ScienceQtech Employee Performance Mapping.

DESCRIPTION

ScienceQtech is a startup that works in the Data Science field. ScienceQtech has worked on fraud detection, market basket, self-driving cars, supply chain, algorithmic early detection of lung cancer, customer sentiment, and the drug discovery field. With the annual appraisal cycle around the corner, the HR department has asked you (Junior Database Administrator) to generate reports on employee details, their performance, and on the project that the employees have undertaken, to analyze the employee database and extract specific data based on different requirements.

Objective:

To facilitate a better understanding, managers have provided ratings for each employee which will help the HR department to finalize the employee performance mapping. As a DBA, you should find the maximum salary of the employees and ensure that all jobs are meeting the organization's profile standard. You also need to calculate bonuses to find extra cost for expenses. This will raise the overall performance of the organization by ensuring that all required employees receive training.

Dataset description:

emp_record_table: It contains the information of all the employees.

- EMP_ID – ID of the employee
- FIRST_NAME – First name of the employee
- LAST_NAME – Last name of the employee
- GENDER – Gender of the employee
- ROLE – Post of the employee
- DEPT – Field of the employee
- EXP – Years of experience the employee has
- COUNTRY – Country in which the employee is presently living
- CONTINENT – Continent in which the country is
- SALARY – Salary of the employee
- EMP_RATING – Performance rating of the employee
- MANAGER_ID – The manager under which the employee is assigned
- PROJ_ID – The project on which the employee is working or has worked on

Proj_table: It contains information about the projects.

- PROJECT_ID – ID for the project
- PROJ_Name – Name of the project
- DOMAIN – Field of the project
- START_DATE – Day the project began
- CLOSURE_DATE – Day the project was or will be completed
- DEV_QTR – Quarter in which the project was scheduled
- STATUS – Status of the project currently

Data_science_team: It contains information about all the employees in the Data Science team.

- EMP_ID – ID of the employee
- FIRST_NAME – First name of the employee
- LAST_NAME – Last name of the employee
- GENDER – Gender of the employee
- ROLE – Post of the employee
- DEPT – Field of the employee
- EXP – Years of experience the employee has
- COUNTRY – Country in which the employee is presently living
- CONTINENT – Continent in which the country is

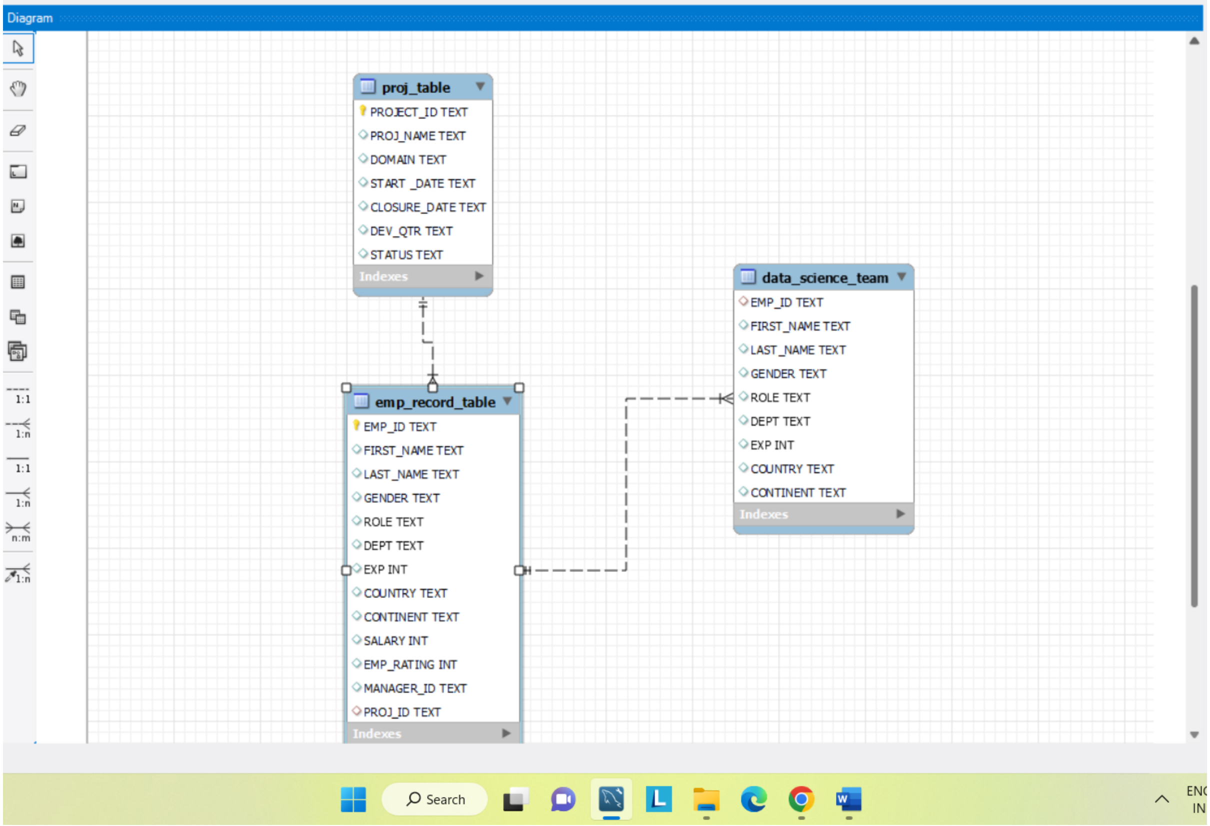
The task to be performed:

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

create database hremp;

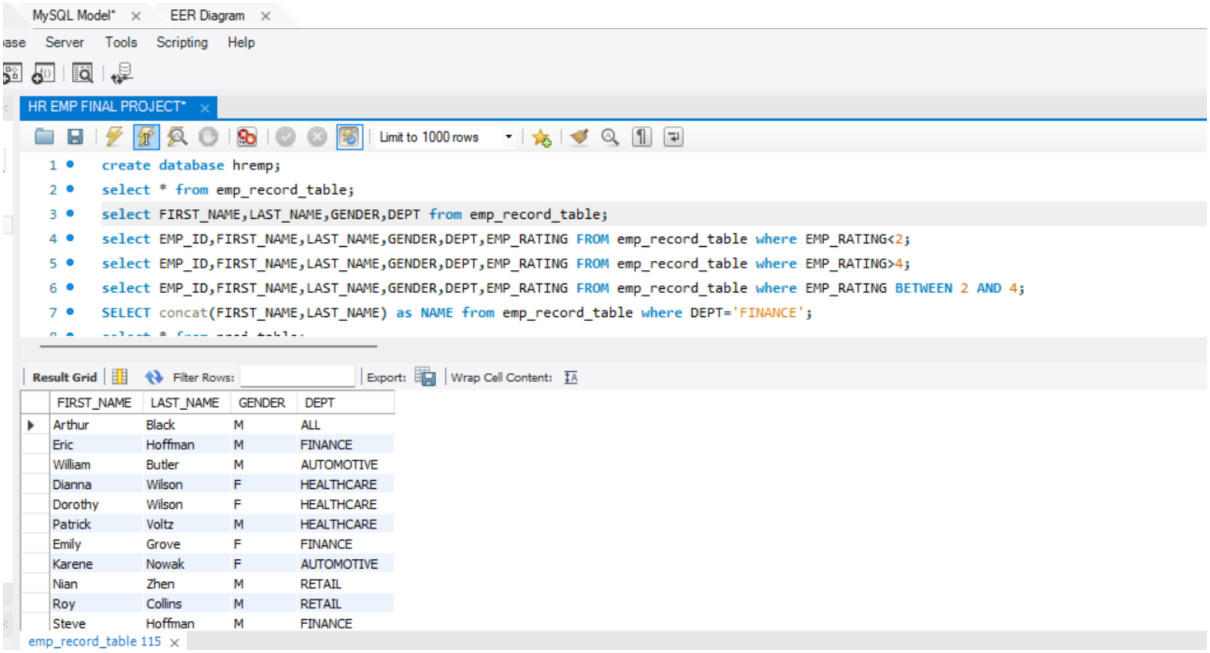
*select * from emp_record_table;*

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



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.

select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table;



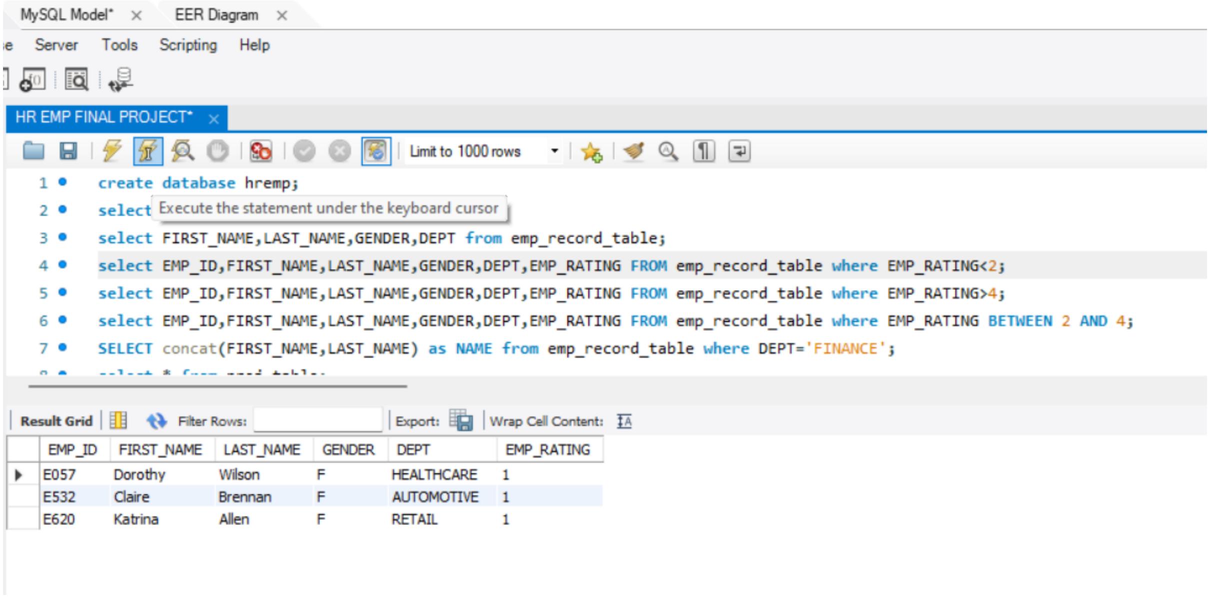
```
create database hremp;
select * from emp_record_table;
select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING<2;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING>4;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING BETWEEN 2 AND 4;
SELECT concat(FIRST_NAME,LAST_NAME) as NAME from emp_record_table where DEPT='FINANCE';
```

FIRST_NAME	LAST_NAME	GENDER	DEPT
Arthur	Black	M	ALL
Eric	Hoffman	M	FINANCE
William	Butler	M	AUTOMOTIVE
Dianna	Wilson	F	HEALTHCARE
Dorothy	Wilson	F	HEALTHCARE
Patrick	Voltz	M	HEALTHCARE
Emily	Grove	F	FINANCE
Karene	Nowak	F	AUTOMOTIVE
Nian	Zhen	M	RETAIL
Roy	Collins	M	RETAIL
Steve	Hoffman	M	FINANCE

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*

select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING<2;

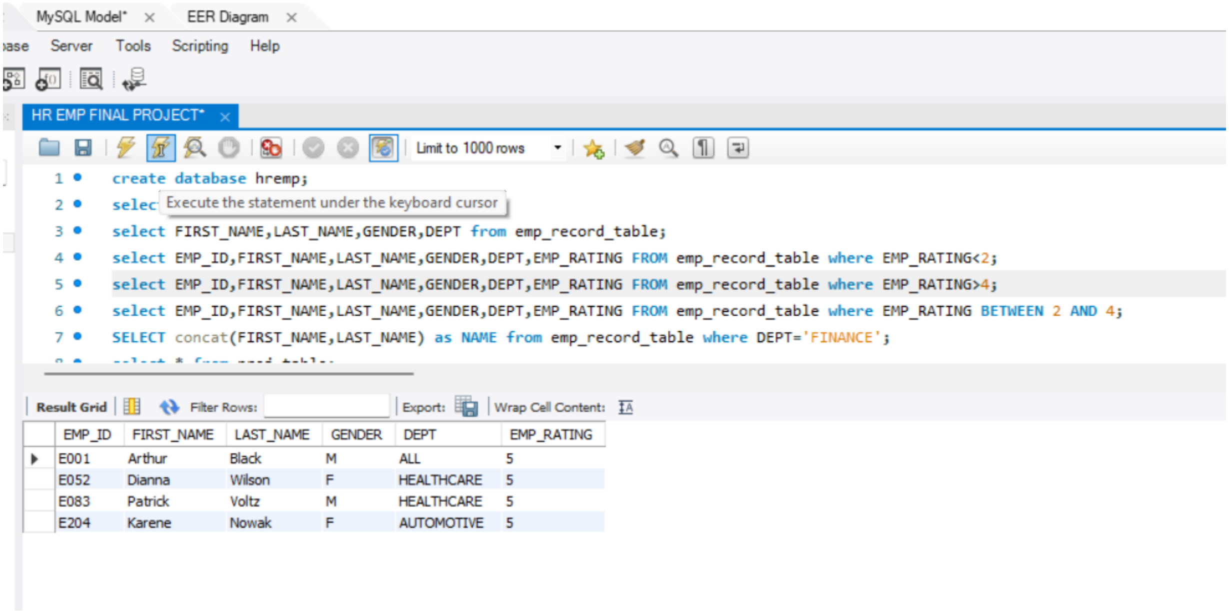


```
create database hremp;
select
select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING<2;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING>4;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING BETWEEN 2 AND 4;
SELECT concat(FIRST_NAME,LAST_NAME) as NAME from emp_record_table where DEPT='FINANCE';
```

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

- greater than four

select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING>4;

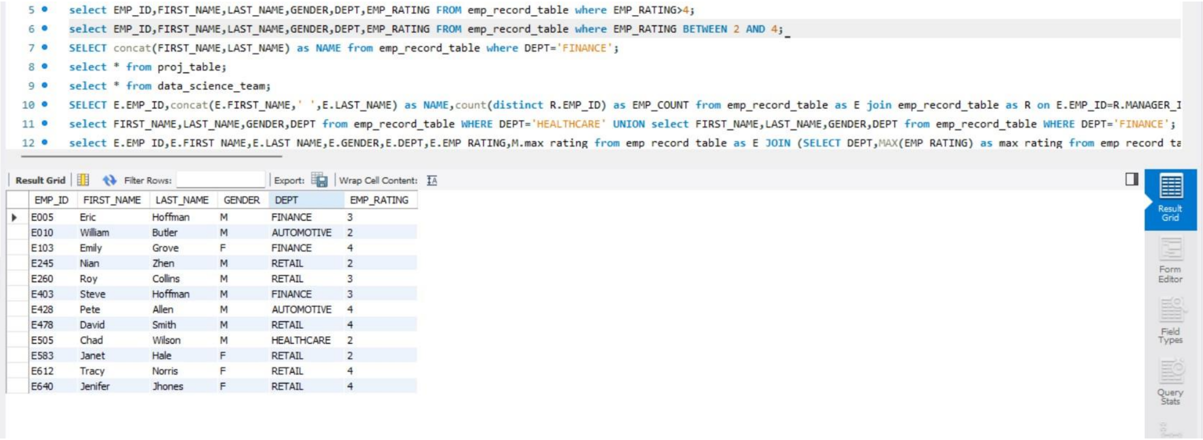


```
create database hremp;
selec
select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING<2;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING>4;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING BETWEEN 2 AND 4;
SELECT concat(FIRST_NAME,LAST_NAME) as NAME from emp_record_table where DEPT='FINANCE';
select * from proj_table;
```

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

- between two and four

select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING BETWEEN 2 AND 4;

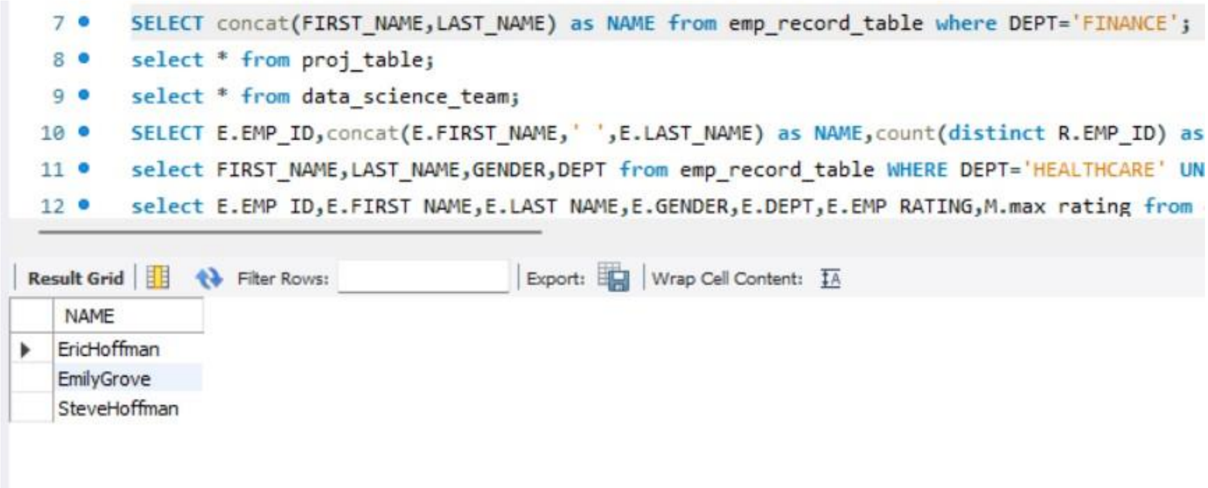


```
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING>4;
select EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING FROM emp_record_table where EMP_RATING BETWEEN 2 AND 4;
SELECT concat(FIRST_NAME,LAST_NAME) as NAME from emp_record_table where DEPT='FINANCE';
select * from proj_table;
select * from data_science_team;
SELECT E.EMP_ID,concat(E.FIRST_NAME,' ',E.LAST_NAME) as NAME,count(distinct R.EMP_ID) as EMP_COUNT from emp_record_table as E join emp_record_table as R on E.EMP_ID=R.MANAGER_I
select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table WHERE DEPT='HEALTHCARE' UNION select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table WHERE DEPT='FINANCE';
select E.EMP ID,E.FIRST NAME,E.LAST NAME,E.GENDER,E.DEPT,E.EMP RATING,M.max rating from emp record table as E JOIN (SELECT DEPT,MAX(EMP RATING) as max rating from emp record ta
```

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING
E005	Eric	Hoffman	M	FINANCE	3
E010	William	Butler	M	AUTOMOTIVE	2
E103	Emily	Grove	F	FINANCE	4
E245	Nian	Zhen	M	RETAIL	2
E260	Roy	Collins	M	RETAIL	3
E403	Steve	Hoffman	M	FINANCE	3
E428	Pete	Allen	M	AUTOMOTIVE	4
E478	David	Smith	M	RETAIL	4
E505	Chad	Wilson	M	HEALTHCARE	2
E583	Janet	Hale	F	RETAIL	2
E612	Tracy	Norris	F	RETAIL	4
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.

SELECT concat(FIRST_NAME,LAST_NAME) as NAME from emp_record_table where DEPT='FINANCE';

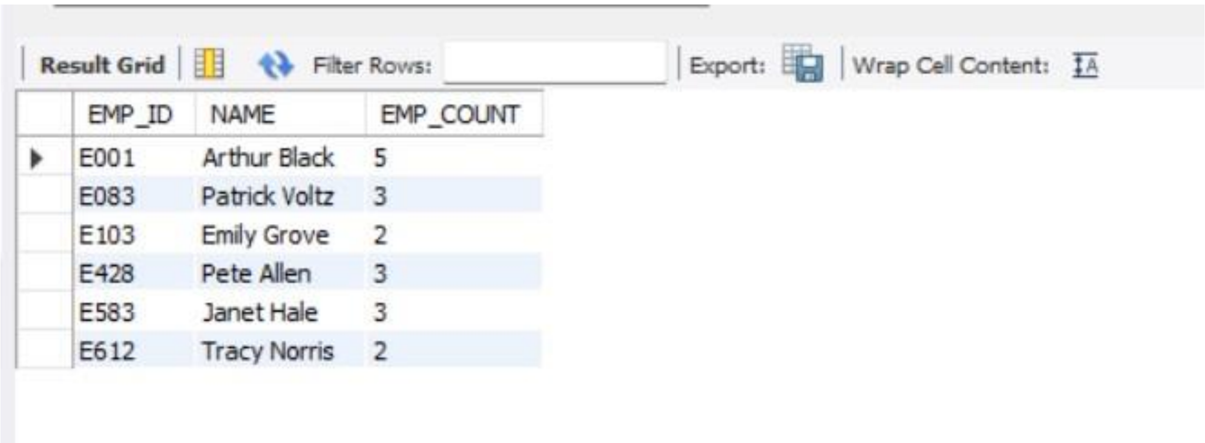


```
SELECT concat(FIRST_NAME,LAST_NAME) as NAME from emp_record_table where DEPT='FINANCE';
select * from proj_table;
select * from data_science_team;
SELECT E.EMP_ID,concat(E.FIRST_NAME,' ',E.LAST_NAME) as NAME,count(distinct R.EMP_ID) as
select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table WHERE DEPT='HEALTHCARE' UN
select E.EMP ID,E.FIRST NAME,E.LAST NAME,E.GENDER,E.DEPT,E.EMP RATING,M.max rating from
```

NAME
EricHoffman
EmilyGrove
SteveHoffman

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

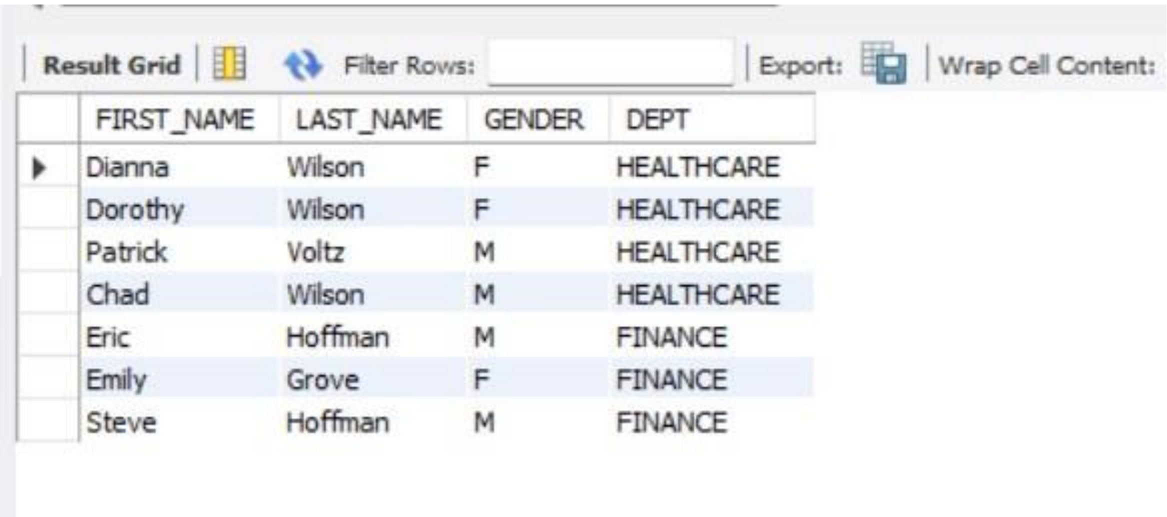
SELECT E.EMP_ID,concat(E.FIRST_NAME,' ',E.LAST_NAME) as NAME,count(distinct R.EMP_ID) as EMP_COUNT from emp_record_table as E join emp_record_table as R on E.EMP_ID=R.MANAGER_ID group by E.EMP_ID,E.FIRST_NAME,E.LAST_NAME;



EMP_ID	NAME	EMP_COUNT
E001	Arthur Black	5
E083	Patrick Voltz	3
E103	Emily Grove	2
E428	Pete Allen	3
E583	Janet Hale	3
E612	Tracy Norris	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.

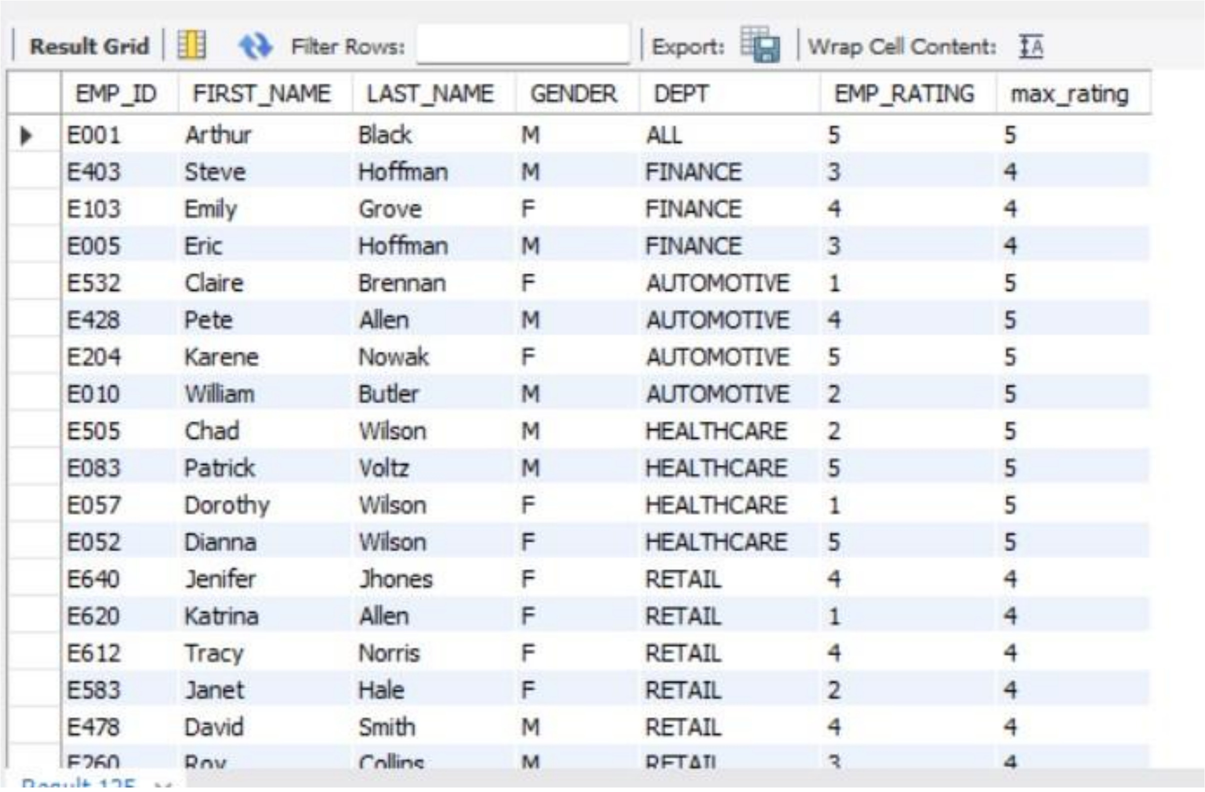
select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table WHERE DEPT='HEALTHCARE' UNION select FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table WHERE DEPT='FINANCE';



FIRST_NAME	LAST_NAME	GENDER	DEPT
Dianna	Wilson	F	HEALTHCARE
Dorothy	Wilson	F	HEALTHCARE
Patrick	Voltz	M	HEALTHCARE
Chad	Wilson	M	HEALTHCARE
Eric	Hoffman	M	FINANCE
Emily	Grove	F	FINANCE
Steve	Hoffman	M	FINANCE

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.

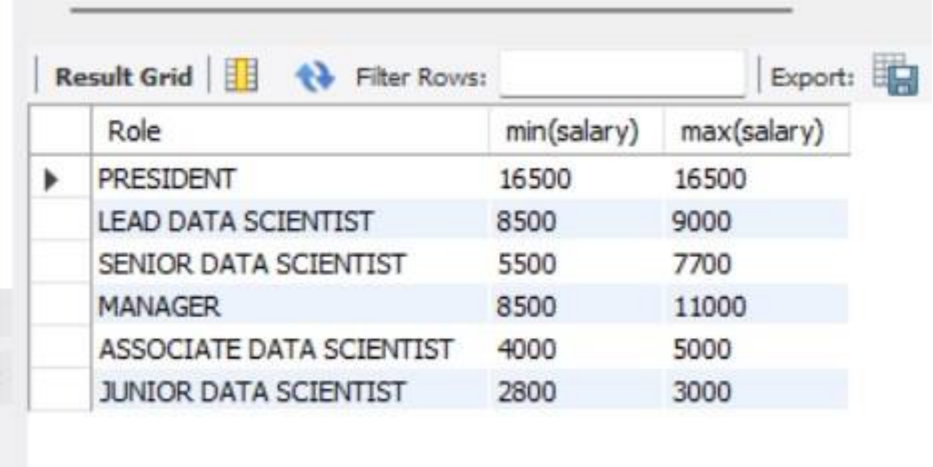
SelectE.EMP_ID,E.FIRST_NAME,E.LAST_NAME,E.GENDER,E.DEPT,E.EMP_RATING,M.max_rating from emp_record_table as E JOIN (SELECT DEPT,MAX(EMP_RATING) as max_rating from emp_record_table group by DEPT) as M on E.DEPT=M.DEPT;



	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING	max_rating
▶	E001	Arthur	Black	M	ALL	5	5
	E403	Steve	Hoffman	M	FINANCE	3	4
	E103	Emily	Grove	F	FINANCE	4	4
	E005	Eric	Hoffman	M	FINANCE	3	4
	E532	Claire	Brennan	F	AUTOMOTIVE	1	5
	E428	Pete	Allen	M	AUTOMOTIVE	4	5
	E204	Karene	Nowak	F	AUTOMOTIVE	5	5
	E010	William	Butler	M	AUTOMOTIVE	2	5
	E505	Chad	Wilson	M	HEALTHCARE	2	5
	E083	Patrick	Voltz	M	HEALTHCARE	5	5
	E057	Dorothy	Wilson	F	HEALTHCARE	1	5
	E052	Dianna	Wilson	F	HEALTHCARE	5	5
	E640	Jenifer	Jhones	F	RETAIL	4	4
	E620	Katrina	Allen	F	RETAIL	1	4
	E612	Tracy	Norris	F	RETAIL	4	4
	E583	Janet	Hale	F	RETAIL	2	4
	E478	David	Smith	M	RETAIL	4	4
	E260	Roy	Collins	M	RETAIL	3	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.

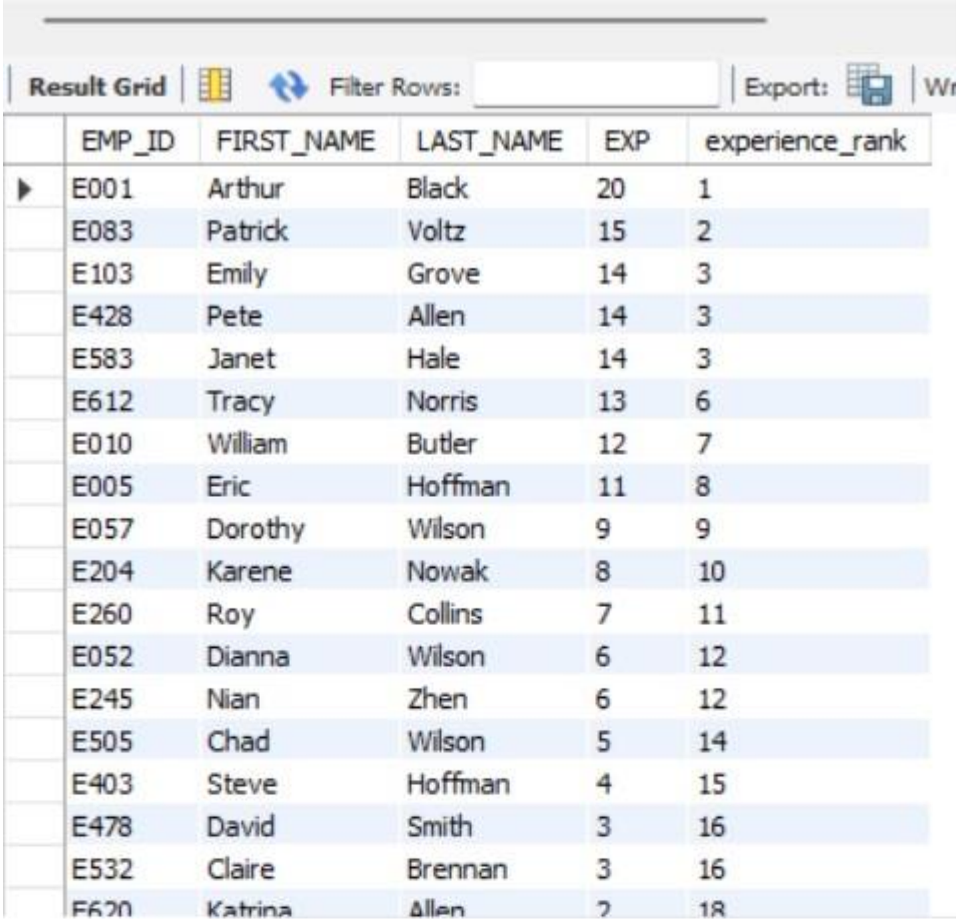
SELECT Role,min(salary),max(salary) from emp_record_table group by ROLE;



	Role	min(salary)	max(salary)
▶	PRESIDENT	16500	16500
	LEAD DATA SCIENTIST	8500	9000
	SENIOR DATA SCIENTIST	5500	7700
	MANAGER	8500	11000
	ASSOCIATE DATA SCIENTIST	4000	5000
	JUNIOR DATA SCIENTIST	2800	3000

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

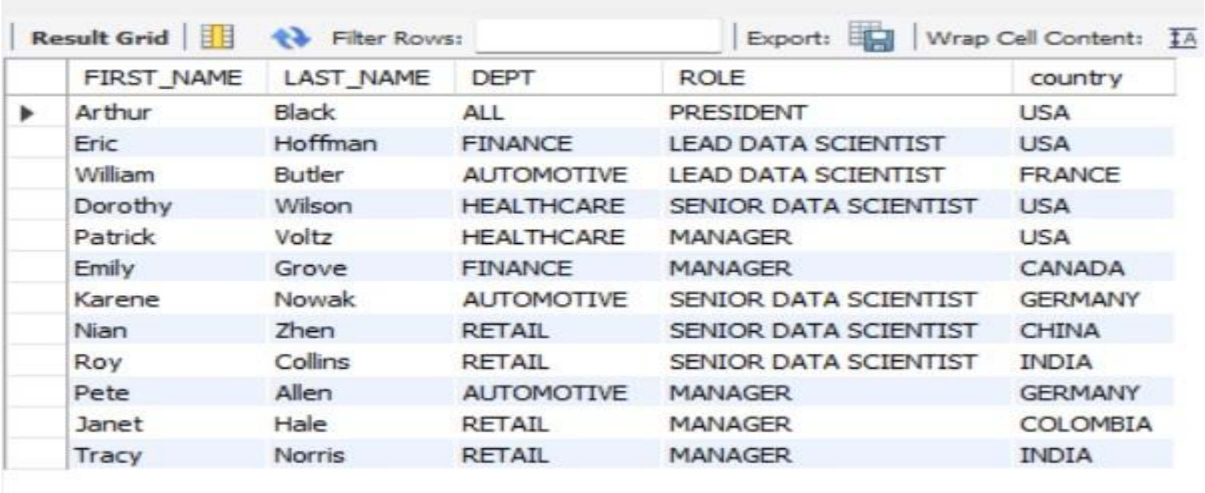
```
 SELECT EMP_ID,FIRST_NAME,LAST_NAME,EXP,RANK() OVER(order by exp DESC) as
experience_rank from emp_record_table;
```



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

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.

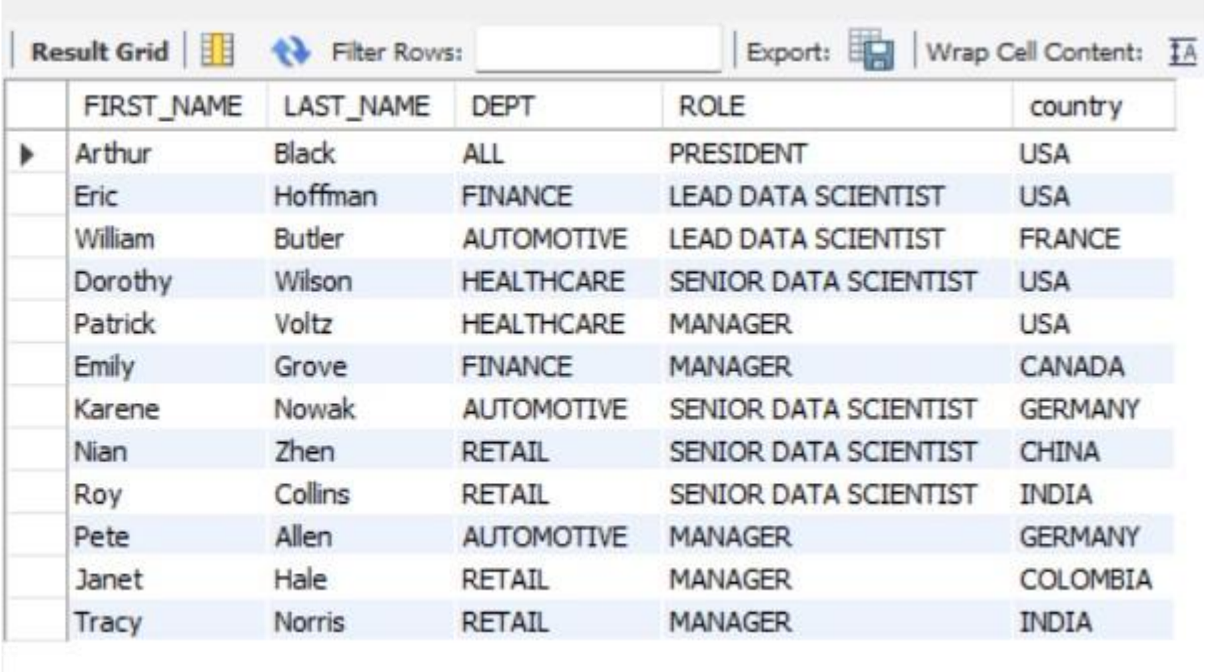
select FIRST_NAME,LAST_NAME,DEPT,ROLE,country FROM emp_record_table where salary>6000;



FIRST_NAME	LAST_NAME	DEPT	ROLE	country
Arthur	Black	ALL	PRESIDENT	USA
Eric	Hoffman	FINANCE	LEAD DATA SCIENTIST	USA
William	Butler	AUTOMOTIVE	LEAD DATA SCIENTIST	FRANCE
Dorothy	Wilson	HEALTHCARE	SENIOR DATA SCIENTIST	USA
Patrick	Voltz	HEALTHCARE	MANAGER	USA
Emily	Grove	FINANCE	MANAGER	CANADA
Karene	Nowak	AUTOMOTIVE	SENIOR DATA SCIENTIST	GERMANY
Nian	Zhen	RETAIL	SENIOR DATA SCIENTIST	CHINA
Roy	Collins	RETAIL	SENIOR DATA SCIENTIST	INDIA
Pete	Allen	AUTOMOTIVE	MANAGER	GERMANY
Janet	Hale	RETAIL	MANAGER	COLOMBIA
Tracy	Norris	RETAIL	MANAGER	INDIA

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

select FIRST_NAME,LAST_NAME,DEPT,ROLE,country FROM emp_record_table where EXP>10;



FIRST_NAME	LAST_NAME	DEPT	ROLE	country
Arthur	Black	ALL	PRESIDENT	USA
Eric	Hoffman	FINANCE	LEAD DATA SCIENTIST	USA
William	Butler	AUTOMOTIVE	LEAD DATA SCIENTIST	FRANCE
Dorothy	Wilson	HEALTHCARE	SENIOR DATA SCIENTIST	USA
Patrick	Voltz	HEALTHCARE	MANAGER	USA
Emily	Grove	FINANCE	MANAGER	CANADA
Karene	Nowak	AUTOMOTIVE	SENIOR DATA SCIENTIST	GERMANY
Nian	Zhen	RETAIL	SENIOR DATA SCIENTIST	CHINA
Roy	Collins	RETAIL	SENIOR DATA SCIENTIST	INDIA
Pete	Allen	AUTOMOTIVE	MANAGER	GERMANY
Janet	Hale	RETAIL	MANAGER	COLOMBIA
Tracy	Norris	RETAIL	MANAGER	INDIA

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.

```
DELIMITER //;

CREATE procedure HIGH_EXP_EMP() BEGIN SELECT * from emp_record_table
where EXP>3;  END //;

CALL HIGH_EXP_EMP();
```

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',

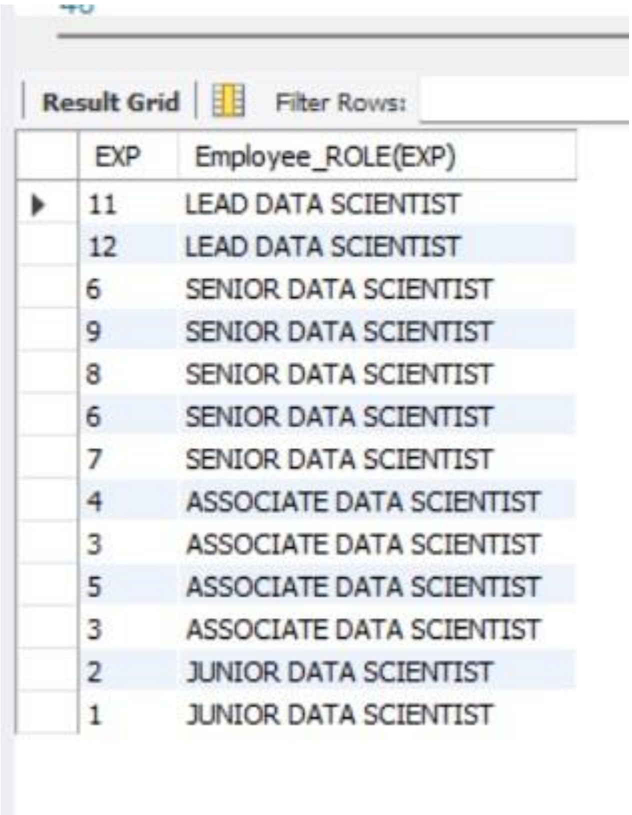
For an employee with the experience of 5 to 10 years assign 'SENIOR DATA SCIENTIST',

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'.

```
DELIMITER &&

CREATE FUNCTION Employee_ROLE(

EXP int

)

RETURNS VARCHAR(40)

DETERMINISTIC

BEGIN

DECLARE Employee_ROLE VARCHAR(40);

IF EXP>12 AND 16 THEN

SET Employee_ROLE="MANAGER";

ELSEIF EXP>10 AND 12 THEN
```

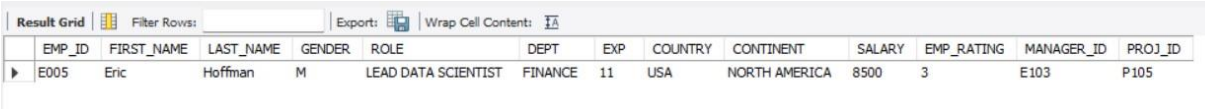
```
SET Employee_ROLE ="LEAD DATA SCIENTIST";
ELSEIF EXP>5 AND 10 THEN
SET Employee_ROLE ="SENIOR DATA SCIENTIST";
ELSEIF EXP>2 AND 5 THEN
SET Employee_ROLE ="ASSOCIATE DATA SCIENTIST";
ELSEIF EXP<=2 THEN
SET Employee_ROLE ="JUNIOR DATA SCIENTIST";
END IF;
RETURN (Employee_ROLE);
END &&
SELECT EXP,Employee_ROLE(EXP) FROM data_science_team;
```



EXP	Employee_ROLE(EXP)
11	LEAD DATA SCIENTIST
12	LEAD DATA SCIENTIST
6	SENIOR DATA SCIENTIST
9	SENIOR DATA SCIENTIST
8	SENIOR DATA SCIENTIST
6	SENIOR DATA SCIENTIST
7	SENIOR DATA SCIENTIST
4	ASSOCIATE DATA SCIENTIST
3	ASSOCIATE DATA SCIENTIST
5	ASSOCIATE DATA SCIENTIST
3	ASSOCIATE DATA SCIENTIST
2	JUNIOR DATA SCIENTIST
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.

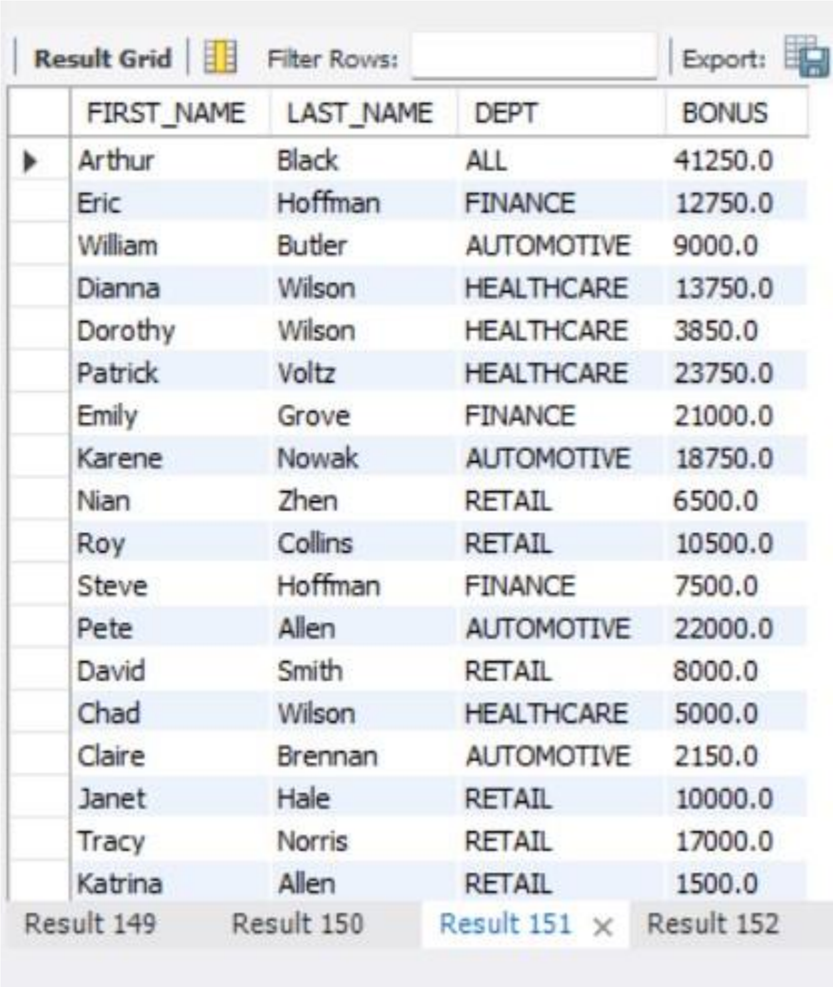
```
create INDEX idx_EMP3_firstname on emp_record_table(FIRST_NAME(20));
select * from emp_record_table where FIRST_NAME='Eric';
```



EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105

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).

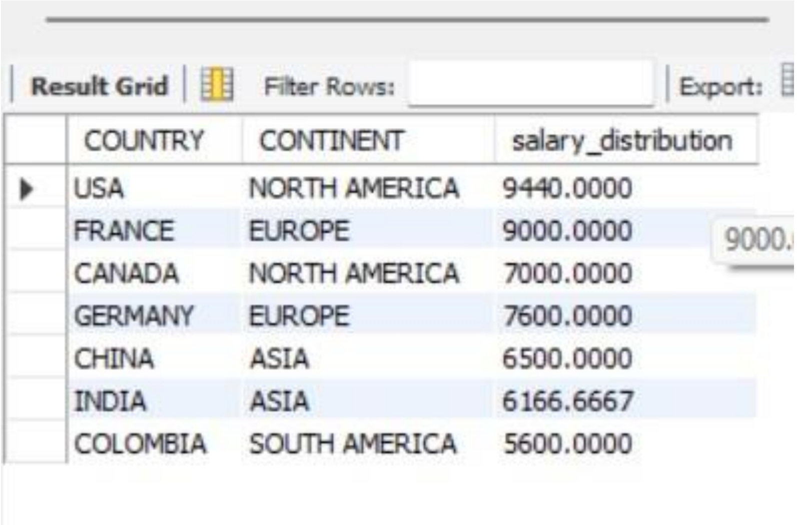
```
SELECT FIRST_NAME,LAST_NAME,DEPT,(0.5*salary*EMP_Rating)as BONUS FROM emp_record_table;
```



FIRST_NAME	LAST_NAME	DEPT	BONUS
Arthur	Black	ALL	41250.0
Eric	Hoffman	FINANCE	12750.0
William	Butler	AUTOMOTIVE	9000.0
Dianna	Wilson	HEALTHCARE	13750.0
Dorothy	Wilson	HEALTHCARE	3850.0
Patrick	Voltz	HEALTHCARE	23750.0
Emily	Grove	FINANCE	21000.0
Karene	Nowak	AUTOMOTIVE	18750.0
Nian	Zhen	RETAIL	6500.0
Roy	Collins	RETAIL	10500.0
Steve	Hoffman	FINANCE	7500.0
Pete	Allen	AUTOMOTIVE	22000.0
David	Smith	RETAIL	8000.0
Chad	Wilson	HEALTHCARE	5000.0
Claire	Brennan	AUTOMOTIVE	2150.0
Janet	Hale	RETAIL	10000.0
Tracy	Norris	RETAIL	17000.0
Katrina	Allen	RETAIL	1500.0

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

```
SELECT COUNTRY,CONTINENT,AVG(salary)as salary_distribution FROM
emp_record_table group by COUNTRY,CONTINENT;
```



COUNTRY	CONTINENT	salary_distribution
USA	NORTH AMERICA	9440.0000
FRANCE	EUROPE	9000.0000
CANADA	NORTH AMERICA	7000.0000
GERMANY	EUROPE	7600.0000
CHINA	ASIA	6500.0000
INDIA	ASIA	6166.6667
COLOMBIA	SOUTH AMERICA	5600.0000