CS 457 - Homework Assignment 5: SQL

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Part 1:

Create Table Queries

```
CREATE TABLE employee_attr_1(
   EmployeeNumber           INTEGER  NOT NULL PRIMARY KEY
  ,Age                      INTEGER  NOT NULL
  ,BusinessTravel           VARCHAR(17) NOT NULL
  ,DailyRate                INTEGER  NOT NULL
  ,Department               VARCHAR(22) NOT NULL
  ,DistanceFromHome         INTEGER  NOT NULL
  ,Education                INTEGER  NOT NULL
  ,EducationField           VARCHAR(16) NOT NULL
  ,EnvironmentSatisfaction  INTEGER  NOT NULL
  ,Gender                   VARCHAR(6) NOT NULL
  ,HourlyRate               INTEGER  NOT NULL
  ,JobInvolvement           INTEGER  NOT NULL
  ,JobLevel                 INTEGER  NOT NULL
  ,JobRole                  VARCHAR(25) NOT NULL
  ,JobSatisfaction          INTEGER  NOT NULL
  ,MaritalStatus            VARCHAR(8) NOT NULL
  ,MonthlyIncome            INTEGER  NOT NULL
  ,MonthlyRate              INTEGER  NOT NULL
  ,NumCompaniesWorked       INTEGER  NOT NULL
  ,PercentSalaryHike        INTEGER  NOT NULL
  ,PerformanceRating        INTEGER  NOT NULL
  ,RelationshipSatisfaction INTEGER  NOT NULL
  ,StandardHours            INTEGER  NOT NULL
  ,StockOptionLevel         INTEGER  NOT NULL
  ,TotalWorkingYears        INTEGER  NOT NULL
  ,TrainingTimesLastYear    INTEGER  NOT NULL
  ,WorkLifeBalance          INTEGER  NOT NULL
  ,YearsAtCompany           INTEGER  NOT NULL
  ,YearsInCurrentRole       INTEGER  NOT NULL
  ,YearsSinceLastPromotion  INTEGER  NOT NULL
  ,YearsWithCurrManager     INTEGER  NOT NULL
);
CREATE TABLE employee_attr_2(
   EmployeeNumber INTEGER  NOT NULL PRIMARY KEY
  ,Over18         VARCHAR(1) NOT NULL
  ,OverTime       VARCHAR(3) NOT NULL
  ,Attrition      VARCHAR(3) NOT NULL
);
```

Query Tasks

1. the count of total number of records in the table

```
SELECT COUNT(*) FROM employee_attr_1
```

Data Output | Explain | Messages | Notifications

	count bigint
1	1470

2. the count of records for each JobRole in descending order of count

```
SELECT jobrole AS jobrole, COUNT(*) AS count FROM employee_attr_1 GROUP BY jobrole ORDER BY count DESC
```

Data Output | Explain | Messages | Notifications

	jobrole character varying (25)	count bigint
1	Sales Executive	326
2	Research Scientist	292
3	Laboratory Technician	259
4	Manufacturing Director	145
5	Healthcare Representative	131
6	Manager	102
7	Sales Representative	83
8	Research Director	80
9	Human Resources	52

3. the average MonthlyIncome and PercentSalaryHike for each JobRole in ascending order of JobRole

```
-- SELECT jobrole AS jobrole, COUNT(*) AS count FROM employee_attr_1 GROUP
SELECT jobrole,
AVG(monthlyincome) AS avgmonthlyincome,
AVG(percentsalaryhike) as avgpercentsalaryhike
FROM employee_attr_1 GROUP BY jobrole ORDER BY jobrole ASC;
```

Data Output | Explain | Messages | Notifications

	jobrole character varying (25)	avgmonthlyincome numeric	avgpercentsalaryhike numeric
1	Healthcare Representative	7528.7633587786259542	15.4503816793893130
2	Human Resources	4235.7500000000000000	14.8076923076923077
3	Laboratory Technician	3237.1698841698841699	15.0463320463320463
4	Manager	17181.676470588235	15.1372549019607843
5	Manufacturing Director	7295.1379310344827586	15.5931034482758621
6	Research Director	16033.550000000000	14.9500000000000000
7	Research Scientist	3239.9726027397260274	15.4486301369863014
8	Sales Executive	6924.279141104294785	14.8895705521472393
9	Sales Representative	2626.0000000000000000	15.6746987951807229

4. the average JobSatisfaction for each Gender and MaritalStatus

```
41 -- SELECT * FROM employee_attr_1
42 -- SELECT jobrole AS jobrole, COUNT(*) AS count FROM employee_attr_1 GROUP BY jobrole ORDER BY count DESC
43 select maritalstatus ,gender, AVG(jobsatisfaction) from employee_attr_1 group by maritalstatus ,gender
44
```

Data Output | Explain | Messages | Notifications

	maritalstatus character varying (8)	gender character varying (6)	avg numeric
1	Married	Female	2.6838235294117647
2	Divorced	Female	2.5299145299145299
3	Single	Female	2.7738693467336683
4	Single	Male	2.7638376383763838
5	Married	Male	2.7381546134663342
6	Divorced	Male	2.7904761904761905

5. the range (Min and Max) of Age and HourlyRate for each JobRole

```
45 select jobrole,
46 CONCAT_WS('- ', min(age), max(age)) as age_range,
47 CONCAT_WS('- ', min(hourlyrate), max(hourlyrate)) as hourly_rate_range
48 from employee_attr_1 group by jobrole
49
```

Data Output | Explain | Messages | Notifications

	jobrole character varying (25)	age_range text	hourly_rate_range text
1	Manager	30- 60	30- 99
2	Research Scientist	18- 59	30- 100
3	Healthcare Representative	24- 60	30- 100
4	Human Resources	19- 59	31- 100
5	Laboratory Technician	18- 59	30- 100
6	Manufacturing Director	22- 59	30- 100
7	Sales Representative	18- 53	30- 100
8	Sales Executive	24- 60	30- 100
9	Research Director	27- 58	30- 99

6. Join two tables for EmployeeAttrition1.csv and EmployeeAttrition2.csv and display 20 records with the following columns

```
51 select e1.EmployeeNumber, e1.Age, e1.Gender, e1.JobRole, e2.OverTime, e2.Attrition
52 from employee_attr_1 as e1
53 inner join employee_attr_2 as e2
54 on e1.employeenumber=e2.employeenumber LIMIT 20;
55
```

Data Output | Explain | Messages | Notifications

	employeenumber integer	age integer	gender character varying (6)	jobrole character varying (25)	overtime character varying (3)	attrition character varying (3)
1	1	41	Female	Sales Executive	Yes	Yes
2	2	49	Male	Research Scientist	No	No
3	4	37	Male	Laboratory Technician	Yes	Yes
4	5	33	Female	Research Scientist	Yes	No
5	7	27	Male	Laboratory Technician	No	No
6	8	32	Male	Laboratory Technician	No	No
7	10	59	Female	Laboratory Technician	Yes	No
8	11	30	Male	Laboratory Technician	No	No
9	12	38	Male	Manufacturing Director	No	No
10	13	36	Male	Healthcare Representative	No	No
11	14	35	Male	Laboratory Technician	No	No
12	15	29	Female	Laboratory Technician	Yes	No
13	16	31	Male	Research Scientist	No	No
14	18	34	Male	Laboratory Technician	No	No
15	19	28	Male	Laboratory Technician	Yes	Yes
16	20	29	Female	Manufacturing Director	No	No
17	21	32	Male	Research Scientist	Yes	No
18	22	22	Male	Laboratory Technician	Yes	No
19	23	53	Female	Manager	No	No
20	24	38	Male	Research Scientist	Yes	No