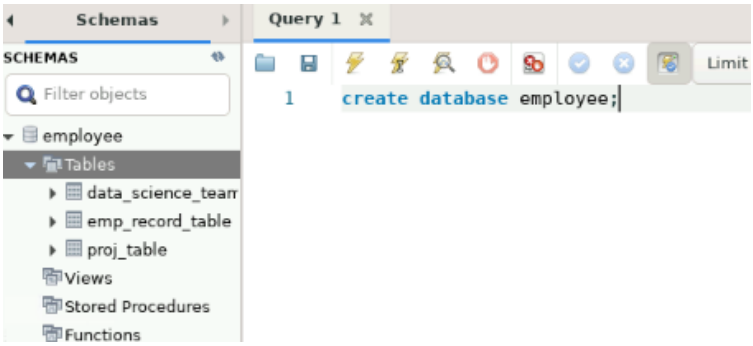
Reuof alqahtani

Employee Performance Mapping

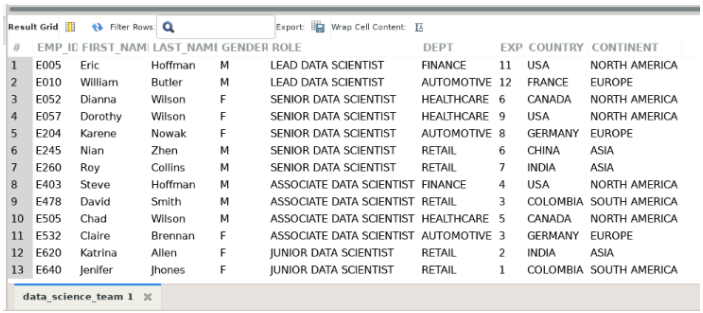
1. Create a database named employee, then import **data_science_team.csv proj_table.csv** and **emp_record_table.csv** i nto the **employee** database from the given resources.

   SQL Code :

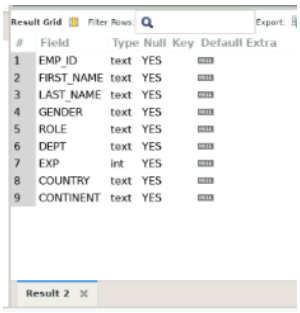
   create database employee;



   select * from employee.data_science_team;
   describe employee.data_science_team;

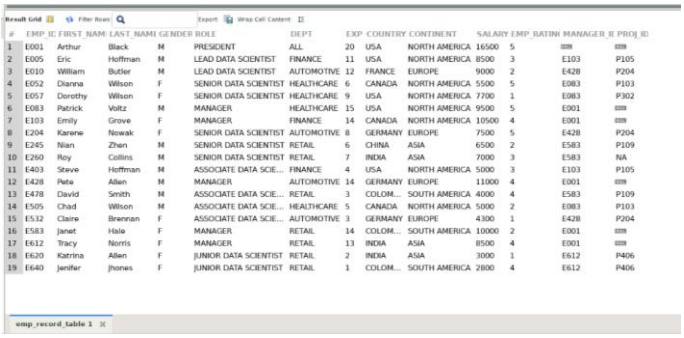


#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT
1	E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA
2	E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE
3	E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA
4	E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA
5	E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE
6	E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA
7	E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA
8	E403	Steve	Hoffman	M	ASSOCIATE DATA SCIENTIST	FINANCE	4	USA	NORTH AMERICA
9	E478	David	Smith	M	ASSOCIATE DATA SCIENTIST	RETAIL	3	COLOMBIA	SOUTH AMERICA
10	E505	Chad	Wilson	M	ASSOCIATE DATA SCIENTIST	HEALTHCARE	5	CANADA	NORTH AMERICA
11	E532	Claire	Brennan	F	ASSOCIATE DATA SCIENTIST	AUTOMOTIVE	3	GERMANY	EUROPE
12	E620	Katrina	Allen	F	JUNIOR DATA SCIENTIST	RETAIL	2	INDIA	ASIA
13	E640	Jenifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA

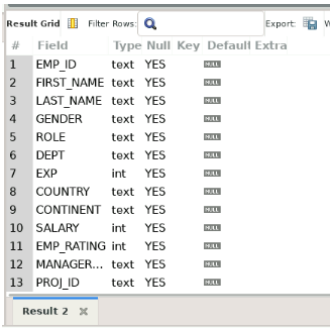


#	Field	Type	Null	Key	Default	Extra
1	EMP_ID	text	YES			
2	FIRST_NAME	text	YES			
3	LAST_NAME	text	YES			
4	GENDER	text	YES			
5	ROLE	text	YES			
6	DEPT	text	YES			
7	EXP	int	YES			
8	COUNTRY	text	YES			
9	CONTINENT	text	YES			

   select * from employee.emp_record_table;
   describe employee.emp_record_table;

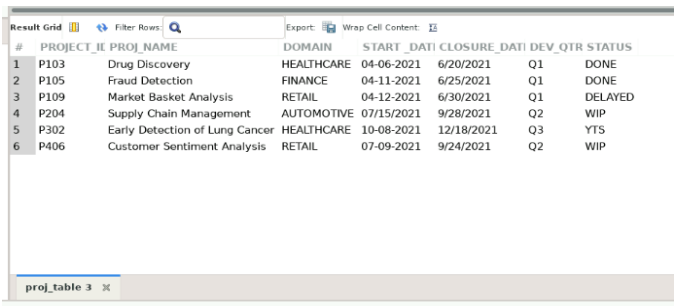


#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID
1	E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5		
2	E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105
3	E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2	E428	P204
4	E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA	5500	5	E083	P103
5	E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA	7700	1	E083	P302
6	E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5	E001	
7	E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4	E001	
8	E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5	E428	P204
9	E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA	6500	2	E583	P109
10	E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA	7000	3	E583	NA
11	E403	Steve	Hoffman	M	ASSOCIATE DATA SCIE...	FINANCE	4	USA	NORTH AMERICA	5000	3	E103	P105
12	E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4	E001	
13	E478	David	Smith	M	ASSOCIATE DATA SCIE...	RETAIL	3	COLOM...	SOUTH AMERICA	4000	4	E583	P109
14	E505	Chad	Wilson	M	ASSOCIATE DATA SCIE...	HEALTHCARE	5	CANADA	NORTH AMERICA	5000	2	E083	P103
15	E532	Claire	Brennan	F	ASSOCIATE DATA SCIE...	AUTOMOTIVE	3	GERMANY	EUROPE	4300	1	E428	P204
16	E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOM...	SOUTH AMERICA	10000	2	E001	
17	E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	8500	4	E001	
18	E620	Katrina	Allen	F	JUNIOR DATA SCIENTIST	RETAIL	2	INDIA	ASIA	3000	1	E612	P406
19	E640	Jenifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOM...	SOUTH AMERICA	2800	4	E612	P406

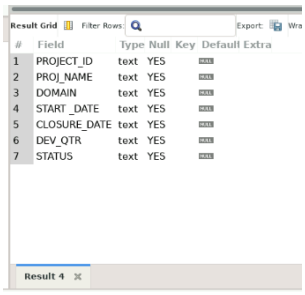


#	Field	Type	Null	Key	Default	Extra
1	EMP_ID	text	YES			
2	FIRST_NAME	text	YES			
3	LAST_NAME	text	YES			
4	GENDER	text	YES			
5	ROLE	text	YES			
6	DEPT	text	YES			
7	EXP	int	YES			
8	COUNTRY	text	YES			
9	CONTINENT	text	YES			
10	SALARY	int	YES			
11	EMP_RATING	int	YES			
12	MANAGER...	text	YES			
13	PROJ_ID	text	YES			

select * from employee.proj_table;
describe employee.proj_table;



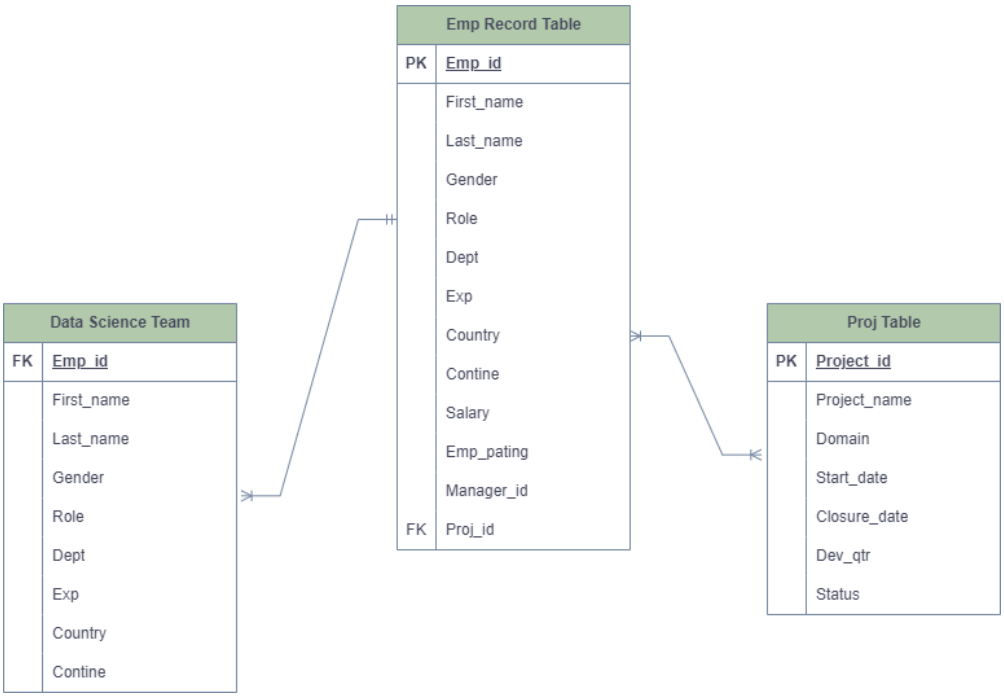
#	PROJECT_ID	PROJ_NAME	DOMAIN	START_DATE	CLOSURE_DATE	DEV_QTR	STATUS
1	P103	Drug Discovery	HEALTHCARE	04-06-2021	6/20/2021	Q1	DONE
2	P105	Fraud Detection	FINANCE	04-11-2021	6/25/2021	Q1	DONE
3	P109	Market Basket Analysis	RETAIL	04-12-2021	6/30/2021	Q1	DELAYED
4	P204	Supply Chain Management	AUTOMOTIVE	07/15/2021	9/28/2021	Q2	WIP
5	P302	Early Detection of Lung Cancer	HEALTHCARE	10-08-2021	12/18/2021	Q3	YTS
6	P406	Customer Sentiment Analysis	RETAIL	07-09-2021	9/24/2021	Q2	WIP



#	Field	Type	Null	Key	Default	Extra
1	PROJECT_ID	text	YES			
2	PROJ_NAME	text	YES			
3	DOMAIN	text	YES			
4	START_DATE	text	YES			
5	CLOSURE_DATE	text	YES			
6	DEV_QTR	text	YES			
7	STATUS	text	YES			

2. Create an ER diagram for the given **employee** database.

ER Diagram :



3. Write a query to fetch EMP_ID, FIRST_NAME, LAST_NAME, GENDER, and DEPARTMENT from the employee record table, and make a list of employees and details of their department.

SQL Code :

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER,DEPT
FROM employee.emp_record_table;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT
1	E001	Arthur	Black	M	ALL
2	E005	Eric	Hoffman	M	FINANCE
3	E010	William	Butler	M	AUTOMOTIVE
4	E052	Dianna	Wilson	F	HEALTHCARE
5	E057	Dorothy	Wilson	F	HEALTHCARE
6	E083	Patrick	Voltz	M	HEALTHCARE
7	E103	Emily	Grove	F	FINANCE
8	E204	Karene	Nowak	F	AUTOMOTIVE
9	E245	Nian	Zhen	M	RETAIL
10	E260	Roy	Collins	M	RETAIL
11	E403	Steve	Hoffman	M	FINANCE
12	E428	Pete	Allen	M	AUTOMOTIVE
13	E478	David	Smith	M	RETAIL
14	E505	Chad	Wilson	M	HEALTHCARE
15	E532	Claire	Brennan	F	AUTOMOTIVE
16	E583	Janet	Halo	F	RETAIL
17	E612	Tracy	Norris	F	RETAIL
18	E620	Katrina	Allen	F	RETAIL
19	E640	Jenifer	Jhones	F	RETAIL

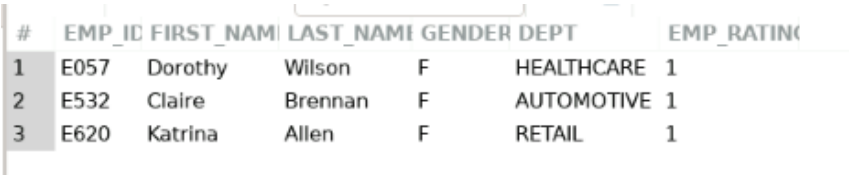
4. Write a query to fetch EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPARTMENT, and EMP_RATING if the EMP_RATING is:
    - less than two
    - greater than four
    - between two and four

SQL Code :

less than two :

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER,DEPT,EMP_RATING

FROM employee.emp_record_table WHERE EMP_RATING<2;
```

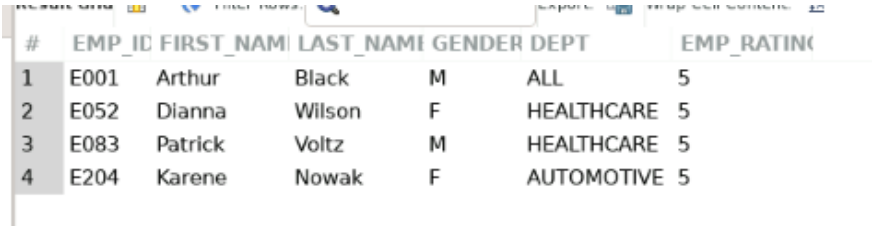


#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING
1	E057	Dorothy	Wilson	F	HEALTHCARE	1
2	E532	Claire	Brennan	F	AUTOMOTIVE	1
3	E620	Katrina	Allen	F	RETAIL	1

greater than four :

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER,DEPT,EMP_RATING

FROM employee.emp_record_table WHERE EMP_RATING>4;
```



#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING
1	E001	Arthur	Black	M	ALL	5
2	E052	Dianna	Wilson	F	HEALTHCARE	5
3	E083	Patrick	Voltz	M	HEALTHCARE	5
4	E204	Karene	Nowak	F	AUTOMOTIVE	5

between two and four :

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER,DEPT,EMP_RATING FROM
employee.emp_record_table WHERE EMP_RATING BETWEEN 2 AND 4;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING
1	E005	Eric	Hoffman	M	FINANCE	3
2	E010	William	Butler	M	AUTOMOTIVE	2
3	E103	Emily	Grove	F	FINANCE	4
4	E245	Nian	Zhen	M	RETAIL	2
5	E260	Roy	Collins	M	RETAIL	3
6	E403	Steve	Hoffman	M	FINANCE	3
7	E428	Pete	Allen	M	AUTOMOTIVE	4
8	E478	David	Smith	M	RETAIL	4
9	E505	Chad	Wilson	M	HEALTHCARE	2
10	E583	Janet	Hale	F	RETAIL	2
11	E612	Tracy	Norris	F	RETAIL	4
12	E640	Jenifer	Jhones	F	RETAIL	4

5. Write a query to concatenate the FIRST_NAME and the LAST_NAME of employees in the Finance department from the employee table and then give the resultant column alias as NAME.

SQL Code :

```
SELECT CONCAT(FIRST_NAME,' ',LAST_NAME) AS FullName FROM
employee.emp_record_table WHERE DEPT = "Finance";
```

#	fullName
1	Eric Hoffman
2	Emily Grove
3	Steve Hoffman

6. Write a query to list only those employees who have someone reporting to them. Also, show the number of reporters (including the President).

SQL Code :

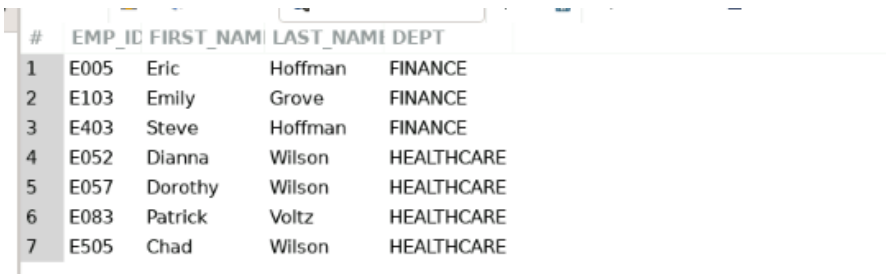
```
SELECT m.EMP_ID,m.FIRST_NAME,m.LAST_NAME,m.ROLE, m.EXP,m.DEPT
,COUNT(e.EMP_ID) as "emp_count"
FROM employee.emp_record_table m
INNER JOIN employee.emp_record_table e
ON m.EMP_ID = e.MANAGER_ID
GROUP BY m.EMP_ID , m.FIRST_NAME,m.LAST_NAME,m.ROLE, m.EXP, m.DEPT
ORDER BY m.EMP_ID;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	ROLE	EXP	DEPT	emp_count
1	E001	Arthur	Black	PRESIDENT	20	ALL	5
2	E083	Patrick	Voltz	MANAGER	15	HEALTHCARE	3
3	E103	Emily	Grove	MANAGER	14	FINANCE	2
4	E428	Pete	Allen	MANAGER	14	AUTOMOTIVE	3
5	E583	Janet	Hale	MANAGER	14	RETAIL	3
6	E612	Tracy	Norris	MANAGER	13	RETAIL	2

7. Write a query to list down all the employees from the healthcare and finance departments using union. Take data from the employee record table.

SQL Code :

```
SELECT EMP_ID,FIRST_NAME,LAST_NAME,DEPT FROM employee.emp_record_table
WHERE DEPT = "HEALTHCARE"
UNION
SELECT EMP_ID,FIRST_NAME,LAST_NAME,DEPT FROM employee.emp_record_table
WHERE DEPT = "FINANCE"
ORDER BY DEPT,EMP_ID;
```



#	EMP_ID	FIRST_NAME	LAST_NAME	DEPT
1	E005	Eric	Hoffman	FINANCE
2	E103	Emily	Grove	FINANCE
3	E403	Steve	Hoffman	FINANCE
4	E052	Dianna	Wilson	HEALTHCARE
5	E057	Dorothy	Wilson	HEALTHCARE
6	E083	Patrick	Voltz	HEALTHCARE
7	E505	Chad	Wilson	HEALTHCARE

8. Write a query to list down employee details such as EMP_ID, FIRST_NAME, LAST_NAME, ROLE, DEPARTMENT, and EMP_RATING grouped by dept. Also include the respective employee rating along with the max emp rating for the department.

   SQL Code :

```
SELECT m.EMP_ID,m.FIRST_NAME,m.LAST_NAME,m.ROLE,m.DEPT,m.EMP_RATING
,max(m.EMP_ RATING)
OVER(PARTITION BY m.DEPT) AS "max_dept_rating"
FROM employee.emp_record_table m
ORDER BY DEPT;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	ROLE	DEPT	EMP_RATING	max_dept_rating
1	E001	Arthur	Black	PRESIDENT	ALL	5	5
2	E010	William	Butler	LEAD DATA SCIENTIST	AUTOMOTIVE	2	5
3	E204	Karene	Nowak	SENIOR DATA SCIENTIST	AUTOMOTIVE	5	5
4	E428	Pete	Allen	MANAGER	AUTOMOTIVE	4	5
5	E532	Claire	Brennan	ASSOCIATE DATA SCIENTIST	AUTOMOTIVE	1	5
6	E005	Eric	Hoffman	LEAD DATA SCIENTIST	FINANCE	3	4
7	E103	Emily	Grove	MANAGER	FINANCE	4	4
8	E403	Steve	Hoffman	ASSOCIATE DATA SCIENTIST	FINANCE	3	4
9	E057	Dorothy	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	1	5
10	E505	Chad	Wilson	ASSOCIATE DATA SCIENTIST	HEALTHCARE	2	5
11	E083	Patrick	Voltz	MANAGER	HEALTHCARE	5	5
12	E052	Dianna	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	5	5
13	E640	Jenifer	Jhones	JUNIOR DATA SCIENTIST	RETAIL	4	4
14	E620	Katrina	Allen	JUNIOR DATA SCIENTIST	RETAIL	1	4
15	E612	Tracy	Norris	MANAGER	RETAIL	4	4
16	E583	Janet	Hale	MANAGER	RETAIL	2	4
17	E478	David	Smith	ASSOCIATE DATA SCIENTIST	RETAIL	4	4
18	E260	Roy	Collins	SENIOR DATA SCIENTIST	RETAIL	3	4
19	E245	Nian	Zhen	SENIOR DATA SCIENTIST	RETAIL	2	4

9. Write a query to calculate the minimum and the maximum salary of the employees in each role. Take data from the employee record table.

   SQL Code :

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, ROLE, MAX(SALARY), MIN(SALARY)
FROM employee.emp_record_table
WHERE ROLE IN("PRESIDENT","LEAD DATA SCIENTIST","SENIOR DATA
SCIENTIST","MANAGER","ASSOCIATE DATA SCIENTIST","JUNIOR DATA SCIENTIST")
GROUP BY EMP_ID, FIRST_NAME, LAST_NAME, ROLE;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	ROLE	max(SALARY	min(SALARY
1	E001	Arthur	Black	PRESIDENT	16500	16500
2	E005	Eric	Hoffman	LEAD DATA SCIENTIST	8500	8500
3	E010	William	Butler	LEAD DATA SCIENTIST	9000	9000
4	E052	Dianna	Wilson	SENIOR DATA SCIENTIST	5500	5500
5	E057	Dorothy	Wilson	SENIOR DATA SCIENTIST	7700	7700
6	E083	Patrick	Voltz	MANAGER	9500	9500
7	E103	Emily	Grove	MANAGER	10500	10500
8	E204	Karene	Nowak	SENIOR DATA SCIENTIST	7500	7500
9	E245	Nian	Zhen	SENIOR DATA SCIENTIST	6500	6500
10	E260	Roy	Collins	SENIOR DATA SCIENTIST	7000	7000
11	E403	Steve	Hoffman	ASSOCIATE DATA SCIE...	5000	5000
12	E428	Pete	Allen	MANAGER	11000	11000
13	E478	David	Smith	ASSOCIATE DATA SCIE...	4000	4000
14	E505	Chad	Wilson	ASSOCIATE DATA SCIE...	5000	5000
15	E532	Claire	Brennan	ASSOCIATE DATA SCIE...	4300	4300
16	E583	Janet	Hale	MANAGER	10000	10000
17	E612	Tracy	Norris	MANAGER	8500	8500
18	E620	Katrina	Allen	JUNIOR DATA SCIENTIST	3000	3000
19	E640	Jenifer	Jhones	JUNIOR DATA SCIENTIST	2800	2800

10. Write a query to assign ranks to each employee based on their experience. Take data from the employee record table.

    SQL Code :

```
SELECT EMP_ID,FIRST_NAME,LAST_NAME,EXP, RANK() OVER(ORDER BY EXP)
EXP_RANK
FROM employee.emp_record_table;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	EXP	exp_rank
1	E640	Jenifer	Jhones	1	1
2	E620	Katrina	Allen	2	2
3	E532	Claire	Brennan	3	3
4	E478	David	Smith	3	3
5	E403	Steve	Hoffman	4	5
6	E505	Chad	Wilson	5	6
7	E052	Dianna	Wilson	6	7
8	E245	Nian	Zhen	6	7
9	E260	Roy	Collins	7	9
10	E204	Karene	Nowak	8	10
11	E057	Dorothy	Wilson	9	11
12	E005	Eric	Hoffman	11	12
13	E010	William	Butler	12	13
14	E612	Tracy	Norris	13	14
15	E428	Pete	Allen	14	15
16	E103	Emily	Grove	14	15
17	E583	Janet	Hale	14	15
18	E083	Patrick	Voltz	15	18
19	E001	Arthur	Black	20	19

11. Write a query to create a view that displays employees in various countries whose salary is more than six thousand. Take data from the employee record table.

SQL Code :

```
USE employee;
CREATE VIEW emp_diffrent_countries AS
SELECT EMP_ID,FIRST_NAME,LAST_NAME,COUNTRY,SALARY
FROM employee.emp_record_table
WHERE SALARY>6000;
SELECT *FROM emp_diffrent_countries;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	COUNTRY	SALARY
1	E001	Arthur	Black	USA	16500
2	E005	Eric	Hoffman	USA	8500
3	E010	William	Butler	FRANCE	9000
4	E057	Dorothy	Wilson	USA	7700
5	E083	Patrick	Voltz	USA	9500
6	E103	Emily	Grove	CANADA	10500
7	E204	Karene	Nowak	GERMANY	7500
8	E245	Nian	Zhen	CHINA	6500
9	E260	Roy	Collins	INDIA	7000
10	E428	Pete	Allen	GERMANY	11000
11	E583	Janet	Hale	COLOM...	10000
12	E612	Tracy	Norris	INDIA	8500

12. Write a nested query to find employees with experience of more than ten years. Take data from the employee record table.

SQL Code :

```
SELECT EMP_ID,FIRST_NAME,LAST_NAME,EXP
```

```
FROM employee.emp_record_table
WHERE EMP_ID IN(SELECT manager_id FROM employee.emp_record_table);
```

#	EMP_ID	FIRST_NAME	LAST_NAME	EXP
1	E001	Arthur	Black	20
2	E083	Patrick	Voltz	15
3	E103	Emily	Grove	14
4	E428	Pete	Allen	14
5	E583	Janet	Hale	14
6	E612	Tracy	Norris	13

13. Write a query to create a stored procedure to retrieve the details of the employees whose experience is more than three years. Take data from the employee record table.

SQL Code :

```
USE employee;
DELIMITER &&
CREATE PROCEDURE exp_details()
BEGIN
SELECT EMP_ID,FIRST_NAME,LAST_NAME,EXP
FROM employee.emp_record_table WHERE EXP>3;
END &&
CALL exp_details();
```

#	EMP_ID	FIRST_NAME	LAST_NAME	EXP
1	E001	Arthur	Black	20
2	E005	Eric	Hoffman	11
3	E010	William	Butler	12
4	E052	Dianna	Wilson	6
5	E057	Dorothy	Wilson	9
6	E083	Patrick	Voltz	15
7	E103	Emily	Grove	14
8	E204	Karene	Nowak	8
9	E245	Nian	Zhen	6
10	E260	Roy	Collins	7
11	E403	Steve	Hoffman	4
12	E428	Pete	Allen	14
13	E505	Chad	Wilson	5
14	E583	Janet	Hale	14
15	E612	Tracy	Norris	13

14. Write a query using stored functions in the project table to check whether the job profile assigned to each employee in the data science team matches the organization’s set standard.

The standard being:

For an employee with experience less than or equal to 2 years assign 'JUNIOR DATA SCIENTIST',

For an employee with the experience of 2 to 5 years assign 'ASSOCIATE DATA SCIENTIST',

For an employee with the experience of 5 to 10 years assign 'SENIOR DATA SCIENTIST',

For an employee with the experience of 10 to 12 years assign 'LEAD DATA SCIENTIST',

For an employee with the experience of 12 to 16 years assign 'MANAGER'.

SQL Code :

```
USE employee;
DELIMITER &&
CREATE FUNCTION Emp_ROLE(EXP int)
RETURNS VARCHAR(40)
DETERMINISTIC
BEGIN
DECLARE Emp_ROLE VARCHAR(40);
IF EXP>12 AND 16 THEN
SET Emp_ROLE="MANAGER";
ELSEIF EXP>10 AND 12 THEN
SET Emp_ROLE ="LEAD DATA SCIENTIST";
ELSEIF EXP>5 AND 10 THEN
SET Emp_ROLE ="SENIOR DATA SCIENTIST";
ELSEIF EXP>2 AND 5 THEN
SET Emp_ROLE ="ASSOCIATE DATA SCIENTIST";
ELSEIF EXP<=2 THEN
SET Emp_ROLE ="JUNIOR DATA SCIENTIST";
END IF;
RETURN (Emp_ROLE);
END &&
SELECT EXP,Emp_ROLE(EXP) FROM employee.data_science_team;
```

#	exp	emp_role(exp)
1	11	lead data scientist
2	12	lead data scientist
3	6	senior data scientist
4	9	senior data scientist
5	8	senior data scientist
6	6	senior data scientist
7	7	senior data scientist
8	4	associate data scientist
9	3	associate data scientist
10	5	associate data scientist
11	3	associate data scientist
12	2	junior data scientist
13	1	junior data scientist

15. Create an index to improve the cost and performance of the query to find the employee whose FIRST_NAME is ‘Eric’ in the employee table after checking the execution plan.

SQL Code :

```
USE employee;
```

```
CREATE INDEX ind_first_name
ON emp_record_table(FIRST_NAME(20));
SELECT * FROM employee.emp_record_table
WHERE FIRST_NAME='Eric';
```

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	P
1	E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P

16. Write a query to calculate the bonus for all the employees, based on their ratings and salaries (Use the formula: 5% of salary * employee rating).

SQL Code :

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, ROLE, EXP, SALARY,
EMP_RATING,(0.05*SALARY)*EMP_RATING AS bonus
FROM employee.emp_record_table;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	ROLE	EXP	SALARY	EMP_RATING	bouns
1	E001	Arthur	Black	PRESIDENT	20	16500	5	4125.00
2	E005	Eric	Hoffman	LEAD DATA SCIENTIST	11	8500	3	1275.00
3	E010	William	Butler	LEAD DATA SCIENTIST	12	9000	2	900.00
4	E052	Dianna	Wilson	SENIOR DATA SCIENTIST	6	5500	5	1375.00
5	E057	Dorothy	Wilson	SENIOR DATA SCIENTIST	9	7700	1	385.00
6	E083	Patrick	Voltz	MANAGER	15	9500	5	2375.00
7	E103	Emily	Grove	MANAGER	14	10500	4	2100.00
8	E204	Karene	Nowak	SENIOR DATA SCIENTIST	8	7500	5	1875.00
9	E245	Nian	Zhen	SENIOR DATA SCIENTIST	6	6500	2	650.00
10	E260	Roy	Collins	SENIOR DATA SCIENTIST	7	7000	3	1050.00
11	E403	Steve	Hoffman	ASSOCIATE DATA SCIE...	4	5000	3	750.00
12	E428	Pete	Allen	MANAGER	14	11000	4	2200.00
13	E478	David	Smith	ASSOCIATE DATA SCIE...	3	4000	4	800.00
14	E505	Chad	Wilson	ASSOCIATE DATA SCIE...	5	5000	2	500.00
15	E532	Claire	Brennan	ASSOCIATE DATA SCIE...	3	4300	1	215.00
16	E583	Janet	Hale	MANAGER	14	10000	2	1000.00
17	E612	Tracy	Norris	MANAGER	13	8500	4	1700.00
18	E620	Katrina	Allen	JUNIOR DATA SCIENTIST	2	3000	1	150.00
19	E640	Jenifer	Jhones	JUNIOR DATA SCIENTIST	1	2800	4	560.00

17. Write a query to calculate the average salary distribution based on the continent and country. Take data from the employee record table.

SQL Code :

```
SELECT EMP_ID,FIRST_NAME,LAST_NAME,SALARY,COUNTRY,CONTINENT,
AVG(salary)OVER(PARTITION BY COUNTRY)avg_salary_country,
AVG(salary)OVER(PARTITION BY CONTINENT)avg_salary_continent,
COUNT(*)OVER(PARTITION BY COUNTRY)count_country,
COUNT(*)OVER(PARTITION BY CONTINENT)count_continent
FROM employee.emp_record_table;
```

#	EMP_ID	FIRST_NAME	LAST_NAME	SALARY	COUNTRY	CONTINENT	avg_salary_country	avg_salary_continent	count_country	count_continent
1	E245	Nian	Zhen	6500	CHINA	ASIA	6500.0000	6250.0000	1	4
2	E260	Roy	Collins	7000	INDIA	ASIA	6166.6667	6250.0000	3	4
3	E620	Katrina	Allen	3000	INDIA	ASIA	6166.6667	6250.0000	3	4
4	E612	Tracy	Norris	8500	INDIA	ASIA	6166.6667	6250.0000	3	4
5	E010	William	Butler	9000	FRANCE	EUROPE	9000.0000	7950.0000	1	4
6	E204	Karene	Nowak	7500	GERMANY	EUROPE	7600.0000	7950.0000	3	4
7	E532	Claire	Brennan	4300	GERMANY	EUROPE	7600.0000	7950.0000	3	4
8	E428	Pete	Allen	11000	GERMANY	EUROPE	7600.0000	7950.0000	3	4
9	E005	Eric	Hoffman	8500	USA	NORTH AMERICA	9440.0000	8525.0000	5	8
10	E052	Dianna	Wilson	5500	CANADA	NORTH AMERICA	7000.0000	8525.0000	3	8
11	E057	Dorothy	Wilson	7700	USA	NORTH AMERICA	9440.0000	8525.0000	5	8
12	E083	Patrick	Voltz	9500	USA	NORTH AMERICA	9440.0000	8525.0000	5	8
13	E001	Arthur	Black	16500	USA	NORTH AMERICA	9440.0000	8525.0000	5	8
14	E403	Steve	Hoffman	5000	USA	NORTH AMERICA	9440.0000	8525.0000	5	8
15	E505	Chad	Wilson	5000	CANADA	NORTH AMERICA	7000.0000	8525.0000	3	8
16	E103	Emily	Grove	10500	CANADA	NORTH AMERICA	7000.0000	8525.0000	3	8
17	E478	David	Smith	4000	COLOM...	SOUTH AMERICA	5600.0000	5600.0000	3	3
18	E583	Janet	Hale	10000	COLOM...	SOUTH AMERICA	5600.0000	5600.0000	3	3
19	E640	Jenifer	Jhones	2800	COLOM...	SOUTH AMERICA	5600.0000	5600.0000	3	3