Lab Assignment-3

Q. Create the required Tables

Department(Dept_No, Dept_Name)

Employee(E_ID, E_Name, Salary, Hiredate, LOC, Mgr_Eid, Job, Grade, Dept_No)

Queries and the Output of the Table

```
mysql> create table department(dept_no varchar(5) primary key, dept_name varchar(5));
Query OK, 0 rows affected (0.01 sec)

mysql> insert into department values('D1', 'CSE');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values('D2', 'IT');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values('D3', 'AI');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values('D4', 'DS');
Query OK, 1 row affected (0.00 sec)

mysql> select * from department;
+---------+-----------+
| dept_no | dept_name |
+---------+-----------+
| D1      | CSE       |
| D2      | IT        |
| D3      | AI        |
| D4      | DS        |
+---------+-----------+
4 rows in set (0.00 sec)
```

```
mysql> create table employees (eid varchar(5) primary key, ename varchar(25), salary int, hiredate date,
 loc varchar(25), mgr_eid varchar(25), job varchar(25), grade varchar(5), dept_no varchar(5), foreign ke
y(dept_no) references department(dept_no) on delete set null);
Query OK, 0 rows affected (0.01 sec)

mysql> insert into employees values('e1','Sanskriti', 50000, date'2022-06-01','loc1','mgr1','Software En
gineer','A','D1');
Query OK, 1 row affected (0.00 sec)

mysql> insert into employees values('e2','Karan', 40000, date'2022-05-01','loc2','mgr2','Hardware Engine
er','A','D2');
Query OK, 1 row affected (0.00 sec)

mysql> insert into employees values('e3','Saumya', 60000, date'2022-02-01','loc3','mgr3','Website Design
er','A','D2');
Query OK, 1 row affected (0.00 sec)

mysql> insert into employees values('e4','Atharva', 30000, date'2022-06-10','loc4','mgr4','ML Engineer',
'A','D3');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from employees;
+-----+-----------+--------+------------+------+---------+------------------+-------+---------+
| eid | ename     | salary | hiredate   | loc  | mgr_eid | job              | grade | dept_no |
+-----+-----------+--------+------------+------+---------+------------------+-------+---------+
| e1  | Sanskriti |  50000 | 2022-06-01 | loc1 | mgr1    | Software Engineer | A     | D1      |
| e2  | Karan     |  40000 | 2022-05-01 | loc2 | mgr2    | Hardware Engineer | A     | D2      |
| e3  | Saumya    |  60000 | 2022-02-01 | loc3 | mgr3    | Website Designer  | A     | D2      |
| e4  | Atharva   |  30000 | 2022-06-10 | loc4 | mgr4    | ML Engineer       | A     | D3      |
+-----+-----------+--------+------------+------+---------+------------------+-------+---------+
4 rows in set (0.00 sec)
```

SQL Queries

1. Display each employee name and hiredate of systems department.

```
mysql> select ename, hiredate from employees;
+-----------+------------+
| ename     | hiredate   |
+-----------+------------+
| Sanskriti | 2022-06-01 |
| Karan     | 2022-05-01 |
| Saumya    | 2022-02-01 |
| Atharva   | 2022-06-10 |
+-----------+------------+
4 rows in set (0.00 sec)
```

2.Write query to calculate length of service of each employee.

```
mysql> select date_format(curdate(), '%Y') - date_format(hiredate, '%Y') as years, date_format(curdate()
, '%m') - date_format(hiredate, '%m') as months, date_format(curdate(), '%d') - date_format(hiredate, '%
d') as days from employees;
+-------+--------+------+
| years | months | days |
+-------+--------+------+
|     1 |      2 |   11 |
|     1 |      3 |   11 |
|     1 |      6 |   11 |
|     1 |      2 |    2 |
+-------+--------+------+
4 rows in set (0.00 sec)
```

3. Find the second maximum salary of all employees.

```
mysql> select salary from employees order by salary desc limit 1,1;
+--------+
| salary |
+--------+
|  50000 |
+--------+
1 row in set (0.00 sec)
```

4.Display all employee name and department name in department name order.

```
mysql> select ename, dept_name from employees, department where department.dept_no=employees.dept_no ord
er by dept_name;
+-----------+-----------+
| ename     | dept_name |
+-----------+-----------+
| Atharva   | AI        |
| Sanskriti | CSE       |
| Karan     | IT        |
| Saumya    | IT        |
+-----------+-----------+
4 rows in set (0.00 sec)
```

5.Find the name of lowest paid employee for each manager.

```
mysql> select mgr_eid, min(salary) from employees where mgr_eid is not null group by mgr_eid order by m
n(salary) desc;
+---------+-------------+
| mgr_eid | min(salary) |
+---------+-------------+
| mgr3    |       60000 |
| mgr1    |       50000 |
| mgr2    |       40000 |
| mgr4    |       30000 |
+---------+-------------+
4 rows in set (0.00 sec)
```

6.Display the department that has no employee.

```
mysql> select * from department where dept_no not in(select dept_no from employees);
+---------+-----------+
| dept_no | dept_name |
+---------+-----------+
| D4      | DS        |
+---------+-----------+
1 row in set (0.00 sec)
```

7.Find the employees who earn the maximum salary in each job type. Sort in descending order of salary.

```
mysql> SELECT e.job, e.ename, e.salary
    -> FROM employees e
    -> JOIN (
    ->     SELECT job, MAX(salary) as max_salary
    ->     FROM employees
    ->     GROUP BY job
    -> ) max_salaries
    -> ON e.job = max_salaries.job AND e.salary = max_salaries.max_salary
    -> ORDER BY e.salary DESC;
+-------------------+-----------+--------+
| job               | ename     | salary |
+-------------------+-----------+--------+
| Website Designer  | Saumya    |  60000 |
| Software Engineer | Sanskriti |  50000 |
| Hardware Engineer | Karan     |  40000 |
| ML Engineer       | Atharva   |  30000 |
+-------------------+-----------+--------+
4 rows in set (0.00 sec)
```

8.In which year did most people joined the company? Display the year and number of employees.

```
mysql> SELECT YEAR(Hiredate) AS JoinYear, COUNT(*) AS NumEmployees
    -> FROM Employees
    -> GROUP BY JoinYear
    -> ORDER BY NumEmployees DESC
    -> LIMIT 1;
+----------+--------------+
| JoinYear | NumEmployees |
+----------+--------------+
|     2022 |            4 |
+----------+--------------+
1 row in set (0.00 sec)
```

9.Display the details of those employees who earn greater than average of their department.

```
mysql> select dept_no, job as dept_name, ename, salary from employees e where salary > (select avg(Salar
y) from employees where employees.dept_no = dept_no) order by dept_no;
+---------+------------------+-----------+--------+
| dept_no | dept_name        | ename     | salary |
+---------+------------------+-----------+--------+
| D1      | Software Engineer | Sanskriti |  50000 |
| D2      | Website Designer  | Saumya    |  60000 |
+---------+------------------+-----------+--------+
2 rows in set (0.00 sec)
```

10.List the employees having salary between 10000 and 20000

```
mysql> select * from employees where salary between 40000 and 60000;
+-----+-----------+--------+------------+------+---------+------------------+-------+---------+
| eid | ename     | salary | hiredate   | loc  | mgr_eid | job              | grade | dept_no |
+-----+-----------+--------+------------+------+---------+------------------+-------+---------+
| e1  | Sanskriti |  50000 | 2022-06-01 | loc1 | mgr1    | Software Engineer | A     | D1      |
| e2  | Karan     |  40000 | 2022-05-01 | loc2 | mgr2    | Hardware Engineer | A     | D2      |
| e3  | Saumya    |  60000 | 2022-02-01 | loc3 | mgr3    | Website Designer  | A     | D2      |
+-----+-----------+--------+------------+------+---------+------------------+-------+---------+
3 rows in set (0.00 sec)
```

11.Display all employees hired during 1983. those employees who earn greater than average of their department.

```
mysql> SELECT eid, ename, salary, hiredate, LOC, Mgr_Eid, Job, Grade, Dept_No
    -> FROM Employees
    -> WHERE YEAR(Hiredate) = 1983
    -> AND Salary > (
    ->     SELECT AVG(Salary)
    ->     FROM Employees AS subquery
    ->     WHERE subquery.Dept_No = Employees.Dept_No
    -> );
Empty set (0.00 sec)
```

12.Update the salaries of all employees in marketing department & hike it by 15%.

```
mysql> update employees set salary=salary+(0.15*salary) where job='Software Engineer'; select * from emp
loyees where job='Software Engineer';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

+-----+----------+--------+------------+------+---------+------------------+-------+---------+
| eid | ename    | salary | hiredate   | loc  | mgr_eid | job              | grade | dept_no |
+-----+----------+--------+------------+------+---------+------------------+-------+---------+
| e1  | Sanskriti |  57500 | 2022-06-01 | loc1 | mgr1    | Software Engineer | A     | D1      |
+-----+----------+--------+------------+------+---------+------------------+-------+---------+
1 row in set (0.00 sec)
```

13.Get the gross salaries of all the employees.

```
mysql> select 2.5*salary from employees as gross_salary;
+-------------+
| 2.5*salary |
+-------------+
|   143750.0 |
|   100000.0 |
|   150000.0 |
|    75000.0 |
+-------------+
4 rows in set (0.00 sec)
```

14.Get the names of employees and their manager's name.

```
mysql> SELECT E.ename AS EmployeeName, M.ename AS ManagerName
    -> FROM Employees E
    -> LEFT JOIN Employees M ON E.Mgr_Eid = M.eid;
+--------------+-------------+
| EmployeeName | ManagerName |
+--------------+-------------+
| Sanskriti    | NULL        |
| Karan        | NULL        |
| Saumya       | NULL        |
| Atharva      | NULL        |
+--------------+-------------+
4 rows in set (0.00 sec)
```

15.Display the name, location and department name of all the employees earning more than 1500.

```
mysql> select ename, loc, dept_name from department, employees where department.dept_no=employees.dept_n
o and salary>1500;
+-----------+------+-----------+
| ename     | loc  | dept_name |
+-----------+------+-----------+
| Sanskriti | loc1 | CSE       |
| Karan     | loc2 | IT        |
| Saumya    | loc3 | IT        |
| Atharva   | loc4 | AI        |
+-----------+------+-----------+
4 rows in set (0.00 sec)
```

16.Show all the employees in LOC1.

```
mysql> select ename from employees where loc='loc1';
+------------+
| ename      |
+------------+
| Sanskriti  |
+------------+
1 row in set (0.00 sec)
```

17.List the employees name, job, salary, grade, and department for employees in the company except clerks. Sort on employee names.

```
mysql> select ename, job, salary, grade, dept_name from department, employees where department.dept_no=e
mployees.dept_no and job!='Clerk' order by ename;
+-----------+-------------------+--------+-------+-----------+
| ename     | job               | salary | grade | dept_name |
+-----------+-------------------+--------+-------+-----------+
| Atharva   | ML Engineer       |  30000 | A     | AI        |
| Karan     | Hardware Engineer |  40000 | A     | IT        |
| Sanskriti | Software Engineer |  57500 | A     | CSE       |
| Saumya    | Website Designer  |  60000 | A     | IT        |
+-----------+-------------------+--------+-------+-----------+
4 rows in set (0.00 sec)
```

18.Find the employees who earns the minimum salary for their job. Sort in descending order of salary.

```
mysql> select * from employees where salary in (select min(salary) from employees group by job) order by
 salary desc;
+-----+-----------+--------+------------+------+---------+-------------------+-------+---------+
| eid | ename     | salary | hiredate   | loc  | mgr_eid | job               | grade | dept_no |
+-----+-----------+--------+------------+------+---------+-------------------+-------+---------+
| e3  | Saumya    |  60000 | 2022-02-01 | loc3 | mgr3    | Website Designer  | A     | D2      |
| e1  | Sanskriti |  57500 | 2022-06-01 | loc1 | mgr1    | Software Engineer | A     | D1      |
| e2  | Karan     |  40000 | 2022-05-01 | loc2 | mgr2    | Hardware Engineer | A     | D2      |
| e4  | Atharva   |  30000 | 2022-06-10 | loc4 | mgr4    | ML Engineer       | A     | D3      |
+-----+-----------+--------+------------+------+---------+-------------------+-------+---------+
4 rows in set (0.00 sec)
```

19.Find the most recently hired employees in the department order by hiredate.

```
mysql> select * from employees e where hiredate in (select max(hiredate) from employees where e.dept_no
= dept_no) order by hiredate desc;
+-----+-----------+--------+------------+------+---------+-------------------+-------+---------+
| eid | ename     | salary | hiredate   | loc  | mgr_eid | job               | grade | dept_no |
+-----+-----------+--------+------------+------+---------+-------------------+-------+---------+
| e4  | Atharva   |  30000 | 2022-06-10 | loc4 | mgr4    | ML Engineer       | A     | D3      |
| e1  | Sanskriti |  57500 | 2022-06-01 | loc1 | mgr1    | Software Engineer | A     | D1      |
| e2  | Karan     |  40000 | 2022-05-01 | loc2 | mgr2    | Hardware Engineer | A     | D2      |
+-----+-----------+--------+------------+------+---------+-------------------+-------+---------+
3 rows in set (0.00 sec)
```

20.Find out the difference between highest and lowest salaries.

```
mysql> select max(salary) - min(salary) difference from employees;
+------------+
| difference |
+------------+
|      30000 |
+------------+
1 row in set (0.00 sec)
```