Assignment 1 – Part 3: SQL

Question 1

List all Employees whose salary is between **1,000 AND 2,000**. Show the **Employee Name, Department and Salary**

Query:

```sql
/*1*/
SELECT EMP.ENAME AS Employee_Name, DEPT.DNAME AS Department, EMP.SAL AS Salary FROM EMP
JOIN DEPT ON EMP.DEPTNO = DEPT.DEPTNO
WHERE EMP.SAL >= 1000 AND EMP.SAL <= 2000;
```

Description:

The data for this question is located in the employee (EMP) table and the department (DEPT) tables.

A join clause is used to combine rows where the employee department number equals the department number.

A where clause is used to filter the selection so that only employees with a salary in the specified range is selected.

I have assumed that when the question asks to list the department, it means the department name.

All my SQL can be found in the file queries.sql on codio.

Results:

```
+---------------+------------+---------+
| Employee_Name | Department | Salary  |
+---------------+------------+---------+
| ALLEN         | SALES      | 1600.00 |
| WARD          | SALES      | 1250.00 |
| MARTIN        | SALES      | 1250.00 |
| TURNER        | SALES      | 1500.00 |
| ADAMS         | RESEARCH   | 1100.00 |
| MILLER        | ACCOUNTING | 1300.00 |
+---------------+------------+---------+
6 rows in set (0.000 sec)
```

Question 1 Alternative

Query:

```
/*1 Alternative*/
SELECT EMP.ENAME AS Employee_Name, DEPT.DNAME AS Department, EMP.SAL AS Salary FROM EMP
JOIN DEPT ON EMP.DEPTNO = DEPT.DEPTNO
WHERE EMP.SAL BETWEEN 1000 AND 2000;
```

Description:

In this alternative, I make use of the BETWEEN operator in the WHERE clause. The result is the same.

Question 2

Count the number of people in department **30** who receive a salary and the number of people who receive a commission

Query:

```
/*2*/
SELECT  sal.* , com.* FROM
(SELECT COUNT(*) AS Employees_On_Salary FROM EMP WHERE DEPTNO = 30 AND SAL IS NOT NULL) AS sal,
(SELECT COUNT(*) AS Employees_On_Commision FROM EMP WHERE DEPTNO = 30 AND COMM IS NOT NULL) AS com;
```

Description:

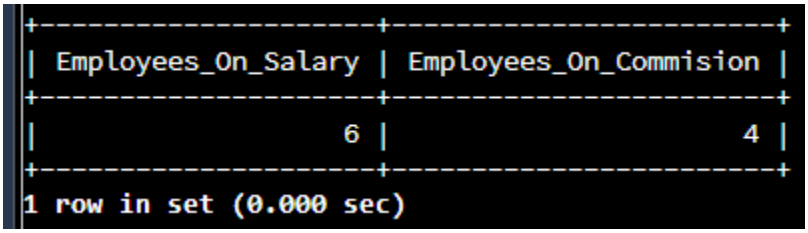
For this question I use the COUNT function to select the number of employees with the department number 30.

I also use the COUNT function to select the number of employees in dept 30 that are on commission. By using a where clause which checks that the commission row is not empty (NULL), I verify that an employee takes home a commission.

I have assumed that an employee who has a commission that is not null receives a commission, this includes people who are due a commission but the commission value is 0.00.

I use the SQL AS command to create two aliases for tables that I combine to create the final result.

Results:



```
+---------------------+-------------------------+
| Employees_On_Salary | Employees_On_Commision |
+---------------------+-------------------------+
|                   6 |                       4 |
+---------------------+-------------------------+
1 row in set (0.000 sec)
```

Question 3

Find the name and salary of employees in **Dallas**

Query:

```
/*3*/
SELECT EMP.ENAME AS Employee_Name, EMP.SAL AS Salary FROM EMP
JOIN DEPT ON DEPT.DEPTNO = EMP.DEPTNO
WHERE DEPT.LOC = "DALLAS";
```

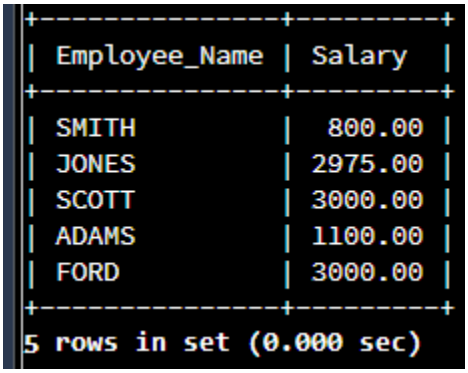
Description:

The data for this question is located in the employee (EMP) table and the department (DEPT) table.

I use a JOIN to combine data from the two tables WHERE the employee department number equals the departments department number.

A WHERE clause is used to filter the rows so that only employees in the department names “DALLAS” are selected.

Results:



Employee_Name	Salary
SMITH	800.00
JONES	2975.00
SCOTT	3000.00
ADAMS	1100.00
FORD	3000.00

5 rows in set (0.000 sec)

Question 3 Alternative

Find the name and salary of employees in **Dallas**

Query:

```
/*3 Alternative*/
SELECT EMP.ENAME AS Employee_Name, EMP.SAL AS Salary FROM EMP
WHERE EMP.DEPTNO IN (SELECT DEPT.DEPTNO FROM DEPT WHERE DEPT.LOC = "DALLAS");
```

Description:

In this alternative I make use of a nested select statement as an alternative to the JOIN and WHERE filter.

I select all the departments with the location “DALLAS” then I select all the employees that have a department number returned from that sub query. The result is the same.

Question 4

List all departments that **do not have any employees**

Query:

```
/*4*/
SELECT DNAME AS Departments_With_No_Employees FROM DEPT
WHERE DEPTNO NOT IN (SELECT DEPTNO FROM EMP);
```

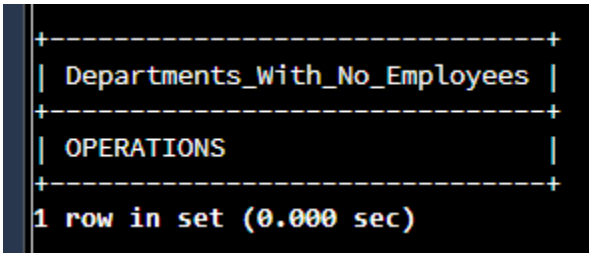
Description:

I use two selects to make this query.

In the first select I select all the department numbers that are assigned to the employees.

Next, I select the name of the departments where the department name was not in the first selection. As such I filter out the departments that have employees.

Results:



Question 5

List the department number and average salary of each department

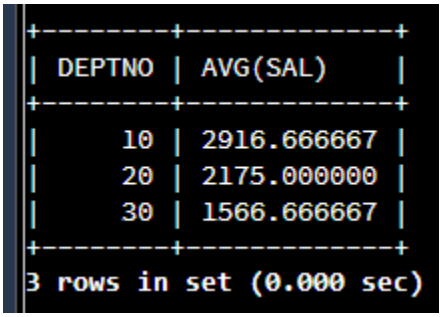
Query:

```
/*5*/
SELECT DEPTNO, AVG(SAL) FROM EMP GROUP BY DEPTNO;
```

Description:

For this query, I use the GROUP by function to group all the employees by department number. Then I use the AVG function to find the average salary for each group.

Results:



```
+--------+-------------+
| DEPTNO | AVG(SAL)    |
+--------+-------------+
|     10 | 2916.666667 |
|     20 | 2175.000000 |
|     30 | 1566.666667 |
+--------+-------------+
3 rows in set (0.000 sec)
```

Question 5 Alternative

List the department number and average salary of each department

Query:

```
/*5 Alternative*/
SELECT EMP.DEPTNO, DEPT.DNAME, AVG(EMP.SAL) FROM EMP
JOIN DEPT ON DEPT.DEPTNO = EMP.DEPTNO GROUP BY DEPTNO;
```

Description:

In this alternative I also select the department name, as this may help make the results easier to read. This was not in the question so I left it as an alternative.

Result:

```
+--------+------------+--------------+
| DEPTNO | DNAME      | AVG(EMP.SAL) |
+--------+------------+--------------+
|     10 | ACCOUNTING |  2916.666667 |
|     20 | RESEARCH   |  2175.000000 |
|     30 | SALES      |  1566.666667 |
+--------+------------+--------------+
3 rows in set (0.000 sec)
```