# SQL Assignment 3 (KRUTHIKA K J)

## Table 1: Employees

| EmployeeID | FirstName | LastName | Department ID | HireDate | Salary |
|---|---|---|---|---|---|
| 101 | Alice | Johnson | 1 | 2022-01-15 | 75000 |
| 102 | Bob | Smith | 2 | 2021-06-20 | 62000 |
| 103 | Charlie | Davis | 1 | 2023-03-10 | 58000 |
| 104 | Diana | Prince | 3 | 2020-11-05 | 90000 |
| 105 | Ethan | Hunt | 2 | 2022-08-25 | 64000 |

## Table 2: Departments

| DepartmentID | DeptName | Location |
|---|---|---|
| 1 | Engineering | New York |
| 2 | Marketing | Chicago |
| 3 | Executive | San Francisco |
| 4 | Sales | Austin |

## Table 3: Projects

| ProjectID | ProjectName | LeadEmployeeID | Budget | Status |
|---|---|---|---|---|
| 501 | Alpha Tech | 101 | 150000 | Active |
| 502 | Beta Cloud | 104 | 300000 | Active |
| 503 | Gamma SEO | 102 | 50000 | Completed |
| 504 | Delta Mobile | 101 | 80000 | Pending |

## Problems

1. List all columns for all employees in the 'Engineering' department (DepartmentID = 1).
   **select * from employees where DepartmentID=1**

| employeeid [PK] integer | firstname character varying (50) | lastname character varying (50) | departmentid integer | hiredate date | salary numeric (10,2) |
|---|---|---|---|---|---|
| 101 | Alice | Johnson | 1 | 2022-01-... | 75000.00 |
| 103 | Charlie | Davis | 1 | 2023-03-... | 58000.00 |

2. Find the names of all departments located in 'Chicago'.
   **select * from departments where location='Chicago'**

| departmentid [PK] integer | deptname character varying (50) | location character varying (50) |
|---|---|---|
| 2 | Marketing | Chicago |

3. Show the total number of projects currently marked as 'Active'.
   **select count(*) as active_status from Projects**
   **where status= 'Active';**

| active_status bigint |
|---|
| 2 |

4. List the unique last names of all employees, sorted alphabetically.
   **select distinct lastname from employees order by lastname asc;**

| lastname character varying (50) |
|---|
| Davis |
| Hunt |
| Johnson |
| Prince |
| Smith |

5. Retrieve the FirstName and LastName of employees who earn more than $65,000 and were hired after January 1st, 2021.
   **select CONCAT(firstname, ' ', lastname) AS full_name from employees where salary>65000**
   **and HireDate>'2021-01-01'**

| full_name text |
|---|
| Alice Johns... |

6. Calculate the average salary for each department; display the DepartmentID and the average salary.
   **select DepartmentID, avg(salary) as avg_salry from employees**
   **group by DepartmentID**

| departmentid integer | avg_salry numeric |
|---|---|
| 3 | 90000.000000000000 |
| 2 | 63000.000000000000 |
| 1 | 66500.000000000000 |

7. List the ProjectName and the lead employee's FirstName by joining the Projects and Employees tables.
   **select p.projectname,e.firstname from projects p join employees e**
   **on p.LeadEmployeeID=e.EmployeeID**

| projectname character varying (100) | firstname character varying (50) |
|---|---|
| Alpha Tech | Alice |
| Beta Cloud | Diana |
| Gamma SEO | Bob |
| Delta Mobile | Alice |

8. Find all employees who are not currently leading any project.
   **select  EmployeeID,FirstName from employees where**
   **employeeid not in(select  LeadEmployeeID from projects)**

| employeeid [PK] integer | firstname character varying (50) |
|---|---|
| 103 | Charlie |
| 105 | Ethan |

9. Show the names of departments that have no employees assigned to them.
   **select  departmentID,deptName from departments where**
   **departmentid not in(select DepartmentID from employees)**

| departmentid [PK] integer | deptname character varying (50) |
|---|---|
| 4 | Sales |

10. Find the employee(s) with the highest salary and display their full name and salary amount.

```
select CONCAT(firstname, ' ', lastname) AS full_name,salary from employees
group by full_name,salary
order by salary desc limit 1;
```

| full_name text | salary numeric (10,2) |
|---|---|
| Diana Prin... | 90000.00 |

11. Calculate the total budget for all projects led by employees in the 'Engineering' department.
Select sum(p.budget),

```
select sum(p.Budget) AS Total_budget ,e.DepartmentID from Projects p join
Employeese
ON p.LeadEmployeeID = e.EmployeeID join Departments d ON e.DepartmentID
=d.DepartmentID where d.DeptName = 'Engineering'
group by e.DepartmentID;
```

| total_budget numeric | departmentid integer |
|---|---|
| 230000.00 | 1 |

12. List all departments that have more than one employee, along with the count of employees in each.

```
select d.DeptName, COUNT(e.EmployeeID) AS EmployeeCount from Departments d
join Employees e ON d.DepartmentID = e.DepartmentID group by d.DeptName
having count(e.EmployeeID) > 1;
```

| deptname character varying (50) | employeecount bigint |
|---|---|
| Marketing | 2 |
| Engineering | 2 |