

# ScienceQtech Employee Performance Mapping

**RAJEEV  
VHANHUVE**

Date

6/19/2022

Course title

SQL

---

## 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.*

**Note:** You must download the dataset from the course resource section in LMS and create a table to perform the above objective.

## 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.
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.
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

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.
6. Write a query to list only those employees who have someone reporting to them. Also, show the number of reporters (including the President).
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.
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.
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.
10. Write a query to assign ranks to each employee based on their experience. Take data from the employee record table.
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.
12. Write a nested query to find employees with experience of more than ten years. Take data from the employee record table.
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.
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'.
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.
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).
17. Write a query to calculate the average salary distribution based on the continent and country. Take data from the employee record table.

## SOLUTION-

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.

### Query-

**CREATE DATABASE** employee;

**USE** employee;

*#imported emp\_record\_table.csv , data\_science\_team.csv and proj\_table.csv using Table Data Import Wizard option.*

**SELECT \*FROM** emp\_record\_table;

**SELECT \*FROM** data\_science\_team;

**SELECT \*FROM** proj\_table;

### Output-

The screenshot shows the MySQL Workbench interface. The 'Query 1' tab is active, displaying the following SQL script:

```
1 • CREATE DATABASE employee;
2 • USE employee;
3 • SELECT * FROM employee.data_science_team;
4 • SELECT * FROM employee.emp_record_table;
5 • SELECT * FROM employee.proj_table;
```

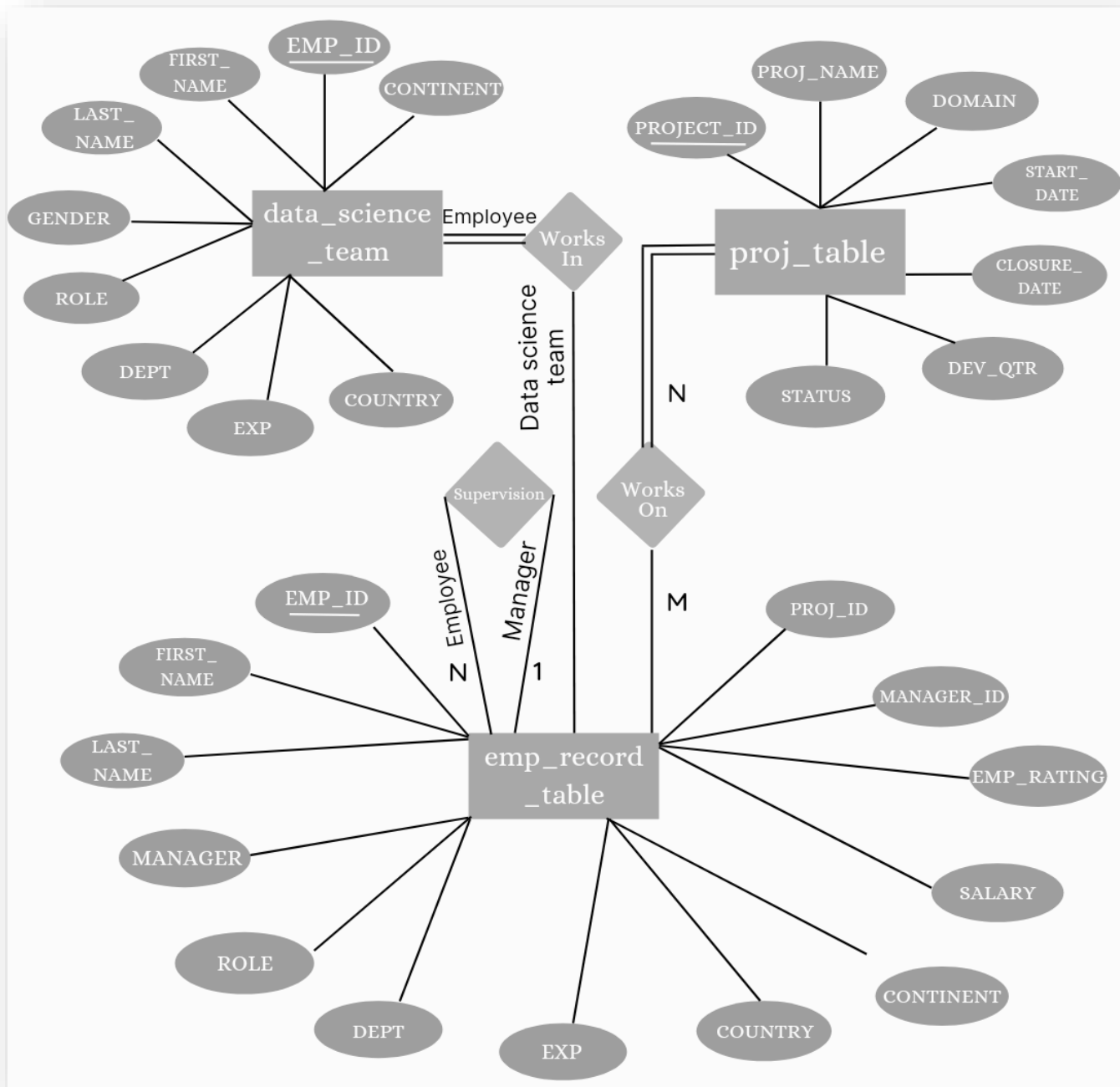
The 'Result Grid' shows the output of the queries. The first query, **SELECT \* FROM employee.data\_science\_team**, returned 13 rows. The columns are: #, EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, ROLE, DEPT, EXP, COUNTRY, and CONTINENT. The data is as follows:

#	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	Jennifer	Hones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA

The interface also shows the 'SCHEMAS' panel on the left with the 'employee' database selected, and the 'Query Completed' status at the bottom.



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

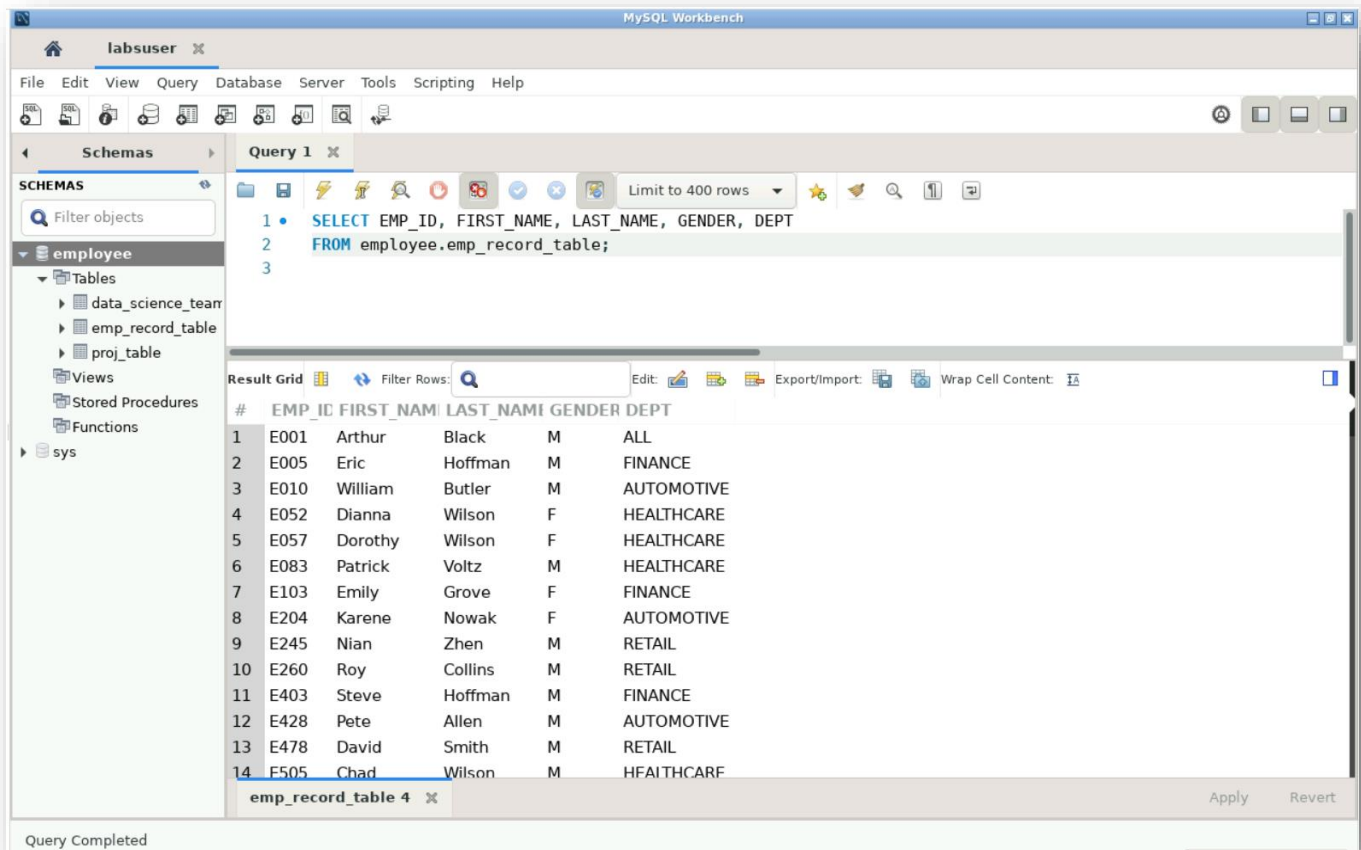


3. Write a query to fetch EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, and DEPARTMENT from the employee record table, and make a list of employees and details of their department.

### Query-

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

### Output-



The screenshot shows the MySQL Workbench interface. The 'Schemas' panel on the left shows the 'employee' schema with tables 'data\_science\_team', 'emp\_record\_table', and 'proj\_table'. The 'Query 1' editor contains the following SQL query:

```
1 • SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT  
2 FROM employee.emp_record_table;  
3
```

The 'Result Grid' shows the output of the query, displaying 14 rows of employee data. The columns are EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, and DEPT. The data is as follows:

#	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

The status bar at the bottom indicates 'Query Completed'.

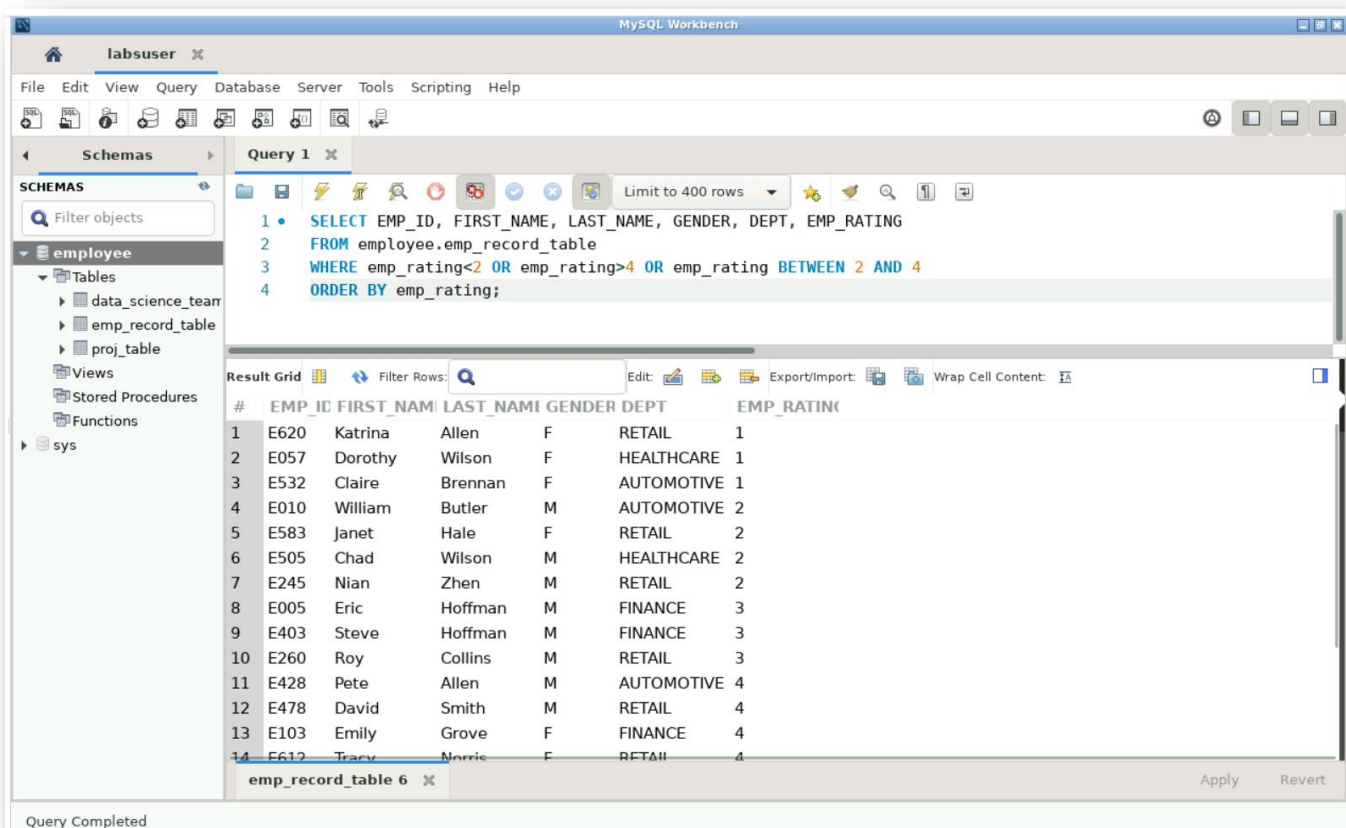
4. Write a query to fetch EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, DEPARTMENT, and EMP\_RATING if the EMP\_RATING is:

- less than two
- greater than four
- between two and four

### Query-

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING
FROM employee.emp_record_table
WHERE emp_rating < 2 OR emp_rating > 4 OR emp_rating BETWEEN 2 AND 4
ORDER BY emp_rating;
```

### Output-



The screenshot shows the MySQL Workbench interface. The 'Schemas' panel on the left lists the 'employee' database, which contains tables 'data\_science\_team', 'emp\_record\_table', and 'proj\_table'. The 'Query 1' editor in the center contains the following SQL query:

```
1 • SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING
2 FROM employee.emp_record_table
3 WHERE emp_rating < 2 OR emp_rating > 4 OR emp_rating BETWEEN 2 AND 4
4 ORDER BY emp_rating;
```

The 'Result Grid' at the bottom displays the query results in a table with 6 columns: #, EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, DEPT, and EMP\_RATING. The results are sorted by EMP\_RATING in ascending order.

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING
1	E620	Katrina	Allen	F	RETAIL	1
2	E057	Dorothy	Wilson	F	HEALTHCARE	1
3	E532	Claire	Brennan	F	AUTOMOTIVE	1
4	E010	William	Butler	M	AUTOMOTIVE	2
5	E583	Janet	Hale	F	RETAIL	2
6	E505	Chad	Wilson	M	HEALTHCARE	2
7	E245	Nian	Zhen	M	RETAIL	2
8	E005	Eric	Hoffman	M	FINANCE	3
9	E403	Steve	Hoffman	M	FINANCE	3
10	E260	Roy	Collins	M	RETAIL	3
11	E428	Pete	Allen	M	AUTOMOTIVE	4
12	E478	David	Smith	M	RETAIL	4
13	E103	Emily	Grove	F	FINANCE	4
14	E612	Tracy	Norris	F	RETAIL	4

The status bar at the bottom indicates 'Query Completed'.

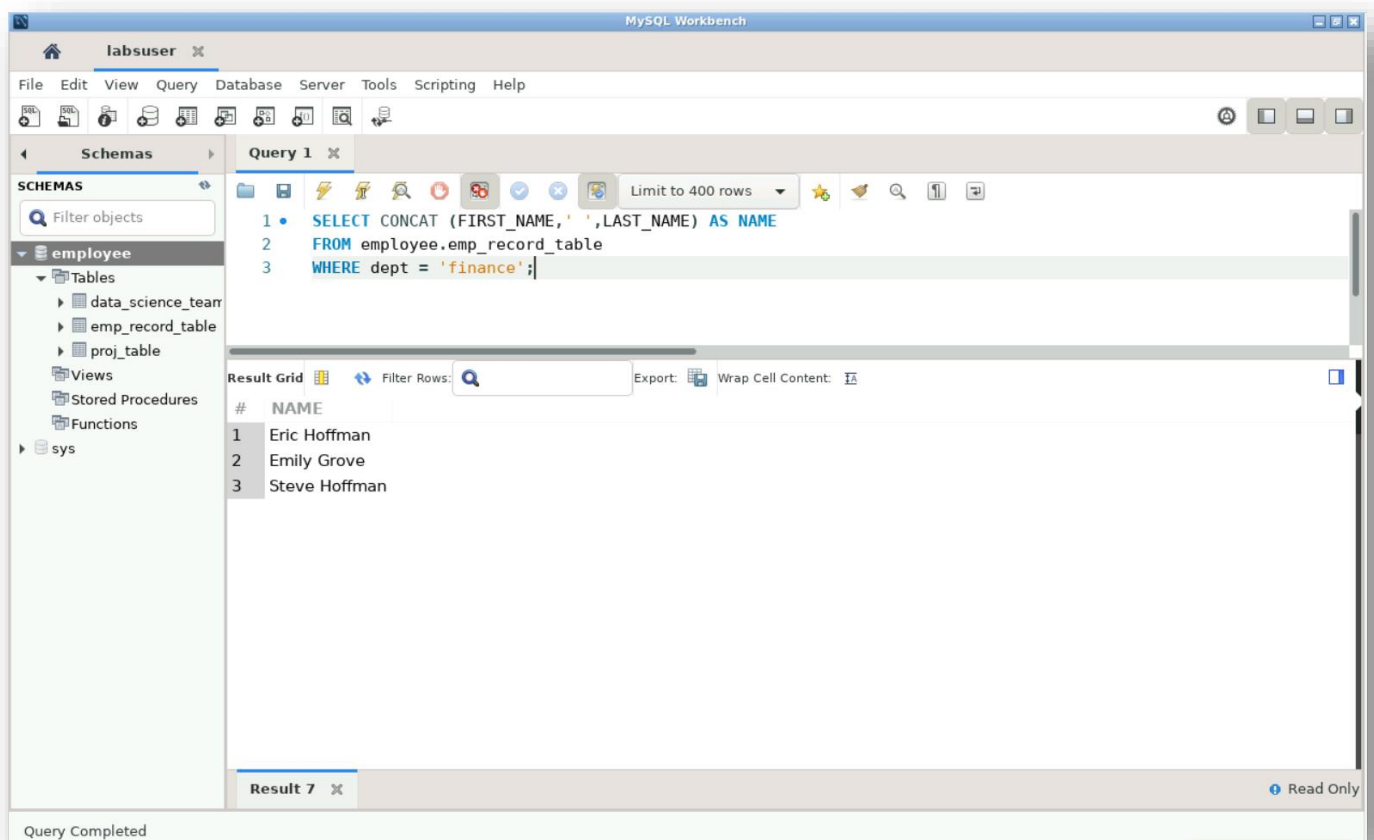


5. Write a query to concatenate the FIRST\_NAME and the LAST\_NAME of employees in the Finance department from the employee table and then give the resultant column alias as NAME.

### Query-

```
SELECT CONCAT(FIRST_NAME,' ',LAST_NAME) AS NAME
FROM employee.emp_record_table
WHERE dept = 'finance';
```

### Output-



The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' panel displays a tree view with 'employee' expanded, showing tables like 'data\_science\_team', 'emp\_record\_table', and 'proj\_table'. The main editor shows a query labeled 'Query 1' with the following SQL code:

```
1 • SELECT CONCAT (FIRST_NAME,' ',LAST_NAME) AS NAME
2 FROM employee.emp_record_table
3 WHERE dept = 'finance';
```

Below the query editor, the 'Result Grid' shows the output of the query. It has a single column named 'NAME' and three rows of data:

#	NAME
1	Eric Hoffman
2	Emily Grove
3	Steve Hoffman

The status bar at the bottom indicates 'Query Completed'.

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

### Query-

```
SELECT x.manager_id, x.first_name, x.last_name, x.role,  
COUNT(y.emp_id) AS 'Number of Reporting'  
FROM employee.emp_record_table x, employee.emp_record_table y  
WHERE x.manager_id=y.manager_id  
GROUP BY x.emp_id  
ORDER BY manager_id;
```

### Output-

The screenshot shows a database query tool interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar shows a tree view of schemas, with 'employee' expanded to show 'emp\_record\_table'. The main query editor displays the following SQL query:

```
1 • SELECT x.manager_id, x.first_name, x.last_name, x.role,  
2 COUNT(y.emp_id) AS 'Number of Reporting'  
3 FROM employee.emp_record_table x, employee.emp_record_table y  
4 WHERE x.manager_id=y.manager_id  
5 GROUP BY x.emp_id  
6 ORDER BY manager_id;
```

The results are displayed in a table with the following columns: #, manager\_id, first\_name, last\_name, role, and Number of Reporting. The results are as follows:

#	manager_id	first_name	last_name	role	Number of Reporting
1	E001	Patrick	Voltz	MANAGER	5
2	E001	Emily	Grove	MANAGER	5
3	E001	Pete	Allen	MANAGER	5
4	E001	Janet	Hale	MANAGER	5
5	E001	Tracy	Norris	MANAGER	5
6	E083	Chad	Wilson	ASSOCIATE DATA SCIENTIST	3
7	E083	Dorothy	Wilson	SENIOR DATA SCIENTIST	3
8	E083	Dianna	Wilson	SENIOR DATA SCIENTIST	3
9	E103	Eric	Hoffman	LEAD DATA SCIENTIST	2
10	E103	Steve	Hoffman	ASSOCIATE DATA SCIENTIST	2
11	E428	William	Butler	LEAD DATA SCIENTIST	3
12	E428	Karene	Nowak	SENIOR DATA SCIENTIST	3
13	E428	Claire	Brennan	ASSOCIATE DATA SCIENTIST	3

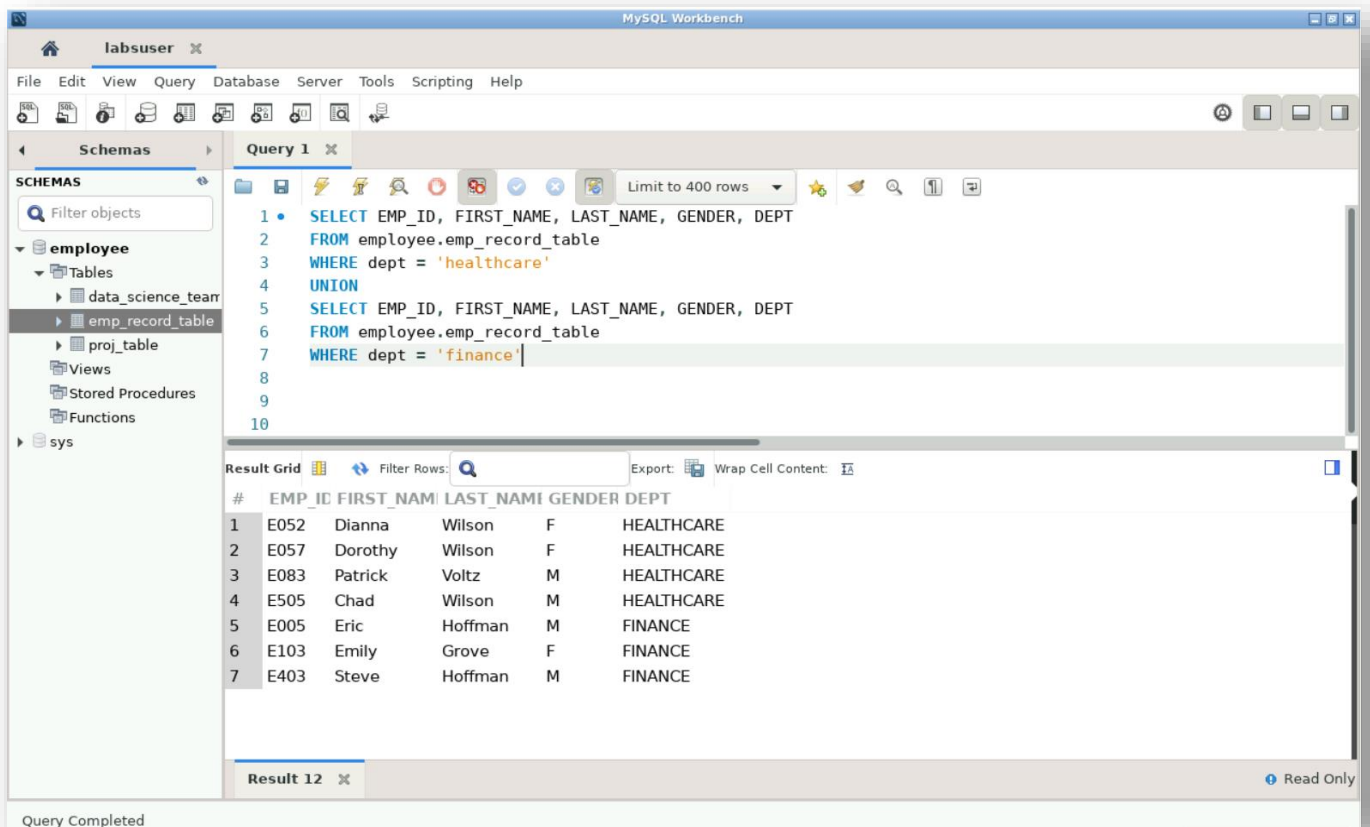
The bottom status bar indicates 'Query Completed'.

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.

### Query-

```
SELECT emp_id, first_name, last_name, gender, dept
FROM employee.emp_record_table
WHERE dept='healthcare'
UNION
SELECT emp_id, first_name, last_name, gender, dept
FROM employee.emp_record_table
WHERE dept='finance';
```

### Output-



The screenshot shows the MySQL Workbench interface. The 'Schemas' panel on the left shows the 'employee' database selected, with the 'emp\_record\_table' table highlighted. The 'Query 1' editor shows the following SQL query:

```
1 • SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT
2 FROM employee.emp_record_table
3 WHERE dept = 'healthcare'
4 UNION
5 SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT
6 FROM employee.emp_record_table
7 WHERE dept = 'finance'
8
9
10
```

The 'Result Grid' at the bottom displays the results of the query, showing 7 rows of employee data. The columns are EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, and DEPT. The data is as follows:

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

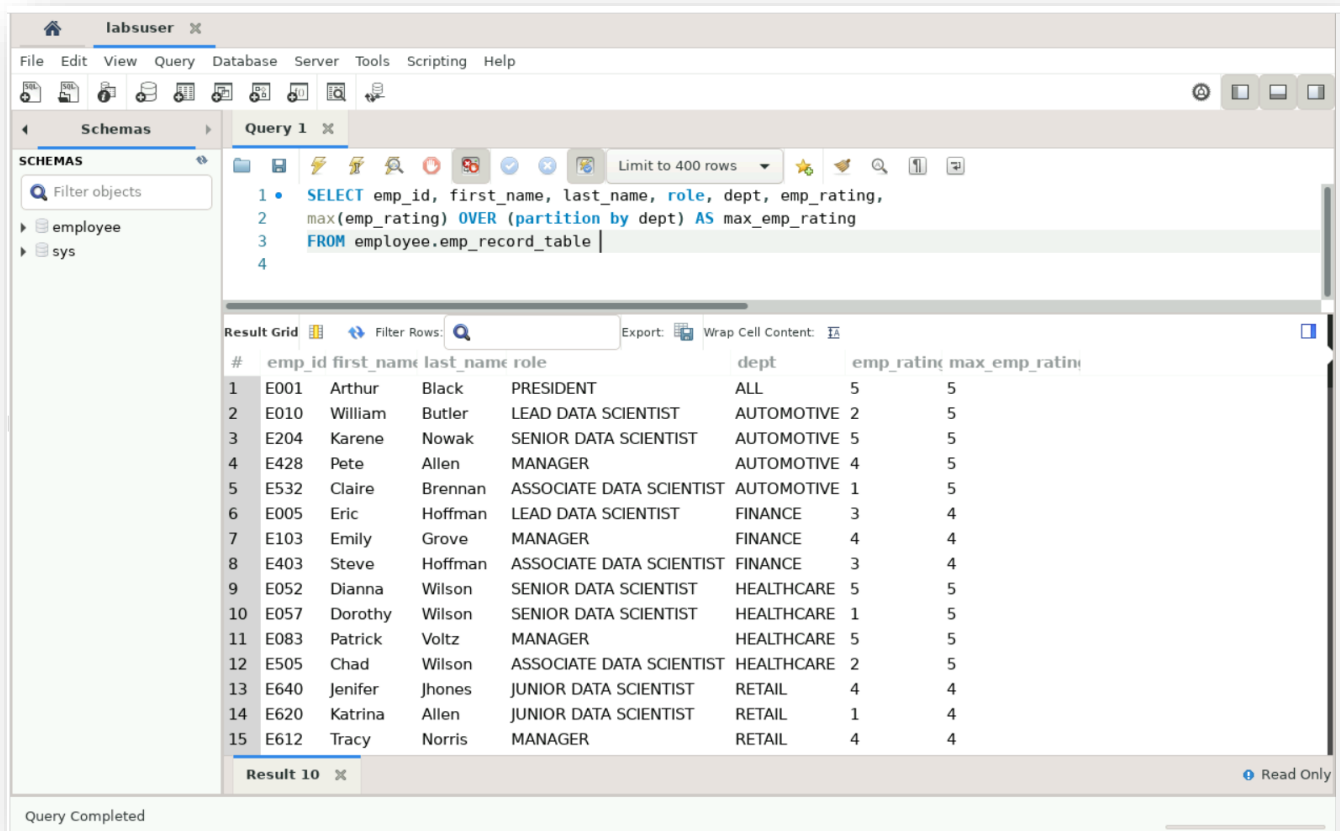
The status bar at the bottom indicates 'Query Completed'.

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.

### Query-

```
SELECT emp_id, first_name, last_name, emp_rating, dept, emp_rating,  
MAX(emp_rating) OVER (partition by dept) AS max_emp_rating  
FROM employee.emp_record_table
```

### Output-



The screenshot shows a database query tool interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar shows the Schemas section with a search filter and a list of schemas: employee and sys. The main area displays the query text for 'Query 1' and its results in a 'Result Grid'.

Query 1:

```
1 • SELECT emp_id, first_name, last_name, role, dept, emp_rating,  
2 max(emp_rating) OVER (partition by dept) AS max_emp_rating  
3 FROM employee.emp_record_table  
4
```

Result Grid:

#	emp_id	first_name	last_name	role	dept	emp_rating	max_emp_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	E052	Dianna	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	5	5
10	E057	Dorothy	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	1	5
11	E083	Patrick	Voltz	MANAGER	HEALTHCARE	5	5
12	E505	Chad	Wilson	ASSOCIATE DATA SCIENTIST	HEALTHCARE	2	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

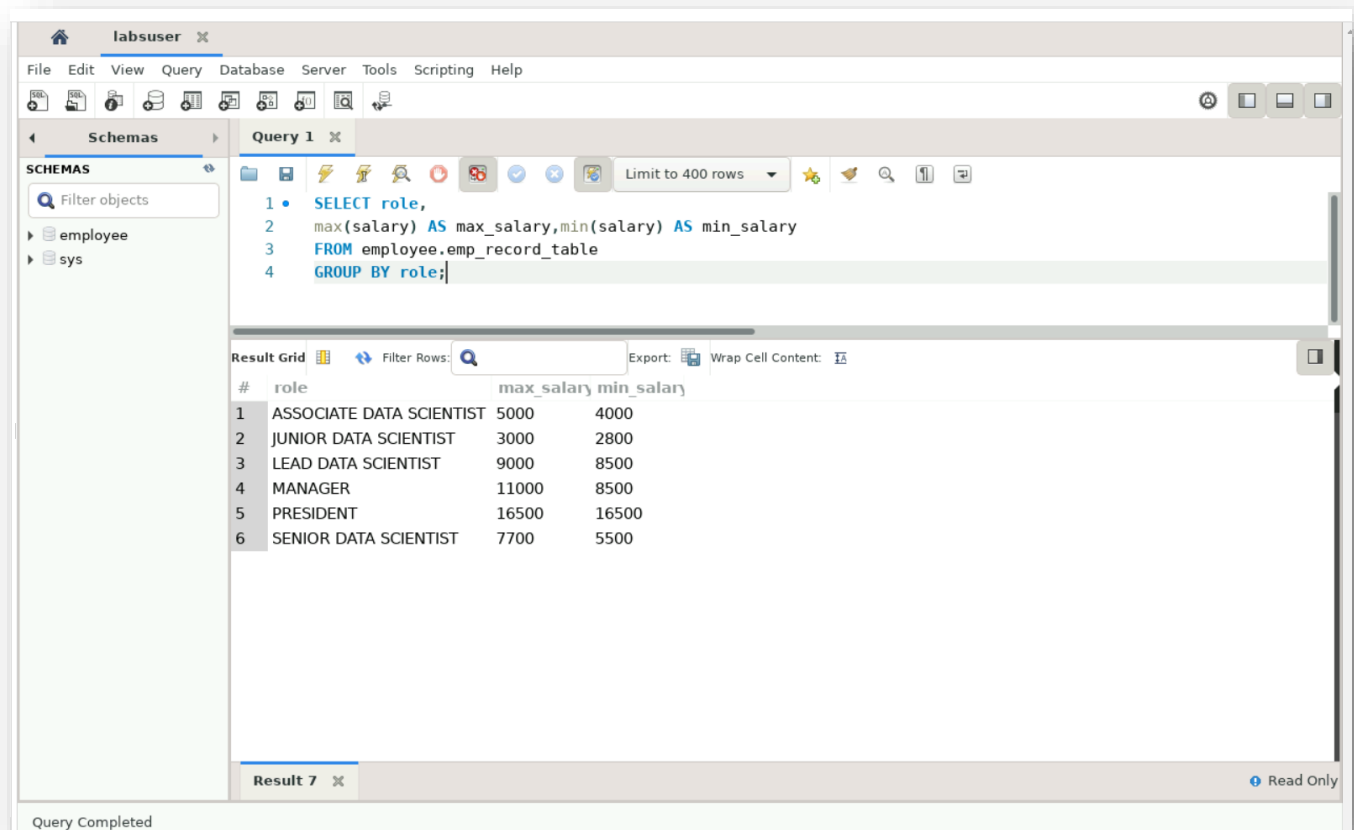
Query Completed

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.

### Query-

```
SELECT role,  
MAX(salary) AS max_salary, MIN(salary) AS min_salary  
FROM employee.emp_record_table  
GROUP BY role;
```

### Output-



The screenshot shows a database query tool interface. The query editor displays the following SQL query:

```
1 • SELECT role,  
2 max(salary) AS max_salary,min(salary) AS min_salary  
3 FROM employee.emp_record_table  
4 GROUP BY role;
```

The query results are displayed in a table with the following data:

#	role	max_salary	min_salary
1	ASSOCIATE DATA SCIENTIST	5000	4000
2	JUNIOR DATA SCIENTIST	3000	2800
3	LEAD DATA SCIENTIST	9000	8500
4	MANAGER	11000	8500
5	PRESIDENT	16500	16500
6	SENIOR DATA SCIENTIST	7700	5500

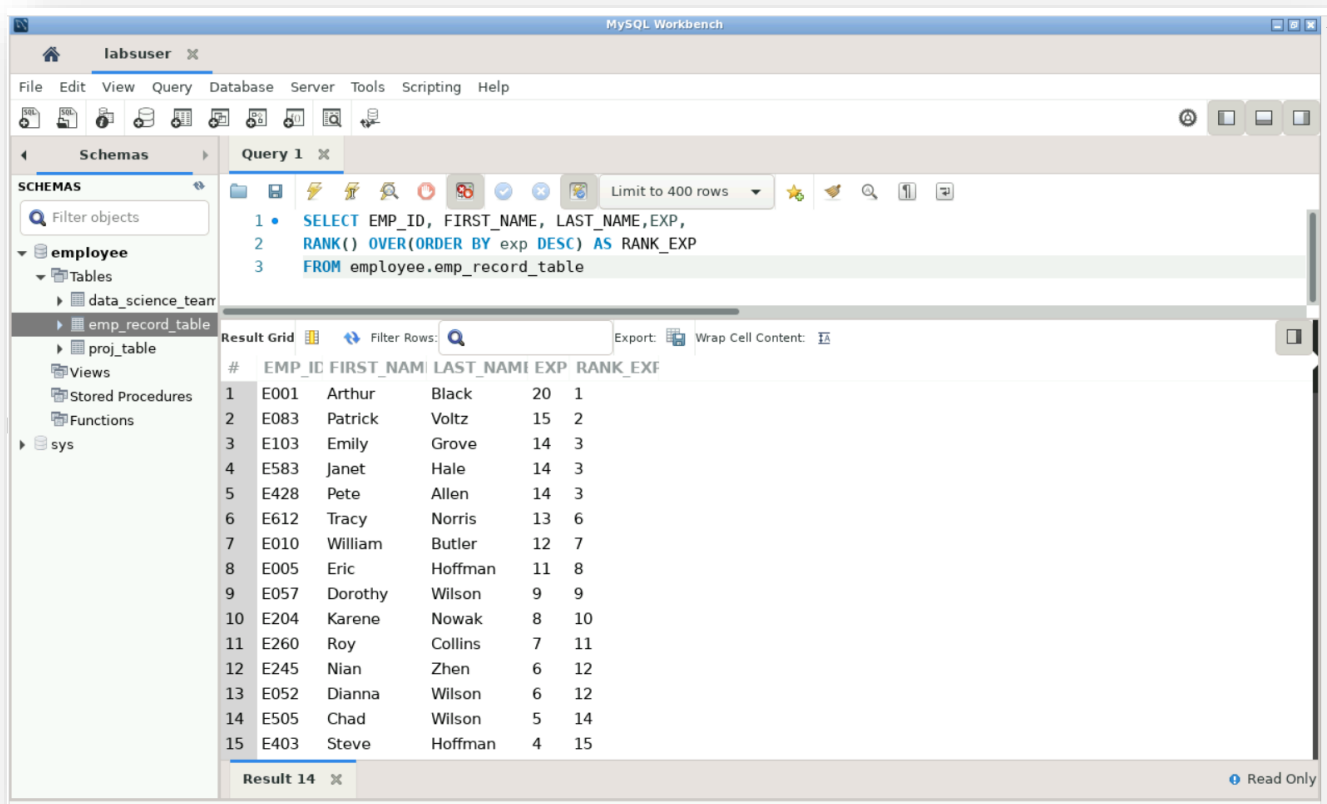
The interface also shows a 'Schemas' panel on the left with 'employee' and 'sys' schemas. The bottom status bar indicates 'Query Completed'.

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

### Query-

```
SELECT emp_id, first_name, last_name, exp,  
RANK( ) OVER(ORDER BY exp DESC) AS RANK_EXP  
FROM employee.emp_record_table
```

### Output-



The screenshot shows the MySQL Workbench interface. The 'Schemas' panel on the left lists the 'employee' database, with 'emp\_record\_table' selected. The 'Query 1' editor in the center contains the SQL query. The 'Result Grid' at the bottom displays the output of the query, which is a table with 5 columns: '#', 'EMP\_ID', 'FIRST\_NAME', 'LAST\_NAME', 'EXP', and 'RANK\_EXP'. The results are sorted by experience in descending order.

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



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.

### Query-

```
CREATE VIEW emp_salary AS
SELECT emp_id, first_name, last_name, country, salary
FROM employee.emp_record_table
WHERE salary > 6000
GROUP BY country
ORDER BY salary;

SELECT* FROM emp_salary;
```

### Output-

The screenshot shows the MySQL Workbench interface. The 'Schemas' pane on the left shows the 'employee' database with tables 'data\_science\_team', 'emp\_record\_table', and 'proj\_table', and a view 'emp\_salary'. The 'Query 1' editor shows the following SQL code:

```
1 • CREATE VIEW emp_salary AS
2 SELECT EMP_ID, FIRST_NAME, LAST_NAME, COUNTRY, SALARY
3 FROM employee.emp_record_table
4 WHERE salary > 6000
5 ORDER BY salary;
6
7 • SELECT * FROM employee.emp_salary;
```

The 'Result Grid' shows the output of the query, displaying 12 rows of employee data with columns: #, EMP\_ID, FIRST\_NAME, LAST\_NAME, COUNTRY, and SALARY.

#	EMP_ID	FIRST_NAME	LAST_NAME	COUNTRY	SALARY
1	E245	Nian	Zhen	CHINA	6500
2	E260	Roy	Collins	INDIA	7000
3	E204	Karene	Nowak	GERMANY	7500
4	E057	Dorothy	Wilson	USA	7700
5	E005	Eric	Hoffman	USA	8500
6	E612	Tracy	Norris	INDIA	8500
7	E010	William	Butler	FRANCE	9000
8	E083	Patrick	Voltz	USA	9500
9	E583	Janet	Hale	COLOMBIA	10000
10	E103	Emily	Grove	CANADA	10500
11	E428	Pete	Allen	GERMANY	11000
12	E001	Arthur	Black	USA	11500

The status bar at the bottom indicates 'Query Completed'.

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

### Query-

```
SELECT * FROM employee.emp_record_table
WHERE exp IN (
SELECT exp FROM employee.emp_record_table
WHERE exp > 10
);
```

### Output-

The screenshot shows the MySQL Workbench interface. The 'Query 1' tab is active, displaying the following SQL query:

```
1 • SELECT * FROM employee.emp_record_table
2 WHERE exp IN(
3 SELECT exp FROM employee.emp_record_table
4 WHERE EXP >10
5 );|
```

The 'Result Grid' shows the output of the query. The columns are: #, EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, ROLE, DEPT, EXP, COUNTRY, CONTINENT, SALARY, and EMP\_RATE. The results are as follows:

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATE
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
3	E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2
4	E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5
5	E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4
6	E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4
7	E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOMBIA	SOUTH AMERICA	10000	2
8	E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	8500	4
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

The status bar at the bottom indicates 'Query Completed'.

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.

### Query-

```
USE `employee`;
DROP procedure IF EXISTS `emp_exp`;
DELIMITER $$
USE `employee` $$
CREATE PROCEDURE `emp_exp`()
BEGIN
SELECT * FROM employee.emp_record_table
WHERE exp > 3
ORDER BY exp DESC;
END$$
DELIMITER ;
CALL emp_exp()
```

### Output-

The screenshot shows the MySQL Workbench interface. The 'Query 2' window contains the following SQL code:

```
1 • USE `employee`;
2 • DROP procedure IF EXISTS `emp_exp`;
3
4 DELIMITER $$
5 • USE `employee` $$
6 • CREATE PROCEDURE `emp_exp`()
7 BEGIN
8 SELECT * FROM employee.emp_record_table
9 WHERE exp > 3
10 ORDER BY exp DESC;
11 END$$
12 DELIMITER ;
13 • CALL emp_exp()
```

The 'Result Grid' shows the output of the query, displaying 7 rows of employee data. The columns are: #, EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, ROLE, DEPT, EXP, COUNTRY, CONTINENT, SALARY, and EMP\_P. The data is sorted by experience (EXP) in descending order.

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_P
1	E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5
2	E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5
3	E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4
4	E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4
5	E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOMBIA	SOUTH AMERICA	10000	2
6	E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	8500	4
7	E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2

The status bar at the bottom indicates 'Query Completed'.

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'.

**Query-**

```
USE `employee`;
```

```
DROP function IF EXISTS `job_profile`;
```

```
USE `employee`;
```

```
DROP function IF EXISTS `employee`.`job_profile`;
```

```
;
```

```
DELIMITER $$
```

```
USE `employee` $$
```

```
CREATE DEFINER=`labsuser`@`localhost` FUNCTION `job_profile`(exp int, role varchar(25))  
RETURNS varchar(20) CHARSET utf8mb4
```

```
    DETERMINISTIC
```

```
BEGIN
```

```
DECLARE profile_check varchar(20);
```

```
if (exp<=2 AND role="JUNIOR DATA SCIENTIST")
```

```
then set profile_check="correct";
```

```
elseif(exp>2 AND exp<=5 AND role="ASSOCIATE DATA SCIENTIST")
```

```
then set profile_check="correct";
```

```
elseif(exp>5 AND exp<=10 AND role="SENIOR DATA SCIENTIST")
```

```
then set profile_check="correct";
```

```
elseif(exp>10 AND exp<=12 AND role="LEAD DATA SCIENTIST")
```

```
then set profile_check="correct";
```

```
elseif(exp>12 AND exp<=16 AND role="MANAGER")
```

```
then set profile_check="correct";
```

```
ELSE set profile_check="not correct";
```

```
END IF;
```

```
RETURN(profile_check);
```

END\$\$

DELIMITER ;

;

SELECT first\_name, last\_name, exp, role, job\_profile(exp, role) AS profile\_check  
FROM employee.data\_science\_team;

## Output-

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with 'employee' and 'sys' schemas expanded. The 'employee' schema shows 'Tables', 'Views', 'Stored Procedures', and 'Functions'. The 'sys' schema shows 'Tables', 'Views', 'Stored Procedures', and 'Functions'. The 'job\_profile' function is selected under 'employee'.

The main editor shows the following SQL code:

```
27 END$$
28
29 DELIMITER ;
30 ;
31
32 • select first_name, last_name, exp, role, job_profile(exp, role) AS profile_check
33 from employee.data_science_team;
```

The 'Result Grid' shows the output of the query:

#	first_name	last_name	exp	role	profile_check
1	Eric	Hoffman	11	LEAD DATA SCIENTIST	correct
2	William	Butler	12	LEAD DATA SCIENTIST	correct
3	Dianna	Wilson	6	SENIOR DATA SCIENTIST	correct
4	Dorothy	Wilson	9	SENIOR DATA SCIENTIST	correct
5	Karene	Nowak	8	SENIOR DATA SCIENTIST	correct
6	Nian	Zhen	6	SENIOR DATA SCIENTIST	correct
7	Roy	Collins	7	SENIOR DATA SCIENTIST	correct
8	Steve	Hoffman	4	ASSOCIATE DATA SCIENTIST	correct
9	David	Smith	3	ASSOCIATE DATA SCIENTIST	correct
10	Chad	Wilson	5	ASSOCIATE DATA SCIENTIST	correct
11	Claire	Brennan	3	ASSOCIATE DATA SCIENTIST	correct
12	Katrina	Allen	2	JUNIOR DATA SCIENTIST	correct

The status bar at the bottom indicates 'SQL script saved to '/home/labsuser/Videos/function\_profilecheck''.

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.

### Query-

```
CREATE INDEX indx ON employee.emp_record_table(role);  
EXPLAIN SELECT * FROM employee.emp_record_table  
WHERE first_name='Eric';
```

### Output-

The screenshot shows the MySQL Workbench interface. The 'Schemas' panel on the left lists the 'employee' schema, which contains tables, views, stored procedures, and functions. The 'Query 1' tab is active, displaying the following SQL query:

```
1 • CREATE INDEX indx ON employee.emp_record_table(role);  
2 • explain SELECT * FROM employee.emp_record_table  
3   WHERE first_name='Eric';
```

The 'Result Grid' at the bottom shows the execution plan for the query. The first row of the result is:

#	id	select_type	table	partition	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	1	SIMPLE	emp_record_table		ALL					19	10.00	Using where

The status bar at the bottom indicates 'Query Completed'.

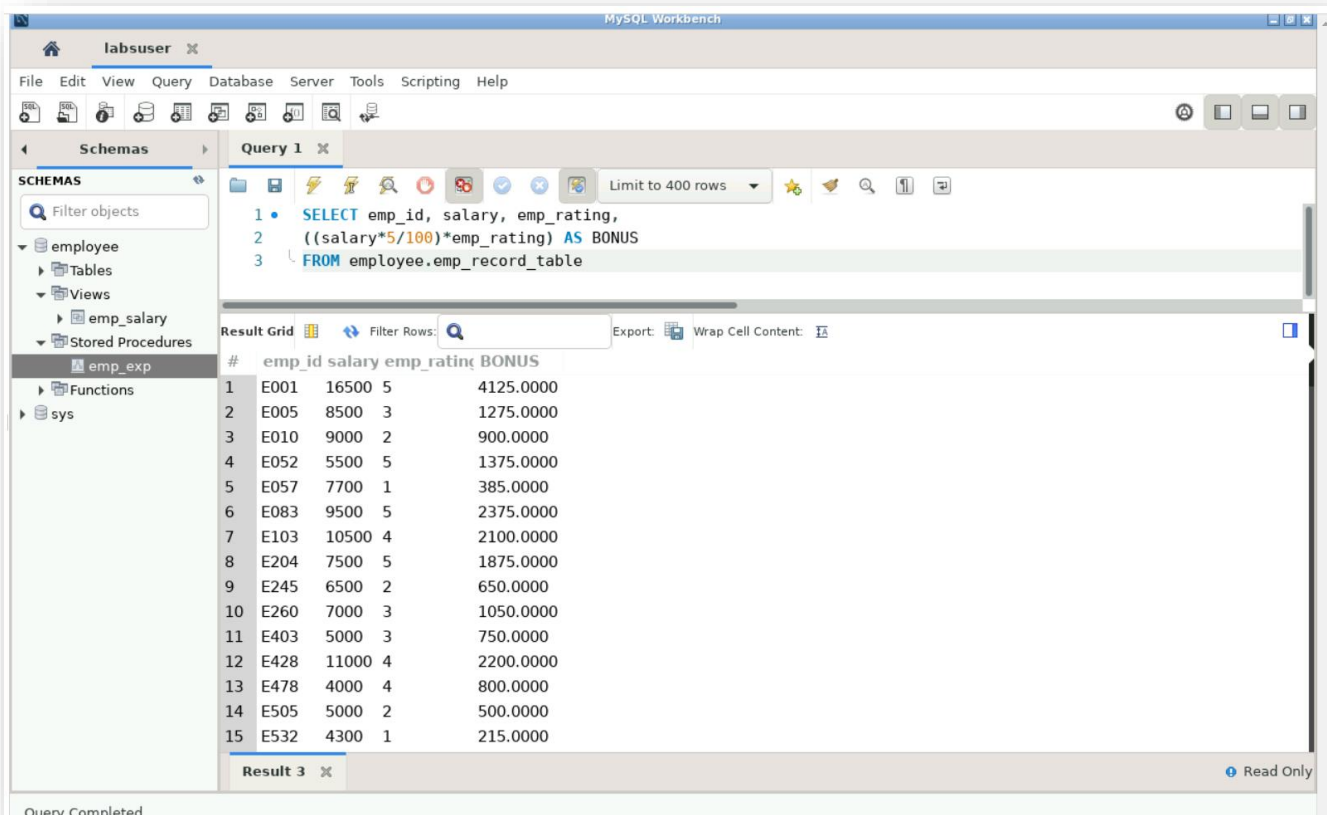


16. Write a query to calculate the bonus for all the employees, based on their ratings and salaries (Use the formula: 5% of salary \* employee rating).

### Query-

```
SELECT emp_id, salary, emp_rating,  
((salary*5/100)*emp_rating) AS bonus  
FROM employee.emp_record_table
```

### Output-



The screenshot shows the MySQL Workbench interface. The 'Schemas' pane on the left lists the 'employee' database and its tables, including 'emp\_record\_table'. The 'Query 1' editor shows the SQL query to calculate bonuses. The 'Result Grid' displays 15 rows of data with columns for employee ID, salary, rating, and the calculated bonus.

#	emp_id	salary	emp_rating	BONUS
1	E001	16500	5	4125.0000
2	E005	8500	3	1275.0000
3	E010	9000	2	900.0000
4	E052	5500	5	1375.0000
5	E057	7700	1	385.0000
6	E083	9500	5	2375.0000
7	E103	10500	4	2100.0000
8	E204	7500	5	1875.0000
9	E245	6500	2	650.0000
10	E260	7000	3	1050.0000
11	E403	5000	3	750.0000
12	E428	11000	4	2200.0000
13	E478	4000	4	800.0000
14	E505	5000	2	500.0000
15	E532	4300	1	215.0000

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

### Query-

```
SELECT emp_id, salary, emp_rating,  
SELECT continent, avg(salary) FROM employee.emp_record_table GROUP BY continent;  
SELECT country, avg(salary) FROM employee.emp_record_table GROUP BY country;  
SELECT continent,  
(SELECT avg(y.salary) FROM employee.emp_record_table y  
WHERE x.continent = y.continent) AS continent_avg, country,  
(SELECT avg(z.salary) FROM employee.emp_record_table z  
WHERE x.continent = z.continent) AS country_avg  
FROM employee.emp_record_table x  
GROUP BY continent, country;
```

### Output-

The screenshot shows the MySQL Workbench interface. The 'Schemas' panel on the left lists the 'employee' database, which contains tables 'emp\_salary' and 'emp\_exp'. The 'Query 1' editor in the center contains a SQL query. The 'Result Grid' at the bottom displays the output of the query, which is a table with 5 columns: '#', 'continent', 'continent\_avg', 'country', and 'country\_avg'. The results show 7 rows of data for different continents and countries, with their respective average salaries.

#	continent	continent_avg	country	country_avg
1	NORTH AMERICA	8525.0000	USA	8525.0000
2	EUROPE	7950.0000	FRANCE	7950.0000
3	NORTH AMERICA	8525.0000	CANADA	8525.0000
4	EUROPE	7950.0000	GERMANY	7950.0000
5	ASIA	6250.0000	CHINA	6250.0000
6	ASIA	6250.0000	INDIA	6250.0000
7	SOUTH AMERICA	5600.0000	COLOMBIA	5600.0000