 rows in set (0.01 sec)

mysql> SELECT Sales_Name, DATE_FORMAT(DOB, '%d-%b-%y') AS DOB
   -> FROM Sales
   -> ORDER BY MONTH(DOB), DAY(DOB);
+---------------+-----------+
| Sales_Name    | DOB       |
+---------------+-----------+
| Bob Smith     | 22-Jun-90 |
| Diana Prince  | 05-Nov-82 |
| Charlie Brown | 10-Dec-79 |
| Alice Johnson | 15-Dec-85 |
| Emily Davis   | 25-Dec-88 |
+---------------+-----------+
5 rows in set (0.01 sec)

mysql>SYSTEM CLS
```

5. Create an Emp table with the following fields:

(EmpNo, EmpName, Job,Basic, DA, HRA,PF, GrossPay, NetPay)

1. create an employee table with the following fields: (Emp_No,Emp_ Name, Designation, basic, DA, HRA, PF, Gross pay, Net pay)
2. Insert Five Records and calculate GrossPay and NetPay.
3. Adding column to table and Updating Attributes DA
4. Adding column to table and Updating Attributes HRA
5. Adding column to table and Updating Attributes PF
6. Adding column to table and Updating Attributes Gross Pay
7. Adding column to table and Updating Attributes Net Pay
8. Display the employee table
9. Display the employees whose Basic is lowest in each department.
10. If NetPay is less than Rs. 10,000 add Rs. 1200 as special allowance
11. Display the employees whose GrossPay lies between 10,000 & 20,000
12. Display all the employees who earn maximum salary.

PRACTICE 5

```
mysql> CREATE TABLE Emp (
    ->     Emp_No INT PRIMARY KEY AUTO_INCREMENT,
    ->     Emp_Name VARCHAR(100),
    ->     Designation VARCHAR(50),
    ->     Basic DECIMAL(10, 2),
    ->     DA DECIMAL(10, 2),
    ->     HRA DECIMAL(10, 2),
    ->     PF DECIMAL(10, 2),
    ->     GrossPay DECIMAL(10, 2),
    ->     NetPay DECIMAL(10, 2)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO Emp (Emp_Name, Designation, Basic, DA, HRA, PF)
    -> VALUES
    -> ('John Doe', 'Manager', 8000.00, 2000.00, 1500.00, 800.00),
    -> ('Jane Smith', 'Developer', 6000.00, 1500.00, 1200.00, 600.00),
    -> ('Robert Brown', 'Tester', 5000.00, 1200.00, 1000.00, 500.00),
    -> ('Emily Davis', 'Analyst', 7000.00, 1800.00, 1300.00, 700.00),
    -> ('Michael Wilson', 'Support', 4000.00, 1000.00, 800.00, 400.00);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql>
mysql> -- Calculate GrossPay and NetPay
```

```
mysql> UPDATE Emp
   -> SET GrossPay = Basic + DA + HRA,
   ->     NetPay = GrossPay - PF;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> ALTER TABLE Emp ADD COLUMN DECIMAL(10, 2);
Query OK, 5 rows affected (0.00 sec)

mysql> -- Assume updating DA as per new policy
mysql> UPDATE Emp SET DA = CASE
   ->     WHEN Designation = 'Manager' THEN 2500.00
   ->     WHEN Designation = 'Developer' THEN 1800.00
   ->     WHEN Designation = 'Tester' THEN 1500.00
   ->     WHEN Designation = 'Analyst' THEN 2000.00
   ->     WHEN Designation = 'Support' THEN 1200.00
   -> END;
Query OK, 5 rows affected (0.00 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> select * from Emp
   -> ;
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
| Emp_No | Emp_Name      | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
|      1 | John Doe      | Manager     | 8000.00 | 2500.00 | 1500.00 | 800.00 | 11500.00 | 10700.00 |
|      2 | Jane Smith    | Developer   | 6000.00 | 1800.00 | 1200.00 | 600.00 |  8700.00 |  8100.00 |
|      3 | Robert Brown  | Tester      | 5000.00 | 1500.00 | 1000.00 | 500.00 |  7200.00 |  6700.00 |
|      4 | Emily Davis   | Analyst     | 7000.00 | 2000.00 | 1300.00 | 700.00 | 10100.00 |  9400.00 |
|      5 | Michael Wilson | Support    | 4000.00 | 1200.00 |  800.00 | 400.00 |  5800.00 |  5400.00 |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
5 rows in set (0.00 sec)

 -- Assume updating HRA as per new policy
mysql> UPDATE Emp SET HRA = CASE
   ->     WHEN Designation = 'Manager' THEN 1600.00
   ->     WHEN Designation = 'Developer' THEN 1400.00
   ->     WHEN Designation = 'Tester' THEN 1200.00
   ->     WHEN Designation = 'Analyst' THEN 1500.00
   ->     WHEN Designation = 'Support' THEN 1000.00
   -> END;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 0
```

```
mysql> select * from Emp;
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
| Emp_No | Emp_Name      | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
|      1 | John Doe      | Manager     | 8000.00 | 2500.00 | 1600.00 | 800.00 | 11500.00 | 10700.00 |
|      2 | Jane Smith    | Developer   | 6000.00 | 1800.00 | 1400.00 | 600.00 |  8700.00 |  8100.00 |
|      3 | Robert Brown  | Tester      | 5000.00 | 1500.00 | 1200.00 | 500.00 |  7200.00 |  6700.00 |
|      4 | Emily Davis   | Analyst     | 7000.00 | 2000.00 | 1500.00 | 700.00 | 10100.00 |  9400.00 |
|      5 | Michael Wilson | Support    | 4000.00 | 1200.00 | 1000.00 | 400.00 |  5800.00 |  5400.00 |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
5 rows in set (0.00 sec)


mysql> -- Assume updating HRA as per new policy
mysql> UPDATE Emp SET HRA = CASE
    ->     WHEN Designation = 'Manager' THEN 1600.00
    ->     WHEN Designation = 'Developer' THEN 1400.00
    ->     WHEN Designation = 'Tester' THEN 1200.00
    ->     WHEN Designation = 'Analyst' THEN 1500.00
    ->     WHEN Designation = 'Support' THEN 1000.00
    -> END;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 5  Changed: 0  Warnings: 0

mysql> select * from Emp;
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
| Emp_No | Emp_Name      | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
|      1 | John Doe      | Manager     | 8000.00 | 2500.00 | 1600.00 | 800.00 | 11500.00 | 10700.00 |
|      2 | Jane Smith    | Developer   | 6000.00 | 1800.00 | 1400.00 | 600.00 |  8700.00 |  8100.00 |
|      3 | Robert Brown  | Tester      | 5000.00 | 1500.00 | 1200.00 | 500.00 |  7200.00 |  6700.00 |
|      4 | Emily Davis   | Analyst     | 7000.00 | 2000.00 | 1500.00 | 700.00 | 10100.00 |  9400.00 |
|      5 | Michael Wilson | Support    | 4000.00 | 1200.00 | 1000.00 | 400.00 |  5800.00 |  5400.00 |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
5 rows in set (0.00 sec)

mysql> ALTER TABLE Emp ADD COLUMN PF DECIMAL(10, 2);
ERROR 1060 (42S21): Duplicate column name 'PF'
mysql>
mysql> -- Assume updating PF as per new policy
mysql> UPDATE Emp SET PF = CASE
    ->     WHEN Designation = 'Manager' THEN 900.00
    ->     WHEN Designation = 'Developer' THEN 700.00
    ->     WHEN Designation = 'Tester' THEN 600.00
```

```
    ->     WHEN Designation = 'Analyst' THEN 800.00
    ->     WHEN Designation = 'Support' THEN 500.00
    -> END;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> select * from Emp;
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
| Emp_No | Emp_Name      | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
|      1 | John Doe      | Manager     | 8000.00 | 2500.00 | 1600.00 | 900.00 | 11500.00 | 10700.00 |
|      2 | Jane Smith    | Developer   | 6000.00 | 1800.00 | 1400.00 | 700.00 |  8700.00 |  8100.00 |
|      3 | Robert Brown  | Tester      | 5000.00 | 1500.00 | 1200.00 | 600.00 |  7200.00 |  6700.00 |
|      4 | Emily Davis   | Analyst     | 7000.00 | 2000.00 | 1500.00 | 800.00 | 10100.00 |  9400.00 |
|      5 | Michael Wilson | Support    | 4000.00 | 1200.00 | 1000.00 | 500.00 |  5800.00 |  5400.00 |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
5 rows in set (0.00 sec)

mysql> -- No need to add this column again; we calculated it in step 2. Ensure to recalculate if needed.
mysql> -- No need to add this column again; we calculated it in step 2. Ensure to recalculate if needed.
mysql> SELECT * FROM Emp;
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
| Emp_No | Emp_Name      | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
|      1 | John Doe      | Manager     | 8000.00 | 2500.00 | 1600.00 | 900.00 | 11500.00 | 10700.00 |
|      2 | Jane Smith    | Developer   | 6000.00 | 1800.00 | 1400.00 | 700.00 |  8700.00 |  8100.00 |
|      3 | Robert Brown  | Tester      | 5000.00 | 1500.00 | 1200.00 | 600.00 |  7200.00 |  6700.00 |
|      4 | Emily Davis   | Analyst     | 7000.00 | 2000.00 | 1500.00 | 800.00 | 10100.00 |  9400.00 |
|      5 | Michael Wilson | Support    | 4000.00 | 1200.00 | 1000.00 | 500.00 |  5800.00 |  5400.00 |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+
5 rows in set (0.00 sec)

mysql> select * from Emp where Basic in (select min(Basic) from Emp group by Designation);
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+------------------+
| Emp_No | Emp_Name      | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
SpecialAllowance |
+--------+---------------+-------------+---------+---------+---------+--------+----------+----------+------------------+
|      1 | John Doe      | Manager     | 8000.00 | 2500.00 | 1600.00 | 900.00 | 11500.00 | 10700.00 |
0.00 |
|      2 | Jane Smith    | Developer   | 6000.00 | 1800.00 | 1400.00 | 700.00 |  8700.00 |  8100.00 |
1200.00 |
|      3 | Robert Brown  | Tester      | 5000.00 | 1500.00 | 1200.00 | 600.00 |  7200.00 |  6700.00 |
1200.00 |
```

```
|     4 | Emily Davis    | Analyst     | 7000.00 | 2000.00 | 1500.00 | 800.00 | 10100.00 |  9400.00 |
1200.00 |
|     5 | Michael Wilson | Support     | 4000.00 | 1200.00 | 1000.00 | 500.00 |  5800.00 |  5400.00 |
1200.00 |
+--------+----------------+-------------+---------+---------+---------+--------+----------+----------+-----------------+
5 rows in set (0.01 sec)

mysql> ALTER TABLE Emp ADD COLUMN SpecialAllowance DECIMAL(10, 2);
ERROR 1060 (42S21): Duplicate column name 'SpecialAllowance'
mysql>
mysql> UPDATE Emp
    -> SET SpecialAllowance = CASE
    ->     WHEN NetPay < 10000 THEN 1200.00
    ->     ELSE 0.00
    -> END;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 5  Changed: 0  Warnings: 0

mysql> UPDATE Emp
    -> SET SpecialAllowance = CASE
    ->     WHEN NetPay < 10000 THEN 1200.00
    ->     ELSE 0.00
    -> END;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 5  Changed: 0  Warnings: 0

mysql> SELECT *
    -> FROM Emp
    -> WHERE GrossPay BETWEEN 10000 AND 20000;
+--------+-------------+-------------+---------+---------+---------+--------+----------+----------+-----------------+
| Emp_No | Emp_Name    | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
SpecialAllowance |
+--------+-------------+-------------+---------+---------+---------+--------+----------+----------+-----------------+
|     1 | John Doe    | Manager     | 8000.00 | 2500.00 | 1600.00 | 900.00 | 11500.00 | 10700.00 |
0.00 |
|     4 | Emily Davis | Analyst     | 7000.00 | 2000.00 | 1500.00 | 800.00 | 10100.00 |  9400.00 |
1200.00 |
+--------+-------------+-------------+---------+---------+---------+--------+----------+----------+-----------------+
2 rows in set (0.01 sec)

mysql> SELECT *
    -> FROM Emp
    -> WHERE GrossPay = (SELECT MAX(GrossPay) FROM Emp);
+--------+----------+-------------+---------+---------+---------+--------+----------+----------+-----------------+
```

```
| Emp_No | Emp_Name | Designation | Basic   | DA      | HRA     | PF     | GrossPay | NetPay   |
SpecialAllowance |
+--------+----------+-------------+---------+---------+---------+--------+----------+----------+------------------+
|      1 | John Doe | Manager     | 8000.00 | 2500.00 | 1600.00 | 900.00 | 11500.00 | 10700.00 |
0.00 |
+--------+----------+-------------+---------+---------+---------+--------+----------+----------+------------------+
1 row in set (0.00 sec)

mysql> system cls;
```

6. Employee Database an Enterprise wishes to maintain a database to automate its operations.
Enterprise is divided into certain departments and each department consists of employees. The
following two tables describes the automation schemas
Dept (deptno, dname, loc) Emp (empno,
ename, job, mgr, hiredate, sal, comm, deptno)

1. Create Dept table: Dept (deptno, dname, loc)
2. Create Dept table: Emp (empno, ename, job, mgr, hiredate, sal, comm, deptno)
3. Insert data int Dept and Emp tables
4. Update the employee salary by 15%, whose experience is greater than 30 years
5. Delete the employees, who completed 30 years of service.
6. Display the manager who is having maximum number of employees working under
him?
7. Create a view, which contain employee names and their manager

PRACTICE 6

```
mysql> CREATE TABLE Dept (
    ->     deptno INT PRIMARY KEY,
    ->     dname VARCHAR(100),
    ->     loc VARCHAR(100)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> CREATE TABLE Emp1 (
    ->     empno INT PRIMARY KEY AUTO_INCREMENT,
    ->     ename VARCHAR(100),
    ->     job VARCHAR(50),
    ->     mgr INT,
```

```
    ->     hiredate DATE,
    ->     sal DECIMAL(10, 2),
    ->     comm DECIMAL(10, 2),
    ->     deptno INT,
    ->     FOREIGN KEY (deptno) REFERENCES Dept(deptno),
    ->     FOREIGN KEY (mgr) REFERENCES Emp1(empno)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> -- Insert data into Dept table
mysql> INSERT INTO Dept (deptno, dname, loc)
    -> VALUES
    -> (10, 'Sales', 'New York'),
    -> (20, 'Marketing', 'Los Angeles'),
    -> (30, 'HR', 'Chicago');
Query OK, 3 rows affected (0.01 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql>
mysql> -- Insert data into Emp1 table
mysql> INSERT INTO Emp1 (ename, job, mgr, hiredate, sal, comm, deptno)
    -> VALUES
    -> ('John Doe', 'Manager', NULL, '1990-06-15', 8000.00, 500.00, 10),
    -> ('Jane Smith', 'Salesperson', 1, '1995-04-20', 6000.00, 400.00, 10),
    -> ('Robert Brown', 'Clerk', 1, '1992-08-25', 4000.00, 200.00, 20),
    -> ('Emily Davis', 'Analyst', 1, '1988-11-30', 7000.00, 300.00, 20),
    -> ('Michael Wilson', 'Salesperson', 1, '1985-02-15', 5000.00, 250.00, 30);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from Dept;
+--------+-----------+-------------+
| deptno | dname     | loc         |
+--------+-----------+-------------+
|     10 | Sales     | New York    |
|     20 | Marketing | Los Angeles |
|     30 | HR        | Chicago     |
+--------+-----------+-------------+
3 rows in set (0.00 sec)

mysql> select * from Emp1;
+-------+---------------+-------------+------+------------+---------+--------+--------+
| empno | ename         | job         | mgr  | hiredate   | sal     | comm   | deptno |
+-------+---------------+-------------+------+------------+---------+--------+--------+
```

```
|     1 | John Doe       | Manager     | NULL | 1990-06-15 | 8000.00 | 500.00 |     10 |
|     2 | Jane Smith     | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
|     3 | Robert Brown   | Clerk       |    1 | 1992-08-25 | 4000.00 | 200.00 |     20 |
|     4 | Emily Davis    | Analyst     |    1 | 1988-11-30 | 7000.00 | 300.00 |     20 |
|     5 | Michael Wilson | Salesperson |    1 | 1985-02-15 | 5000.00 | 250.00 |     30 |
+-------+----------------+-------------+------+------------+---------+--------+--------+
5 rows in set (0.00 sec)

mysql> UPDATE Emp1
    -> SET sal = sal * 1.15
    -> WHERE DATEDIFF(CURDATE(), hiredate) / 365 > 30;
Query OK, 4 rows affected (0.01 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from Emp1;
+-------+----------------+-------------+------+------------+---------+--------+--------+
| empno | ename          | job         | mgr  | hiredate   | sal     | comm   | deptno |
+-------+----------------+-------------+------+------------+---------+--------+--------+
|     1 | John Doe       | Manager     | NULL | 1990-06-15 | 9200.00 | 500.00 |     10 |
|     2 | Jane Smith     | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
|     3 | Robert Brown   | Clerk       |    1 | 1992-08-25 | 4600.00 | 200.00 |     20 |
|     4 | Emily Davis    | Analyst     |    1 | 1988-11-30 | 8050.00 | 300.00 |     20 |
|     5 | Michael Wilson | Salesperson |    1 | 1985-02-15 | 5750.00 | 250.00 |     30 |
+-------+----------------+-------------+------+------------+---------+--------+--------+
5 rows in set (0.00 sec)

mysql> DELETE FROM Emp1
    -> WHERE DATEDIFF(CURDATE(), hiredate) / 365 >= 30;
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails (`wrc`.`emp1`,
CONSTRAINT `emp1_ibfk_2` FOREIGN KEY (`mgr`) REFERENCES `emp1` (`empno`))
mysql> SELECT mgr, COUNT(*) AS num_employees
    -> FROM Emp1
    -> WHERE mgr IS NOT NULL
    -> GROUP BY mgr
    -> ORDER BY num_employees DESC
    -> LIMIT 1;
+------+---------------+
| mgr  | num_employees |
+------+---------------+
|    1 |             4 |
+------+---------------+
1 row in set (0.01 sec)

mysql> CREATE VIEW EmployeeManager AS
```

```
   -> SELECT e1.ename AS Employee_Name, e2.ename AS Manager_Name
   -> FROM Emp1 e1
   -> LEFT JOIN Emp1 e2 ON e1.mgr = e2.empno;
Query OK, 0 rows affected (0.02 sec)

mysql> SET FOREIGN_KEY_CHECKS = 0;
Query OK, 0 rows affected (0.01 sec)

mysql> DELETE FROM Emp1
   -> WHERE DATEDIFF(CURDATE(), hiredate) / 365 >= 30;
Query OK, 4 rows affected (0.01 sec)

mysql> select * from Emp1;
+-------+------------+-------------+------+------------+---------+--------+--------+
| empno | ename      | job         | mgr  | hiredate   | sal     | comm   | deptno |
+-------+------------+-------------+------+------------+---------+--------+--------+
|     2 | Jane Smith | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
+-------+------------+-------------+------+------------+---------+--------+--------+
1 row in set (0.00 sec)
```

7. Using Employee Database above perform the following queries

a) Determine the names of employee, who earn more than their managers.
b) Determine the names of employees, who take highest salary in their departments.
c) Determine the employees, who are located at the same place.

d) Determine the employees, whose total salary is like the minimum Salary of any department.

e) Determine the department which does not contain any employees.

PRACTICE 7

```
mysql> SELECT e1.ename AS Employee_Name, e1.sal AS Employee_Salary, e2.ename AS
Manager_Name, e2.sal AS Manager_Salary
   -> FROM Emp1 e1
   -> JOIN Emp1 e2 ON e1.mgr = e2.empno
   -> WHERE e1.sal > e2.sal;
Empty set (0.00 sec)

mysql> INSERT INTO Emp1 (ename, job, mgr, hiredate, sal, comm, deptno)
   -> VALUES
   -> ('John Doe', 'Manager', NULL, '1990-06-15', 8000.00, 500.00, 10),
```

```
   -> ('Jane Smith', 'Salesperson', 1, '1995-04-20', 6000.00, 400.00, 10),
   -> ('Robert Brown', 'Clerk', 1, '1992-08-25', 4000.00, 200.00, 20),
   -> ('Emily Davis', 'Analyst', 1, '1988-11-30', 7000.00, 300.00, 20),
   -> ('Michael Wilson', 'Salesperson', 1, '1985-02-15', 5000.00, 250.00, 30);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> SELECT e1.ename AS Employee_Name, e1.sal AS Employee_Salary, e2.ename AS
Manager_Name, e2.sal AS Manager_Salary
   -> FROM Emp1 e1
   -> JOIN Emp1 e2 ON e1.mgr = e2.empno
   -> WHERE e1.sal > e2.sal;
Empty set (0.00 sec)

mysql> SELECT e1.ename AS Employee_Name, e1.deptno, e1.sal
   -> FROM Emp1 e1
   -> JOIN (
   ->     SELECT deptno, MAX(sal) AS max_sal
   ->     FROM Emp1
   ->     GROUP BY deptno
   -> ) e2 ON e1.deptno = e2.deptno AND e1.sal = e2.max_sal;
+---------------+--------+---------+
| Employee_Name  | deptno | sal     |
+---------------+--------+---------+
| John Doe       |     10 | 8000.00 |
| Emily Davis    |     20 | 7000.00 |
| Michael Wilson |     30 | 5000.00 |
+---------------+--------+---------+
3 rows in set (0.00 sec)

mysql> SELECT e1.ename AS Employee_Name, e1.deptno, e1.sal
   -> FROM Emp1 e1
   -> JOIN (
   ->     SELECT deptno, MAX(sal) AS max_sal
   ->     FROM Emp1
   ->     GROUP BY deptno
   -> ) e2 ON e1.deptno = e2.deptno AND e1.sal = e2.max_sal;
+---------------+--------+---------+
| Employee_Name  | deptno | sal     |
+---------------+--------+---------+
| John Doe       |     10 | 8000.00 |
| Emily Davis    |     20 | 7000.00 |
| Michael Wilson |     30 | 5000.00 |
+---------------+--------+---------+
```

```
3 rows in set (0.00 sec)

mysql> SELECT e1.ename, e1.sal
    -> FROM Emp1 e1
    -> WHERE e1.sal = (SELECT MIN(sal) FROM Emp1 GROUP BY deptno);
ERROR 1242 (21000): Subquery returns more than 1 row
mysql> SELECT e1.ename, e1.sal  from Emp1 e1 where e1.sal = (select min(sal) from Emp1 group by
deptno);
ERROR 1242 (21000): Subquery returns more than 1 row
mysql> SELECT e1.ename, e1.sal  from Emp1 e1 where e1.sal in (select min(sal) from Emp1 group by
deptno);
+----------------+---------+
| ename          | sal     |
+----------------+---------+
| Jane Smith     | 6000.00 |
| Jane Smith     | 6000.00 |
| Robert Brown   | 4000.00 |
| Michael Wilson | 5000.00 |
+----------------+---------+
4 rows in set (0.00 sec)

mysql> SELECT e1.ename, e1.sal
    -> FROM Emp1 e1
    -> WHERE e1.sal = (SELECT MIN(sal) FROM Emp1 GROUP BY deptno);
ERROR 1242 (21000): Subquery returns more than 1 row
mysql> SELECT d.deptno, d.dname
    -> FROM Dept d
    -> LEFT JOIN Emp1 e ON d.deptno = e.deptno
    -> WHERE e.empno IS NULL;
Empty set (0.00 sec)

mysql> select * from Emp1;
+-------+----------------+-------------+------+------------+---------+--------+--------+
| empno | ename          | job         | mgr  | hiredate   | sal     | comm   | deptno |
+-------+----------------+-------------+------+------------+---------+--------+--------+
|     2 | Jane Smith     | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
|     6 | John Doe       | Manager     | NULL | 1990-06-15 | 8000.00 | 500.00 |     10 |
|     7 | Jane Smith     | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
|     8 | Robert Brown   | Clerk       |    1 | 1992-08-25 | 4000.00 | 200.00 |     20 |
|     9 | Emily Davis    | Analyst     |    1 | 1988-11-30 | 7000.00 | 300.00 |     20 |
|    10 | Michael Wilson | Salesperson |    1 | 1985-02-15 | 5000.00 | 250.00 |     30 |
+-------+----------------+-------------+------+------------+---------+--------+--------+
6 rows in set (0.00 sec)
```

8. Using the tables “DEPARTMENTS” and “EMPLOYEES” above perform the following queries

a) Display the employee details, departments that the departments are same in both the emp and dept.
b) Display the employee name and Department name by implementing a left outer join.
c) Display the employee name and Department name by implementing a right outer join.
d) Display the details of those who draw the salary greater than the average salary.

PRACTICE 8

```
mysql> SELECT e.*
    -> FROM Emp1 e
    -> JOIN Dept d ON e.deptno = d.deptno;
+-------+---------------+-------------+------+------------+---------+--------+--------+
| empno | ename         | job         | mgr  | hiredate   | sal     | comm   | deptno |
+-------+---------------+-------------+------+------------+---------+--------+--------+
|     2 | Jane Smith    | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
|     6 | John Doe      | Manager     | NULL | 1990-06-15 | 8000.00 | 500.00 |     10 |
|     7 | Jane Smith    | Salesperson |    1 | 1995-04-20 | 6000.00 | 400.00 |     10 |
|     8 | Robert Brown  | Clerk       |    1 | 1992-08-25 | 4000.00 | 200.00 |     20 |
|     9 | Emily Davis   | Analyst     |    1 | 1988-11-30 | 7000.00 | 300.00 |     20 |
|    10 | Michael Wilson | Salesperson |    1 | 1985-02-15 | 5000.00 | 250.00 |     30 |
+-------+---------------+-------------+------+------------+---------+--------+--------+
6 rows in set (0.00 sec)

mysql> SELECT e.ename AS Employee_Name, d.dname AS Department_Name
    -> FROM Emp1 e
    -> LEFT JOIN Dept d ON e.deptno = d.deptno;
+---------------+-----------------+
| Employee_Name | Department_Name |
+---------------+-----------------+
| Jane Smith    | Sales           |
| John Doe      | Sales           |
| Jane Smith    | Sales           |
| Robert Brown  | Marketing       |
| Emily Davis   | Marketing       |
| Michael Wilson | HR             |
+---------------+-----------------+
6 rows in set (0.01 sec)
```

```
mysql> SELECT e.ename AS Employee_Name, d.dname AS Department_Name
   -> FROM Emp1 e
   -> RIGHT JOIN Dept d ON e.deptno = d.deptno;
+---------------+-----------------+
| Employee_Name  | Department_Name |
+---------------+-----------------+
| Jane Smith     | Sales           |
| John Doe       | Sales           |
| Jane Smith     | Sales           |
| Robert Brown   | Marketing       |
| Emily Davis    | Marketing       |
| Michael Wilson | HR              |
+---------------+-----------------+
6 rows in set (0.00 sec)

mysql> SELECT e.*
   -> FROM Emp1 e
   -> WHERE e.sal > (SELECT AVG(sal) FROM Emp1);
+-------+-------------+---------+------+------------+---------+--------+--------+
| empno | ename       | job     | mgr  | hiredate   | sal     | comm   | deptno |
+-------+-------------+---------+------+------------+---------+--------+--------+
|     6 | John Doe    | Manager | NULL | 1990-06-15 | 8000.00 | 500.00 |     10 |
|     9 | Emily Davis | Analyst |    1 | 1988-11-30 | 7000.00 | 300.00 |     20 |
+-------+-------------+---------+------+------------+---------+--------+--------+
2 rows in set (0.01 sec)

mysql>
```