WEEK 6 PAPER 1

Large-Scale Data Storage Systems – DATA-5400 | Spring 2020

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Given the following two tables, the specified SQL queries should be noted down. I have tried SQL before but needed to activate my knowledge about it using the provided online sources. Also, I felt more comfortable checking my assumptions in a real database. For that I experimented with a free online SQL tool (https://paiza.io/). Please note that in using this software, it was not necessary to capitalize the keywords. Thus, in this exercise, I have omitted this notation.

Employees table - Contains a list of employees

ID	FirstName	LastName	Age	Dept_number	City	State	Salary
1	John	Smith	45	100	Chicago	IL	1000
2	Jane	Doe	25	100	Phoenix	AZ	5000
3	Mary	Smith	40	200	Chicago	IL	2500
4	George	Edwards	50	300	Phoenix	AZ	3000

Departments table - Contains a list of Departments in the company

Dept_number	Dept_Name
100	HR
200	IT
300	Accounting

Creating and displaying the employees table:

```
create table employees_table(id integer, FirstName text, LastName text, Age integer, Dept_number integer, City text, State text, Salary integer);
insert into employees_table values (1, "John", "Smith", 45, 100, "Chicago", "IL", 1000);
insert into employees_table values (2, "Jane", "Doe", 25, 100, "Phoenix", "AZ", 5000);
insert into employees_table values (3, "Mary", "Smith", 40, 200, "Chicago", "IL", 2500);
insert into employees_table values (4, "George", "Edwards", 50, 300, "Phoenix", "AZ", 3000);
select * from employees_table;
```

Creating and displaying the departments table:

```
create table departments_table(Dept_number integer, Dept_name text);
insert into departments_table values(100, "HR");
insert into departments_table values(200, "IT");
insert into departments_table values(300, "Accounting");
select * from departments_table;
```

1. Display the first name, last name, department name and age of all employees. Note you must display the Department Name and not the department number.

```
select FirstName, LastName, Dept_name, Age from employees_table, departments_table
where employees_table.Dept_number=departments_table.Dept_number;
```

John	Smith	HR	45
Jane	Doe	HR	25
Mary	Smith	IT	40
George	Edwards	Accounting	50

   - Display the same information ordered by Last Name

```
select FirstName, LastName, Dept_name, Age from employees_table, departments_table
where employees_table.Dept_number=departments_table.Dept_number order by
employees_table.LastName;
```

Jane	Doe	HR	25
George	Edwards	Accounting	50
John	Smith	HR	45
Mary	Smith	IT	40

   - Display the information in decreasing order of Age

```
select FirstName, LastName, Dept_name, Age from employees_table, departments_table
where employees_table.Dept_number=departments_table.Dept_number order by
employees_table.Age desc;
```

George	Edwards	Accounting	50
John	Smith	HR	45
Mary	Smith	IT	40
Jane	Doe	HR	25

2. Display all details for employees that are not from Chicago

```
select * from employees_table where City != "Chicago";
```

2	Jane	Doe	25	100	Phoenix	AZ	5000
4	George	Edwards	50	300	Phoenix	AZ	3000

3. Display all details for employees with age 40 or over

```
select * from employees_table where Age > 40;
```

```
1    John    Smith    45    100    Chicago    IL    1000
4    George  Edwards  50    300    Phoenix    AZ    3000
```

4. Calculate and display the total salary of all employees

```
select Sum(Salary) from employees_table;
```

```
11500
```

5. Add a new employee with the following information:
    - FirstName: Jane
    - LastName: Smith
    - Age: 45
    - Department: Accounting
    - City: Chicago
    - State: IL
    - Salary: 5000

```
insert into employees_table values (5, "Jane", "Smith", 45, 300, "Chicago", "IL",
5000);
select * from employees_table;
```

```
1    John    Smith    45    100    Chicago    IL    1000
2    Jane    Doe      25    100    Phoenix    AZ    5000
3    Mary    Smith    40    200    Chicago    IL    2500
4    George  Edwards  50    300    Phoenix    AZ    3000
5    Jane    Smith    45    300    Chicago    IL    5000
```

6. Increase the salary of John Smith by $2000. Note that this is to add-to and not to replace the existing salary amount.

```
update employees_table
set Salary = Salary + 2000
where FirstName="John" and LastName="Smith";
select * from employees_table;
```

```
1    John    Smith    45    100    Chicago    IL    3000
```

2	Jane	Doe	25	100	Phoenix	AZ	5000
3	Mary	Smith	40	200	Chicago	IL	2500
4	George	Edwards	50	300	Phoenix	AZ	3000
5	Jane	Smith	45	300	Chicago	IL	5000

7. Compute and display the total salary by City

```
select State, Sum(Salary)
from employees_table
group by State;
```

AZ	8000
IL	10500