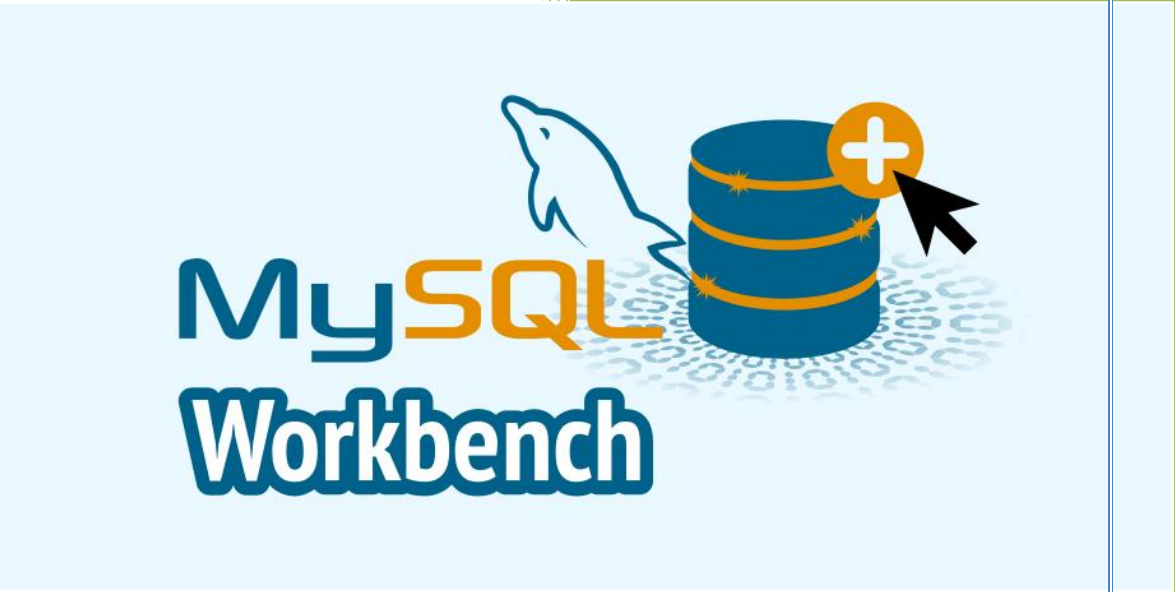
SQL Project : Science Qtech Employee Performance Mapping



Kaushik Dey

Science Qtech 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 currentl

Science Qtech Employee Performance Mapping

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

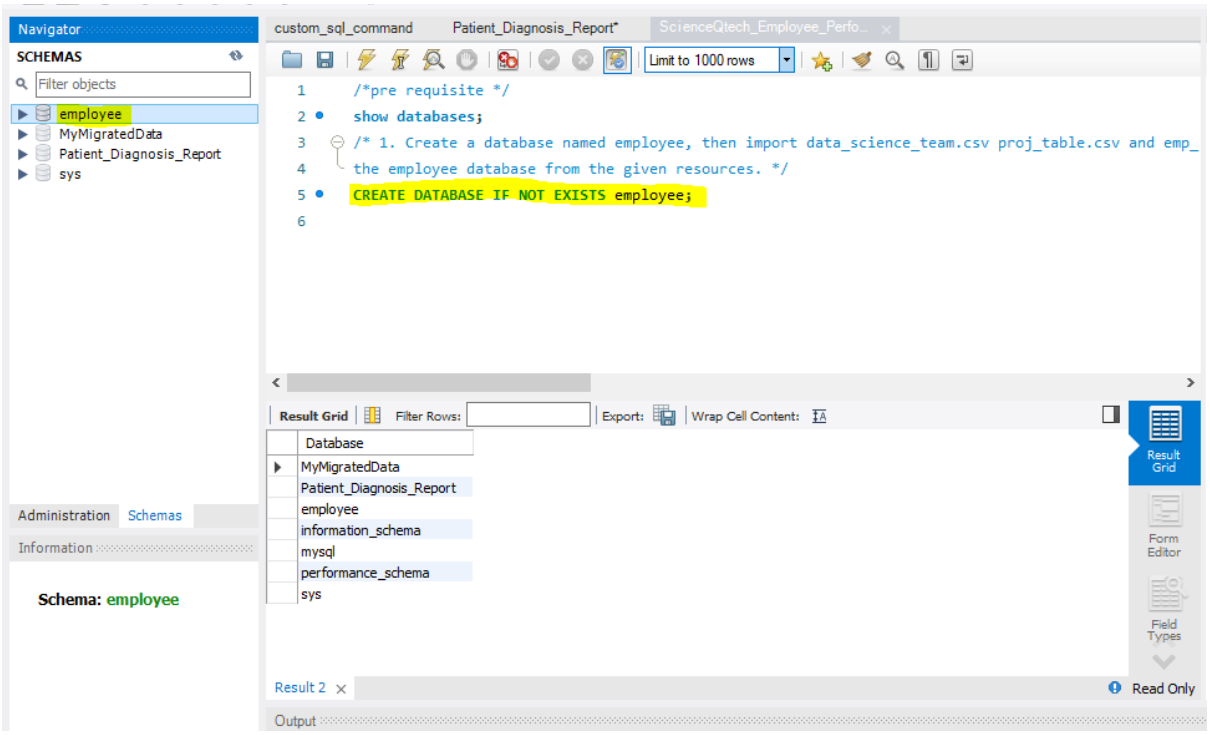
The tasks to be performed:

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.

SQL CODE

```
CREATE DATABASE employee;
```

OUTPUT :



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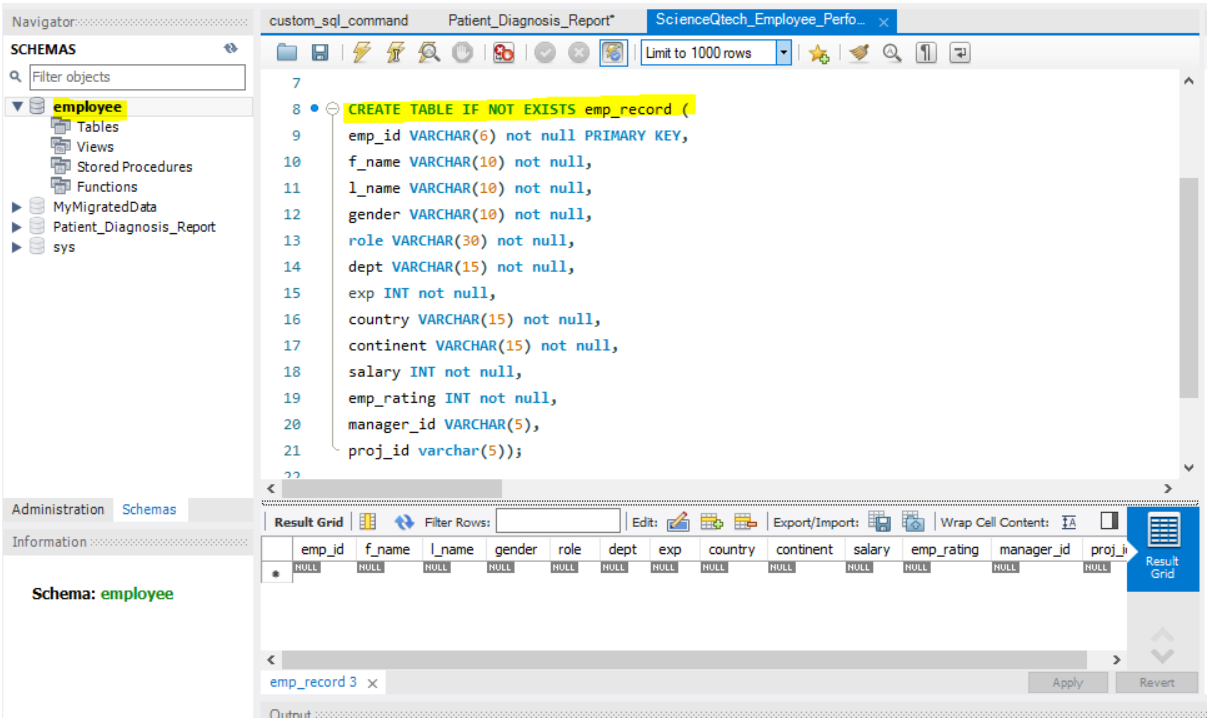
SQL CODE

CREATE TABLE IF NOT EXISTS emp_record (emp_id VARCHAR(6) not null PRIMARY KEY, f_name VARCHAR(10) not null, l_name VARCHAR(10) not null, gender VARCHAR(10) not null, role VARCHAR(30) not null, dept VARCHAR(15) not null, exp INT not null, country VARCHAR(15) not null, continent VARCHAR(15) not null, salary INT not null, emp_rating INT not null, manager_id VARCHAR(5), proj_id varchar(5));

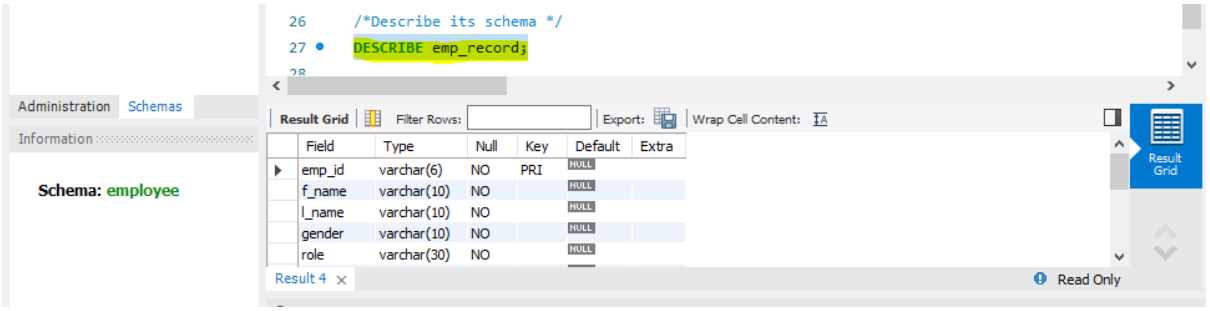
OUTPUT



SQL CODE

DESCRIBE emp_record;

OUTPUT



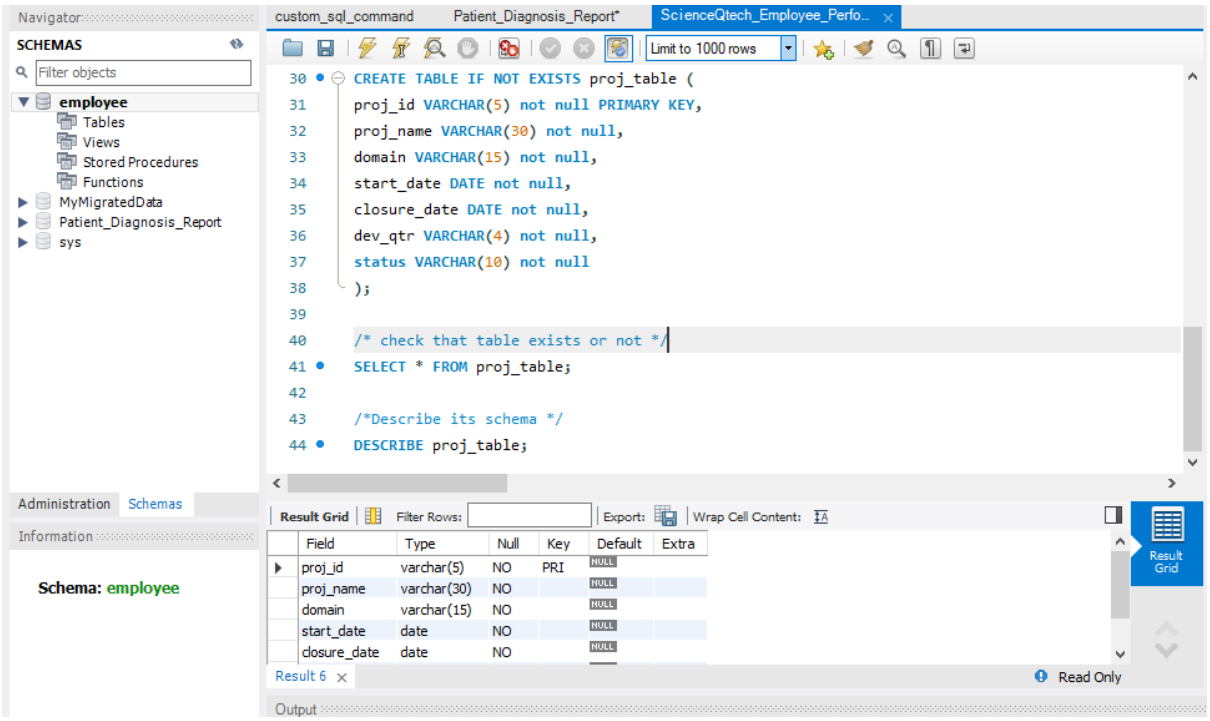
Science Qtech Employee Performance Mapping

SQL CODE

CREATE TABLE IF NOT EXISTS proj_table (proj_id VARCHAR(5) not null PRIMARY KEY, proj_name VARCHAR(30) not null, domain VARCHAR(15) not null, start_date DATE not null, closure_date DATE not null, dev_qtr VARCHAR(4) not null, status VARCHAR(10) not null);

SELECT * FROM proj_table;
DESCRIBE proj_table;

OUTPUT



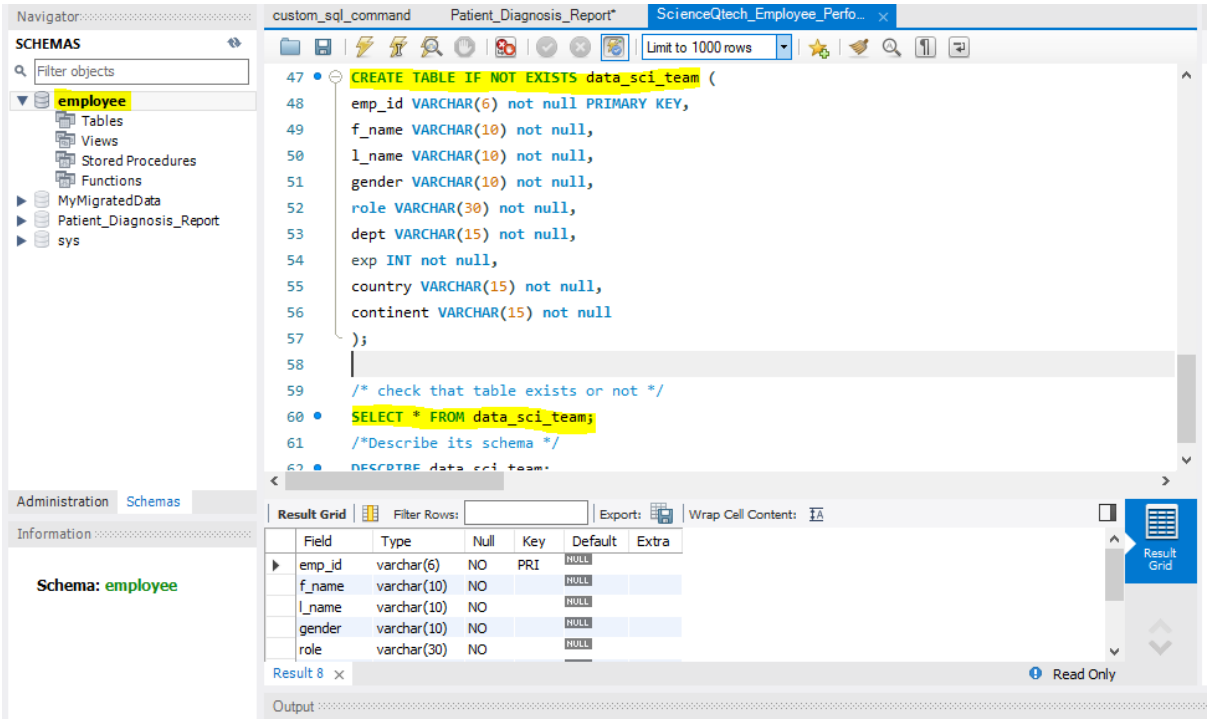
SQL CODE

CREATE TABLE IF NOT EXISTS data_sci_team (emp_id VARCHAR(6) not null PRIMARY KEY, f_name VARCHAR(10) not null, l_name VARCHAR(10) not null, gender VARCHAR(10) not null, role VARCHAR(30) not null, dept VARCHAR(15) not null, exp INT not null, country VARCHAR(15) not null, continent VARCHAR(15) not null);

SELECT * FROM data_sci_team;
DESCRIBE data_sci_team;

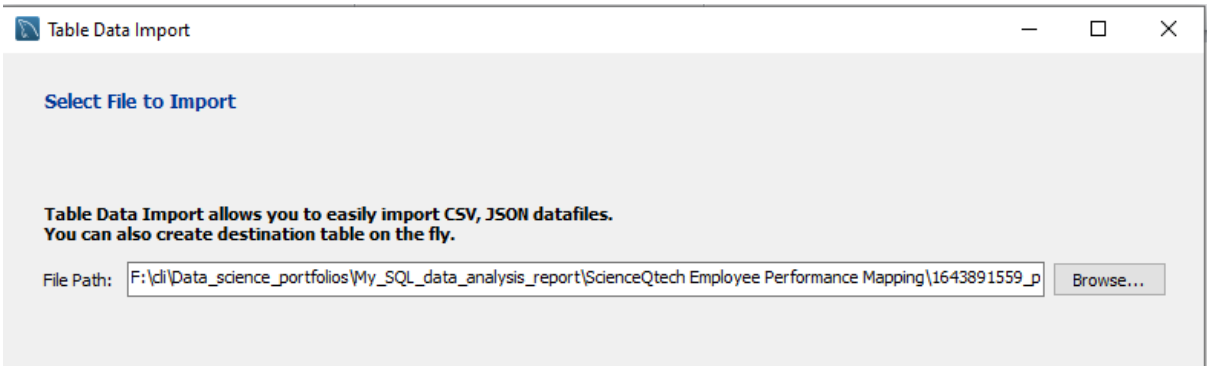
Science Qtech Employee Performance Mapping

OUTPUT

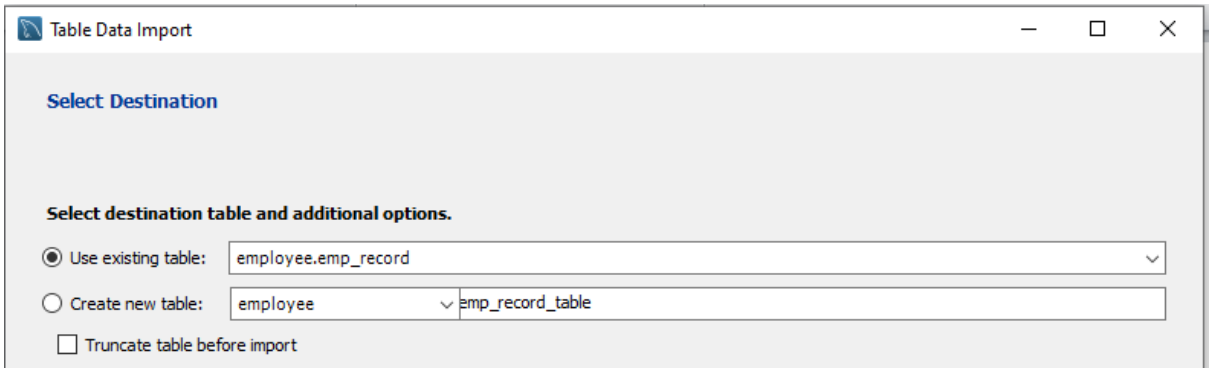


IMPORT DATA INTO TABLES (First approach normally UI based)

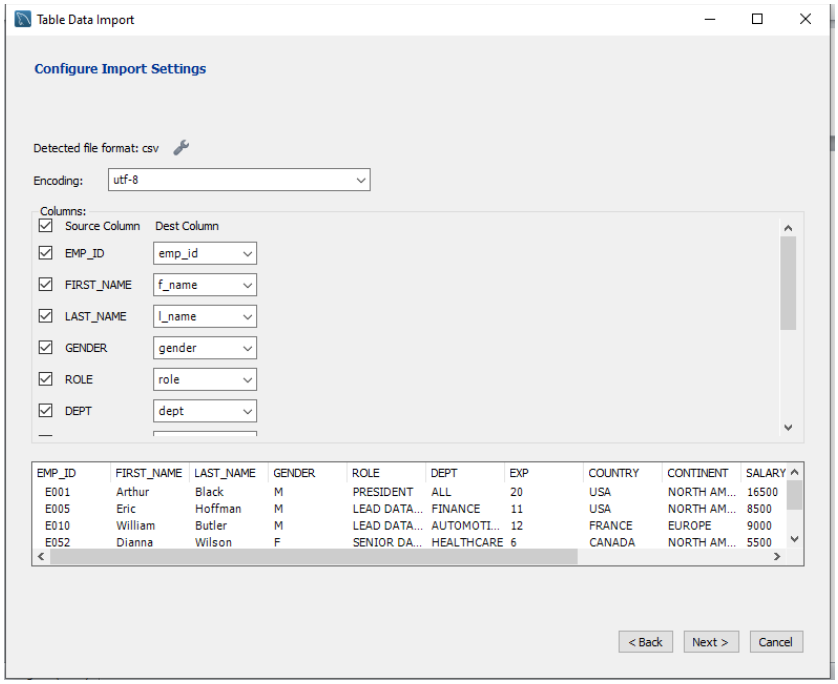
1. **First right click on the table and select Table Data Import wizard.**
2. **Next Browse the file path.**



3. **Click on next and select destination.**



4. Configuare import settings

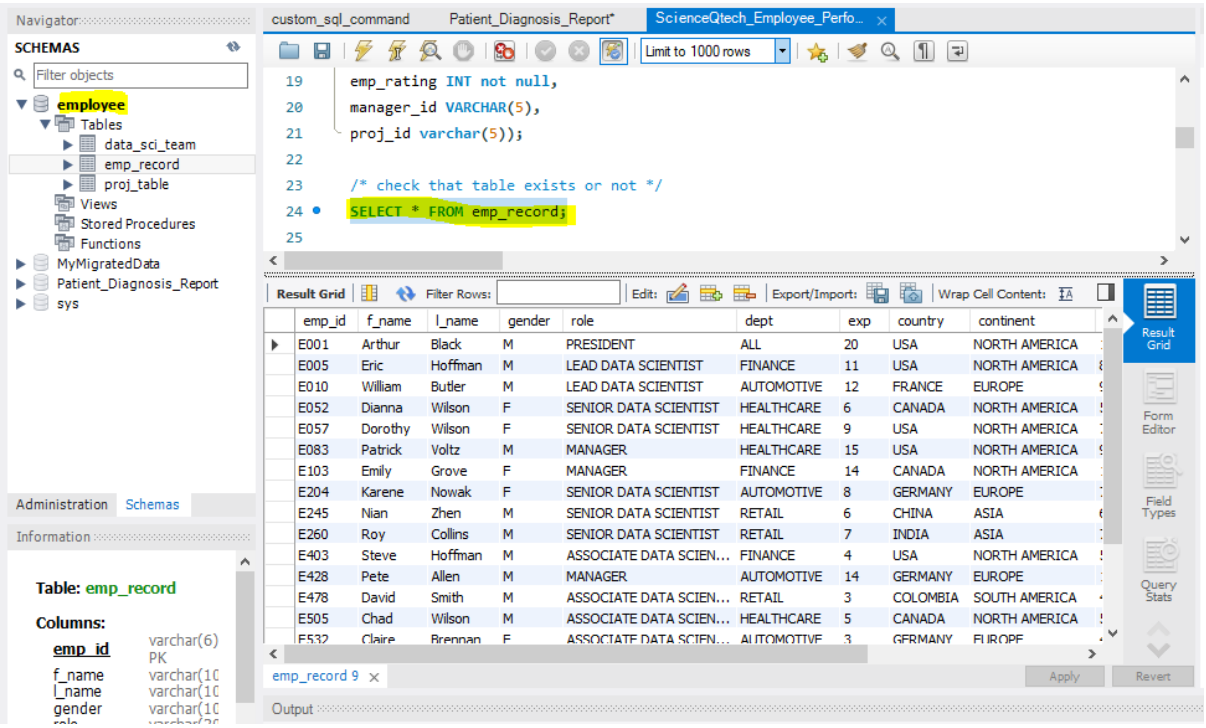


5. Click on next, and finally import data.

6. When task done then we can verify the data is present or not.

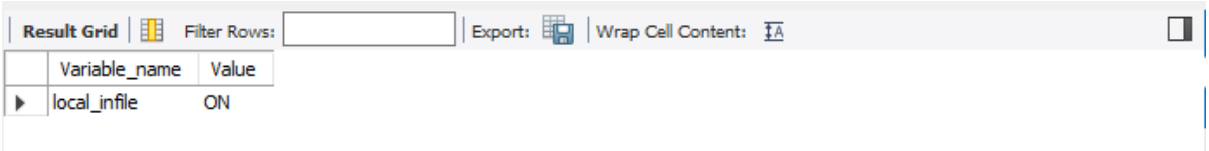
SELECT * FROM emp_record;

emp_record



IMPORT DATA INTO TABLES (via command line)

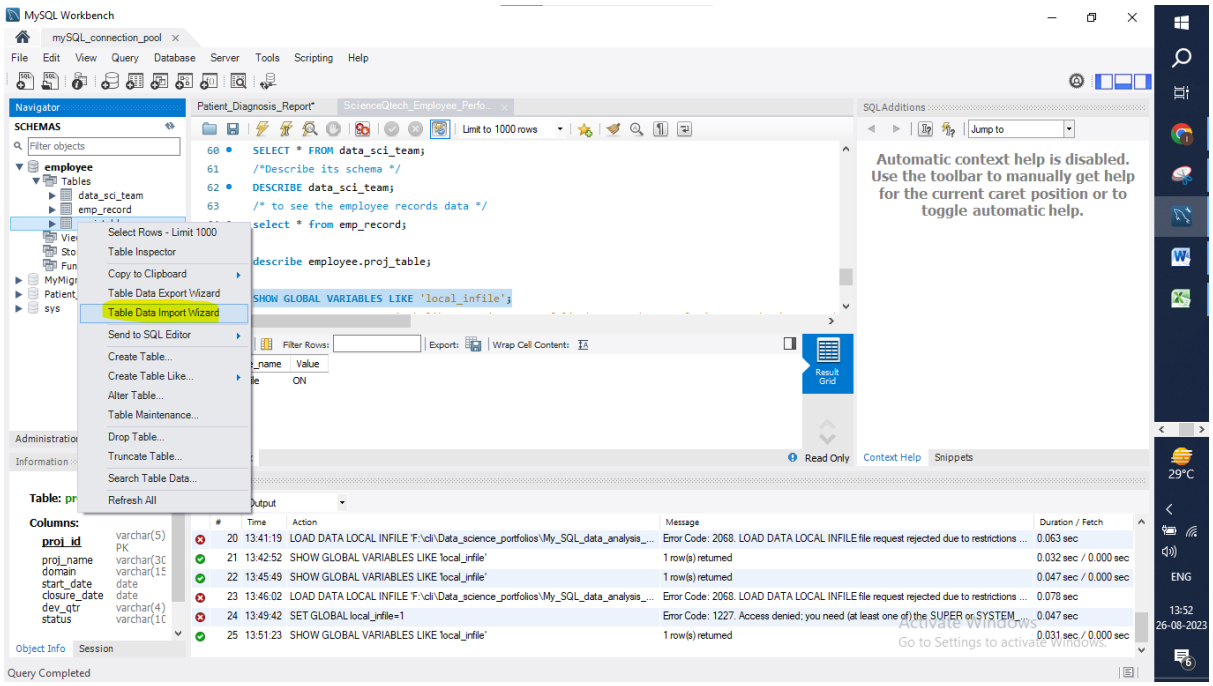
```
SHOW GLOBAL VARIABLES LIKE 'local_infile';
```

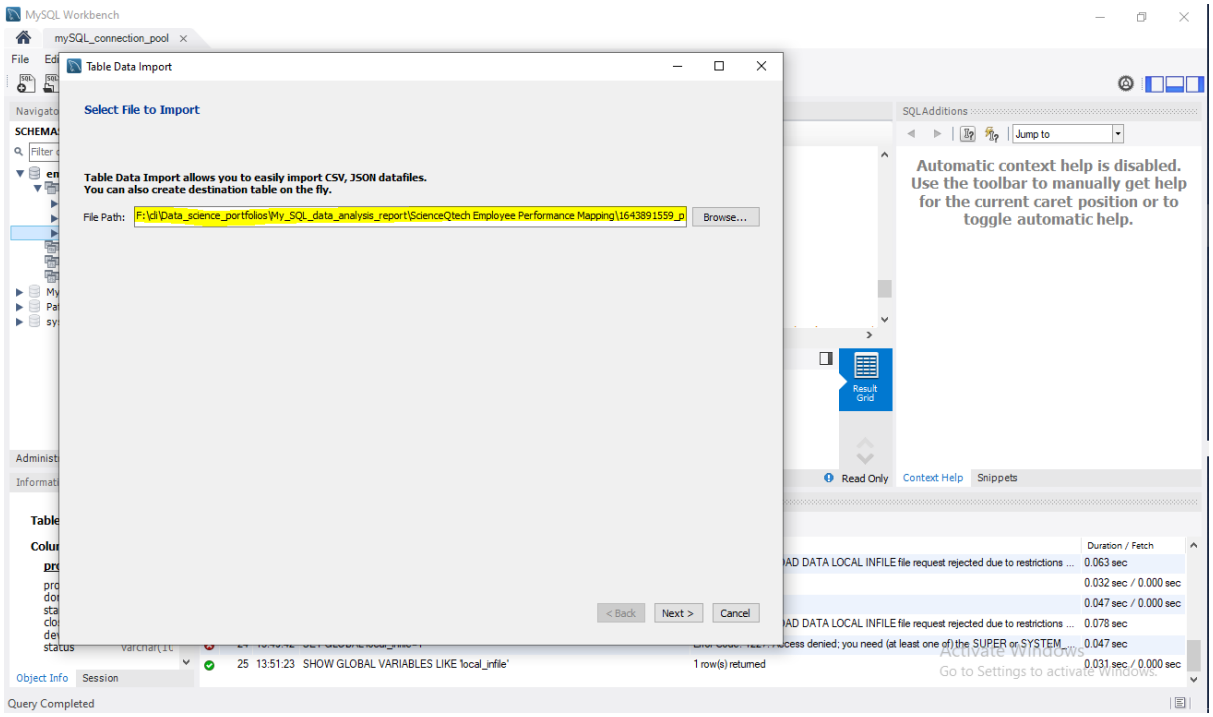



```
LOAD DATA LOCAL INFILE
'F:\cli\Data_science_portfolios\My_SQL_data_analysis_report\ScienceQtech Employee
Performance Mapping\1643891559_performance_mapping_datasets\proj_table.csv'
INTO TABLE employee.proj_table
FIELDS TERMINATED BY ','
ENCLOSED BY '"' LINES
TERMINATED BY '\n' IGNORE 1 ROWS
(`proj_id`,`proj_name`,`domain`,`start_date`,`closure_date`,`dev_qtr`,`status`);
```

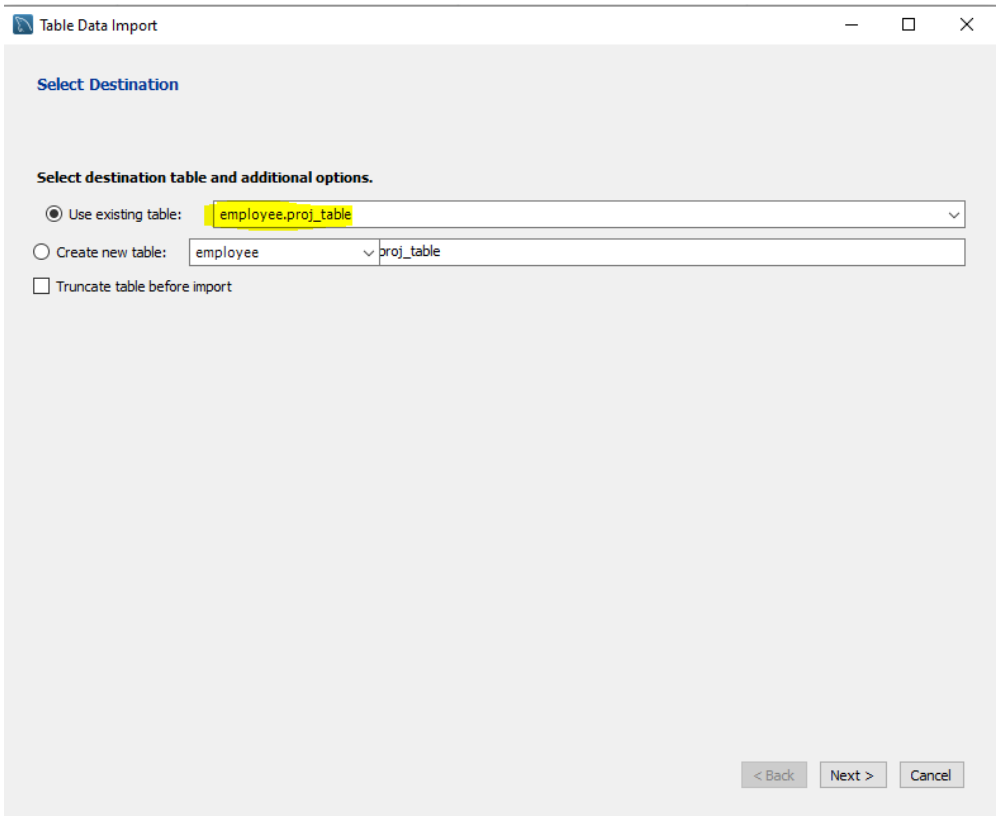
Science Qtech Employee Performance Mapping

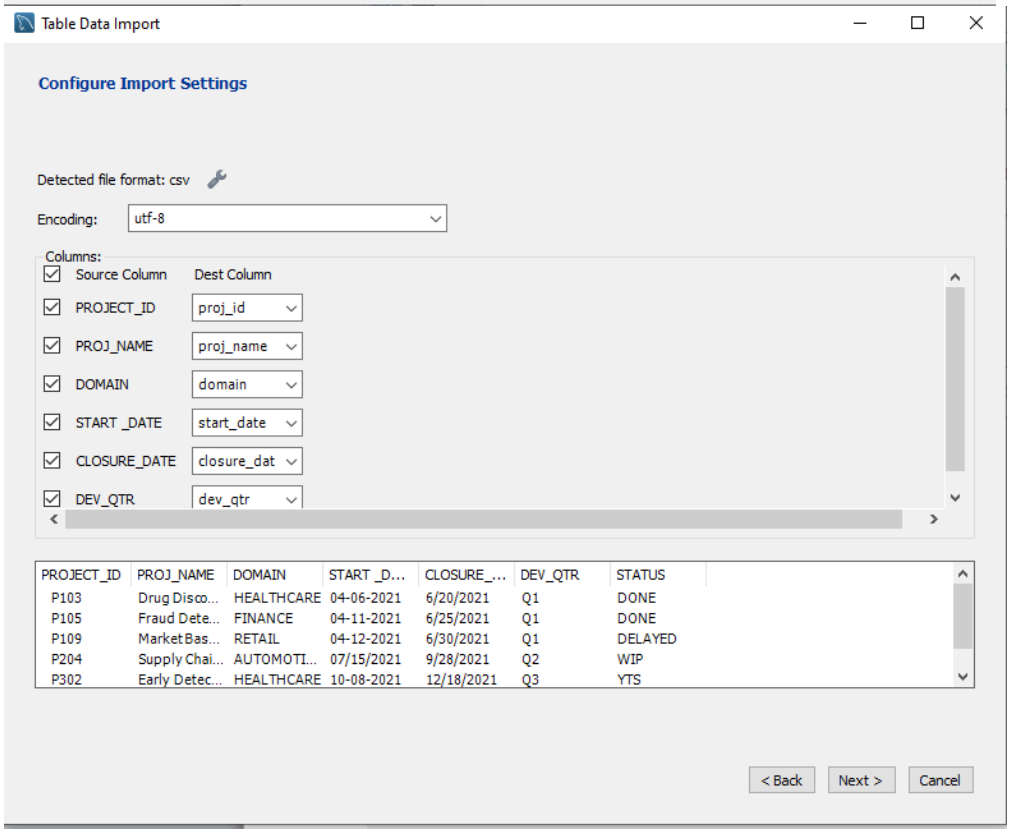
Otherwise, we have to import the data in same manner as follows in step 1 and the screenshots are given below.





Science Qtech Employee Performance Mapping





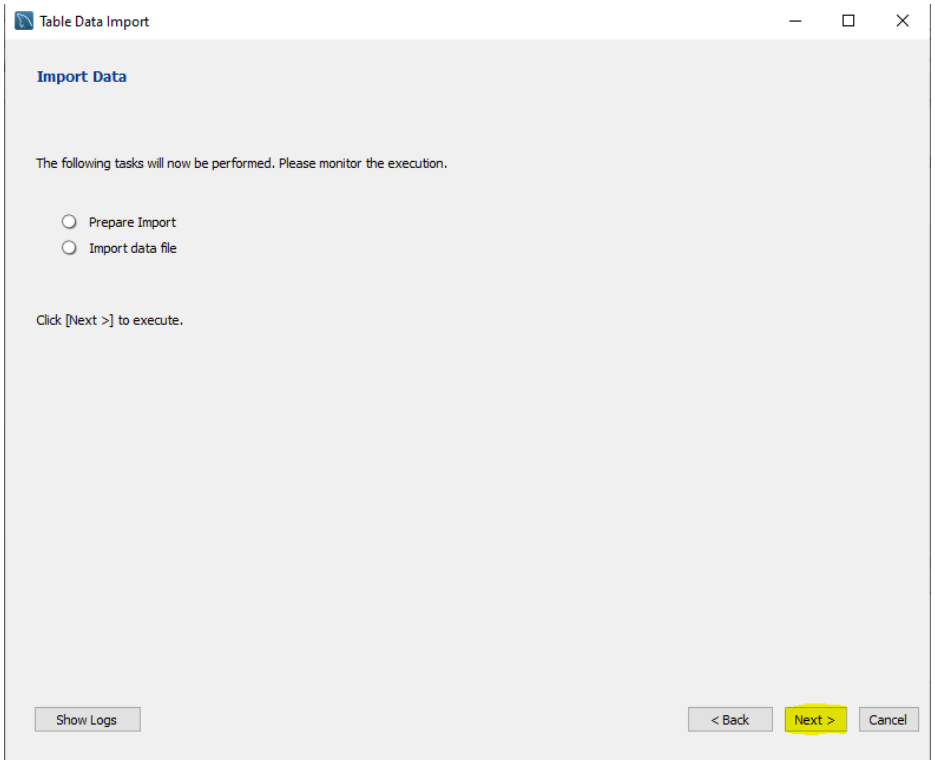
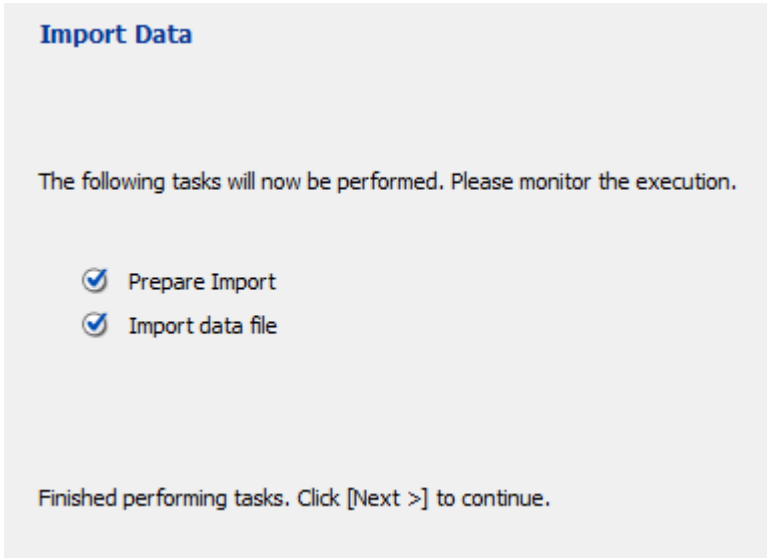


Table Data Import
Import Data
The following tasks will now be performed. Please monitor the execution.
Prepare Import
Import data file
Click [Next >] to execute.
Show Logs
< Back
Next >
Cancel


Import Data
The following tasks will now be performed. Please monitor the execution.
Prepare Import
Import data file
Finished performing tasks. Click [Next >] to continue.

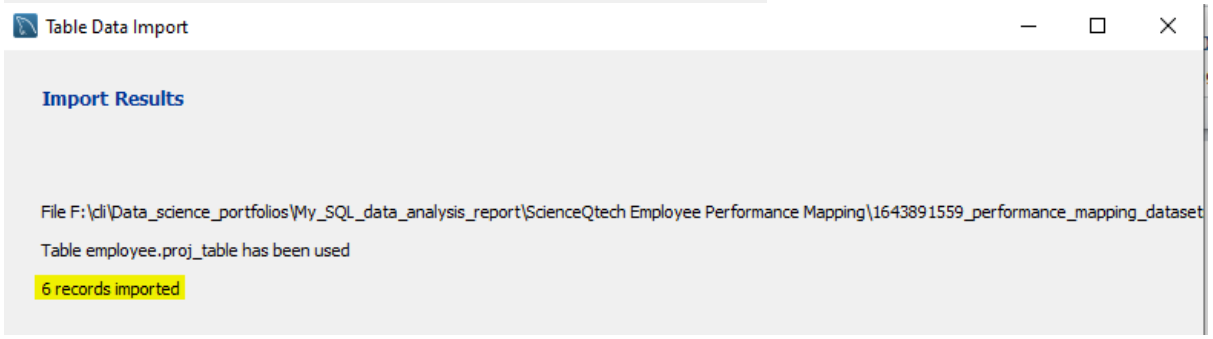
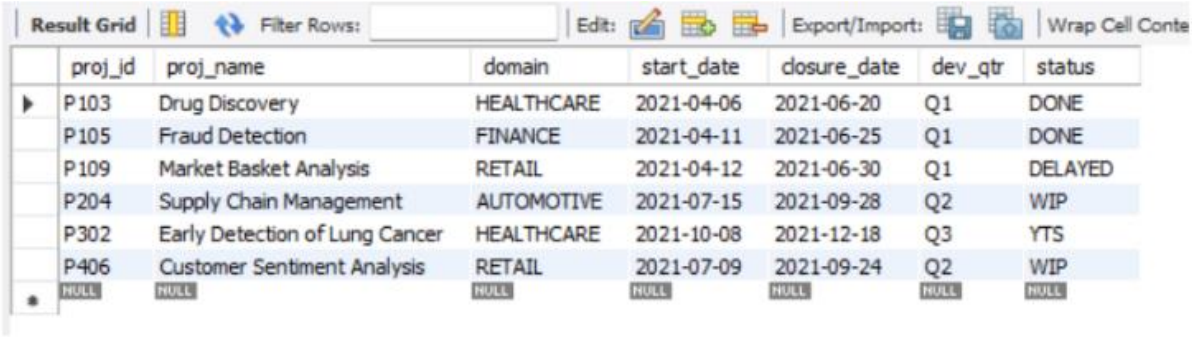


Table Data Import
Import Results
File F:\cli\Data_science_portfolios\My_SQL_data_analysis_report\ScienceQtech Employee Performance Mapping\1643891559_performance_mapping_dataset
Table employee.proj_table has been used
6 records imported

And now if we check the table with the following commands it can show the results .

proj_table

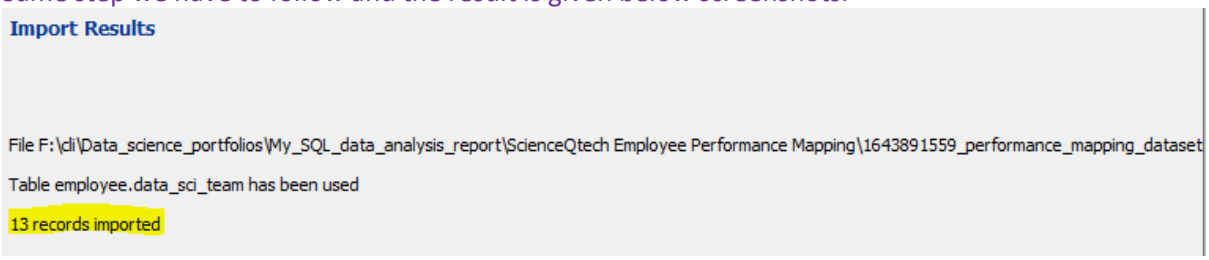
select * from employee.proj_table;



proj_id	proj_name	domain	start_date	closure_date	dev_qtr	status
P103	Drug Discovery	HEALTHCARE	2021-04-06	2021-06-20	Q1	DONE
P105	Fraud Detection	FINANCE	2021-04-11	2021-06-25	Q1	DONE
P109	Market Basket Analysis	RETAIL	2021-04-12	2021-06-30	Q1	DELAYED
P204	Supply Chain Management	AUTOMOTIVE	2021-07-15	2021-09-28	Q2	WIP
P302	Early Detection of Lung Cancer	HEALTHCARE	2021-10-08	2021-12-18	Q3	YTS
P406	Customer Sentiment Analysis	RETAIL	2021-07-09	2021-09-24	Q2	WIP

Data_science_team

Same step we have to follow and the result is given below screenshots.



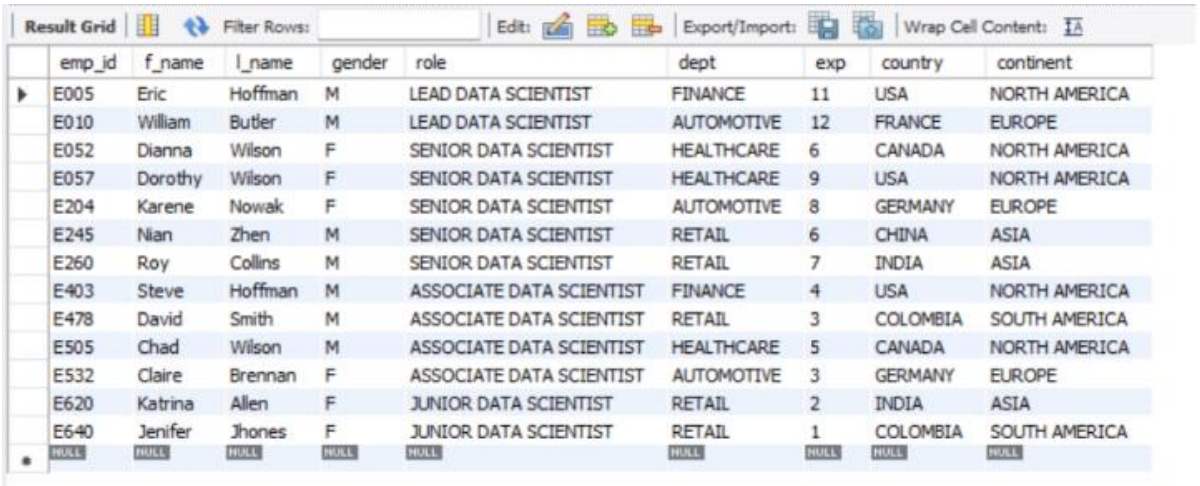
Import Results

File F:\cli\Data_science_portfolios\My_SQL_data_analysis_report\ScienceQtech Employee Performance Mapping\1643891559_performance_mapping_dataset

Table employee.data_sci_team has been used

13 records imported

select * from employee.data_sci_team;



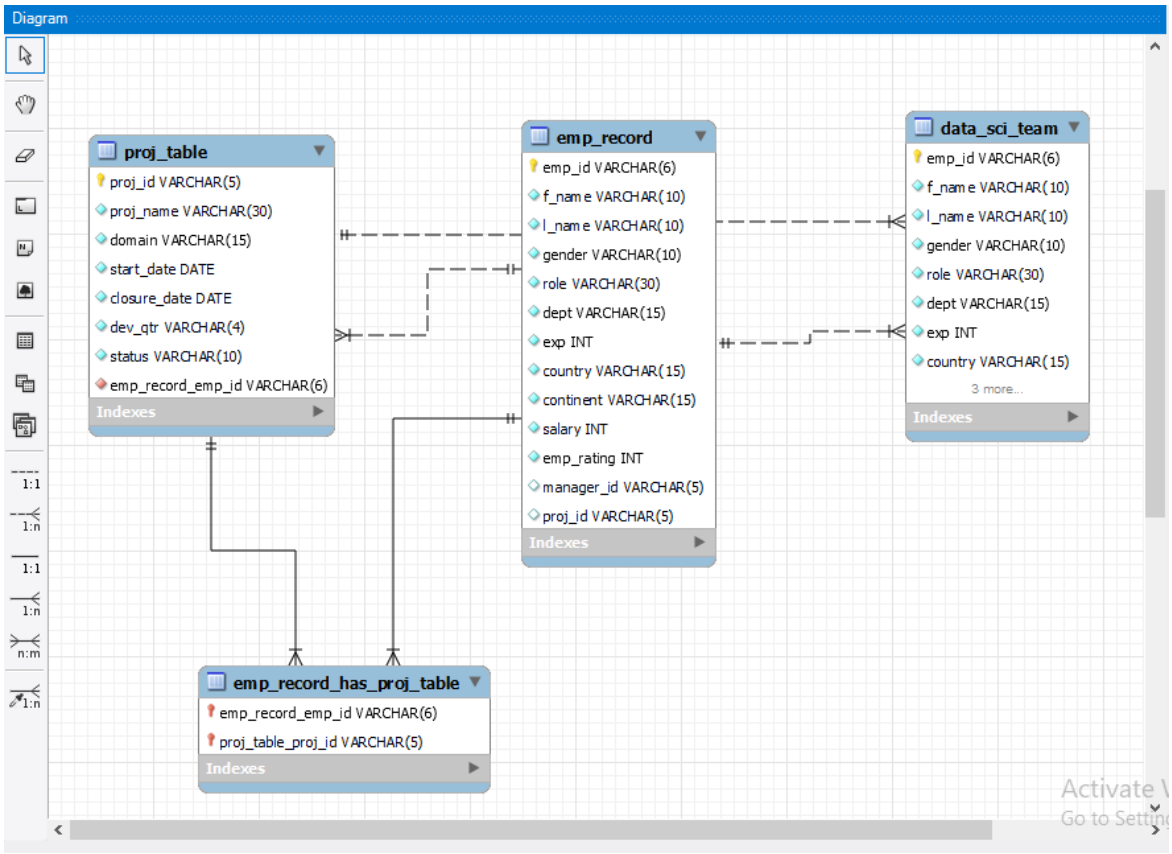
emp_id	f_name	l_name	gender	role	dept	exp	country	continent
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA
E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE
E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA
E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE
E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA
E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA
E403	Steve	Hoffman	M	ASSOCIATE DATA SCIENTIST	FINANCE	4	USA	NORTH AMERICA
E478	David	Smith	M	ASSOCIATE DATA SCIENTIST	RETAIL	3	COLOMBIA	SOUTH AMERICA
E505	Chad	Wilson	M	ASSOCIATE DATA SCIENTIST	HEALTHCARE	5	CANADA	NORTH AMERICA
E532	Claire	Brennan	F	ASSOCIATE DATA SCIENTIST	AUTOMOTIVE	3	GERMANY	EUROPE
E620	Katrina	Allen	F	JUNIOR DATA SCIENTIST	RETAIL	2	INDIA	ASIA
E640	Jenifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA

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

SQL code:

Reverse Engineering of employee database.

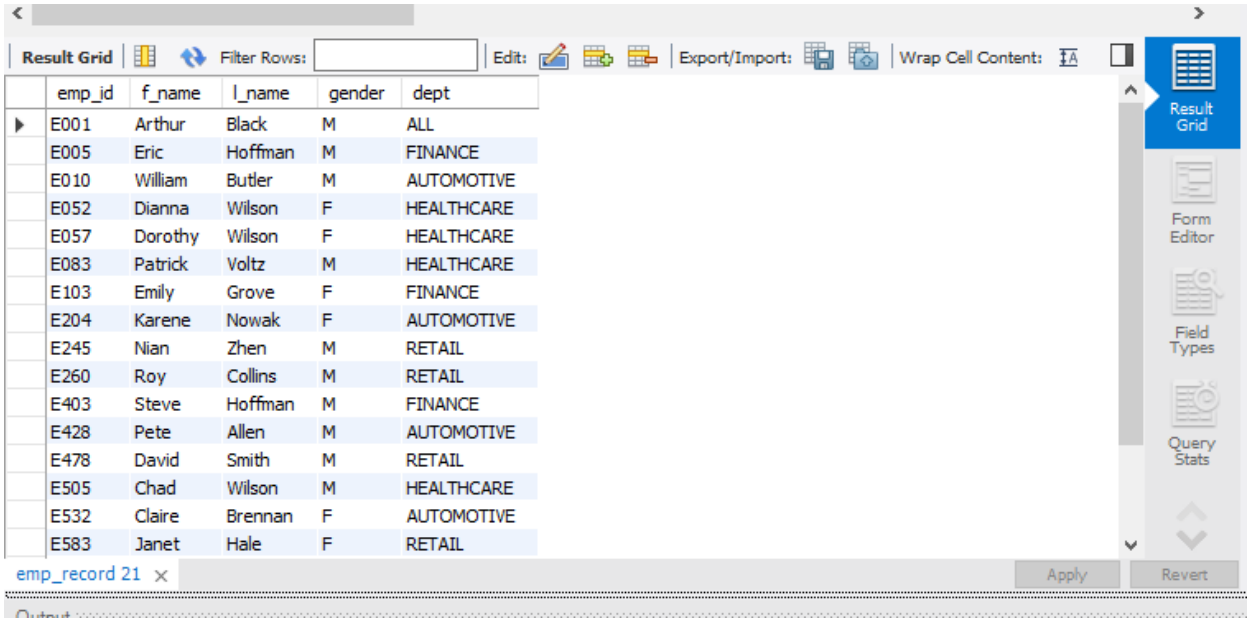
Output:



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, f_name, l_name, gender, dept from employee.emp_record;

Output:



emp_id	f_name	l_name	gender	dept
E001	Arthur	Black	M	ALL
E005	Eric	Hoffman	M	FINANCE
E010	William	Butler	M	AUTOMOTIVE
E052	Dianna	Wilson	F	HEALTHCARE
E057	Dorothy	Wilson	F	HEALTHCARE
E083	Patrick	Voltz	M	HEALTHCARE
E103	Emily	Grove	F	FINANCE
E204	Karene	Nowak	F	AUTOMOTIVE
E245	Nian	Zhen	M	RETAIL
E260	Roy	Collins	M	RETAIL
E403	Steve	Hoffman	M	FINANCE
E428	Pete	Allen	M	AUTOMOTIVE
E478	David	Smith	M	RETAIL
E505	Chad	Wilson	M	HEALTHCARE
E532	Claire	Brennan	F	AUTOMOTIVE
E583	Janet	Hale	F	RETAIL

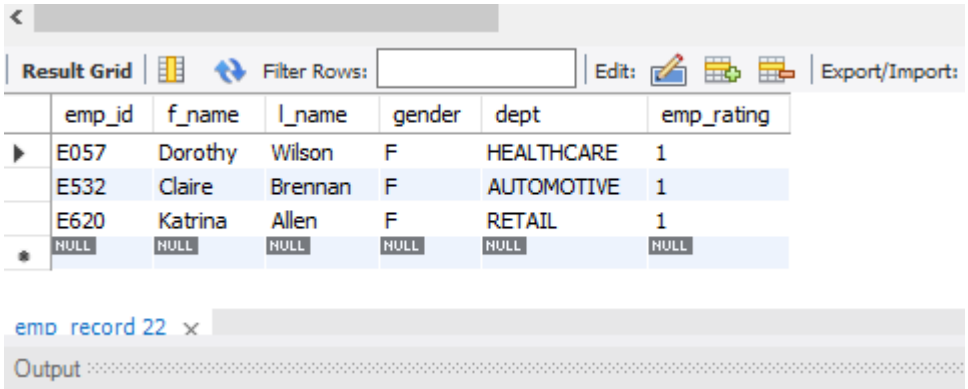
4. Write a query to fetch EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPARTMENT, and EMP_RATING if the EMP_RATING is:
   - less than two
   - greater than four
   - between two and four

Less than two:

SQL CODE :

```
select emp_id, f_name, l_name, gender, dept, emp_rating
from employee.emp_record
where emp_rating < 2;
```

Output:



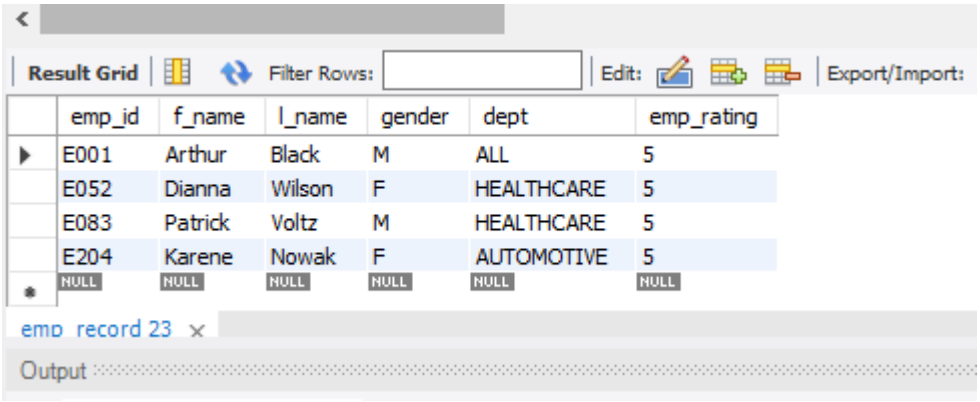
emp_id	f_name	l_name	gender	dept	emp_rating
E057	Dorothy	Wilson	F	HEALTHCARE	1
E532	Claire	Brennan	F	AUTOMOTIVE	1
E620	Katrina	Allen	F	RETAIL	1
NULL	NULL	NULL	NULL	NULL	NULL

Greater than four:

SQL CODE :

```
SELECT emp_id, f_name, l_name, gender, dept, emp_rating
FROM employee.emp_record
WHERE emp_rating > 4;
```

Output:



Result Grid | Filter Rows: | Edit: | Export/Import:

emp_id	f_name	l_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
NULL	NULL	NULL	NULL	NULL	NULL

emp_record 23 ×

Output

Between two and four:

SQL CODE :

```
SELECT emp_id, f_name, l_name, gender, dept, emp_rating
FROM employee.emp_record
WHERE emp_rating between 2 and 4;
```

Output:

Result Grid | Filter Rows: | Edit: | E

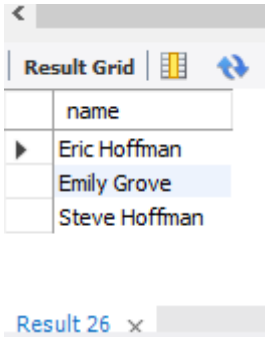
emp_id	f_name	l_name	gender	dept	emp_rating
E005	Eric	Hoffman	M	FINANCE	3
E010	William	Butler	M	AUTOMOTIVE	2
E103	Emily	Grove	F	FINANCE	4
E245	Ni Emily	Zhen	M	RETAIL	2
E260	Roy	Collins	M	RETAIL	3
E403	Steve	Hoffman	M	FINANCE	3
E428	Pete	Allen	M	AUTOMOTIVE	4
E478	David	Smith	M	RETAIL	4
E505	Chad	Wilson	M	HEALTHCARE	2
E583	Janet	Hale	F	RETAIL	2
E612	Tracy	Norris	F	RETAIL	4
E640	Jenifer	Jhones	F	RETAIL	4
NULL	NULL	NULL	NULL	NULL	NULL

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(f_name,' ',l_name) name
from employee.emp_record
where dept = 'FINANCE';
```

Output:

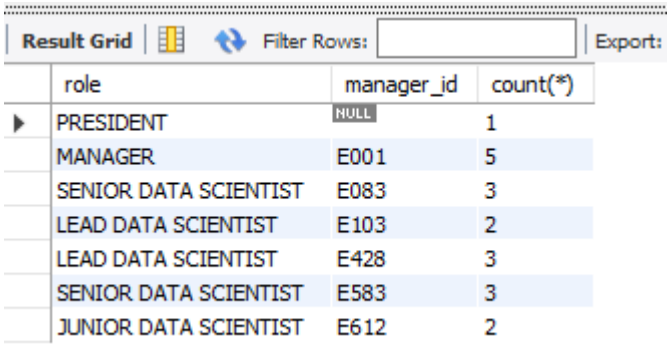


6. Write a query to list only those employees who have someone reporting to them. Also, show the number of reporters (including the President).

SQL CODE :

```
select role, manager_id, count(*)
from employee.emp_record
group by manager_id
order by manager_id;
```

Output:

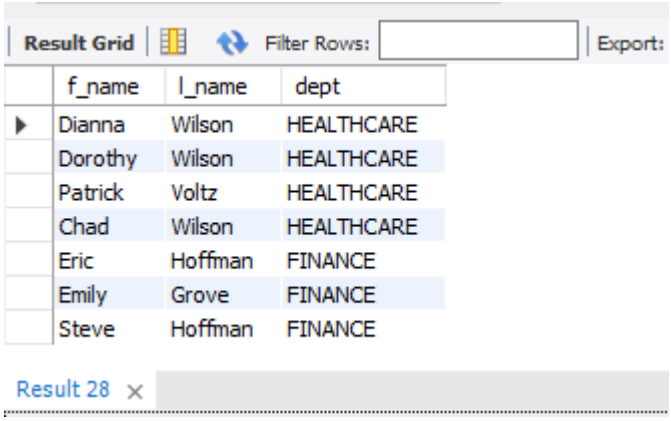


7. Write a query to list down all the employees from the healthcare and finance departments using union. Take data from the employee record table.

SQL CODE :

```
SELECT f_name, l_name, dept
FROM employee.emp_record
WHERE dept = 'HEALTHCARE'
UNION
SELECT f_name, l_name, dept
FROM emp_record
WHERE dept = 'FINANCE';
```

Output:



Result Grid | Filter Rows: | Export:

f_name	l_name	dept
Dianna	Wilson	HEALTHCARE
Dorothy	Wilson	HEALTHCARE
Patrick	Voltz	HEALTHCARE
Chad	Wilson	HEALTHCARE
Eric	Hoffman	FINANCE
Emily	Grove	FINANCE
Steve	Hoffman	FINANCE

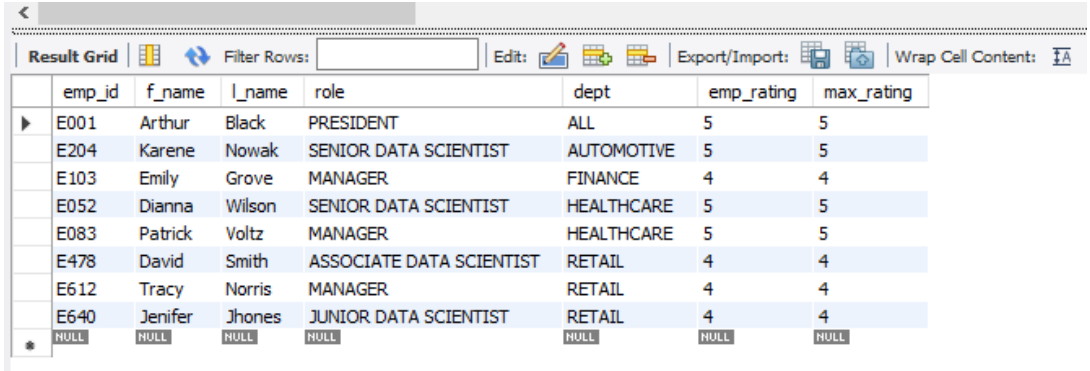
Result 28

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 emp_id, f_name, l_name, role, dept, emp_rating, emp_rating AS max_rating
FROM emp_record
WHERE (dept, emp_rating)
IN (SELECT dept, MAX(emp_rating) FROM emp_record GROUP By dept)
ORDER BY dept ASC;
```

Output :



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

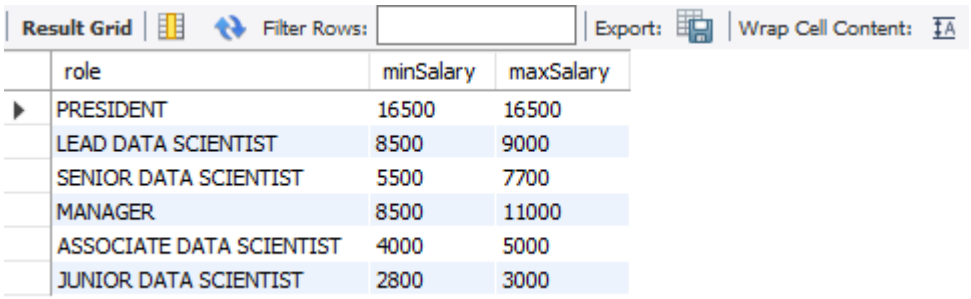
emp_id	f_name	l_name	role	dept	emp_rating	max_rating
E001	Arthur	Black	PRESIDENT	ALL	5	5
E204	Karene	Nowak	SENIOR DATA SCIENTIST	AUTOMOTIVE	5	5
E103	Emily	Grove	MANAGER	FINANCE	4	4
E052	Dianna	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	5	5
E083	Patrick	Voltz	MANAGER	HEALTHCARE	5	5
E478	David	Smith	ASSOCIATE DATA SCIENTIST	RETAIL	4	4
E612	Tracy	Norris	MANAGER	RETAIL	4	4
E640	Jenifer	Jhones	JUNIOR DATA SCIENTIST	RETAIL	4	4
NULL	NULL	NULL	NULL	NULL	NULL	NULL

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 role, MIN(salary) AS minSalary, MAX(salary) AS maxSalary
FROM employee.emp_record
GROUP BY role;
```

Output :



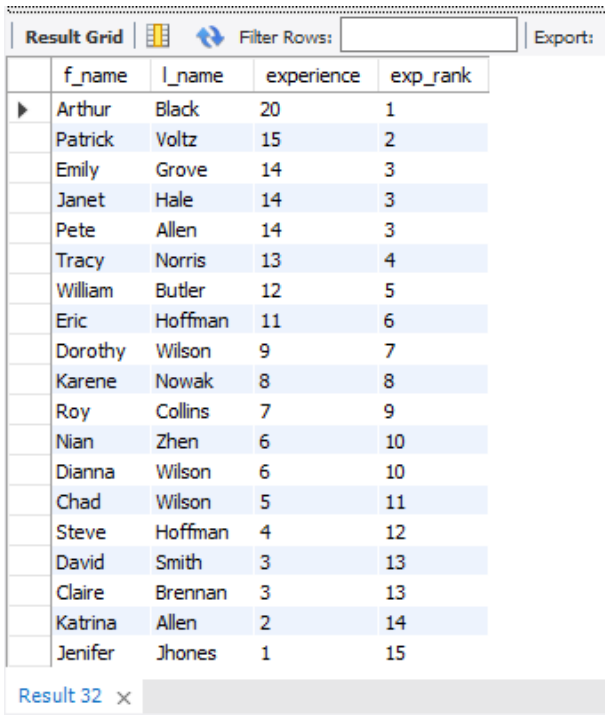
role	minSalary	maxSalary
PRESIDENT	16500	16500
LEAD DATA SCIENTIST	8500	9000
SENIOR DATA SCIENTIST	5500	7700
MANAGER	8500	11000
ASSOCIATE DATA SCIENTIST	4000	5000
JUNIOR DATA SCIENTIST	2800	3000

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

SQL CODE :

```
SELECT f_name, l_name, exp as experience,
DENSE_RANK() OVER (ORDER BY exp DESC) exp_rank
FROM employee.emp_record;
```

Output :



f_name	l_name	experience	exp_rank
Arthur	Black	20	1
Patrick	Voltz	15	2
Emily	Grove	14	3
Janet	Hale	14	3
Pete	Allen	14	3
Tracy	Norris	13	4
William	Butler	12	5
Eric	Hoffman	11	6
Dorothy	Wilson	9	7
Karene	Nowak	8	8
Roy	Collins	7	9
Nian	Zhen	6	10
Dianna	Wilson	6	10
Chad	Wilson	5	11
Steve	Hoffman	4	12
David	Smith	3	13
Claire	Brennan	3	13
Katrina	Allen	2	14
Jenifer	Jhones	1	15

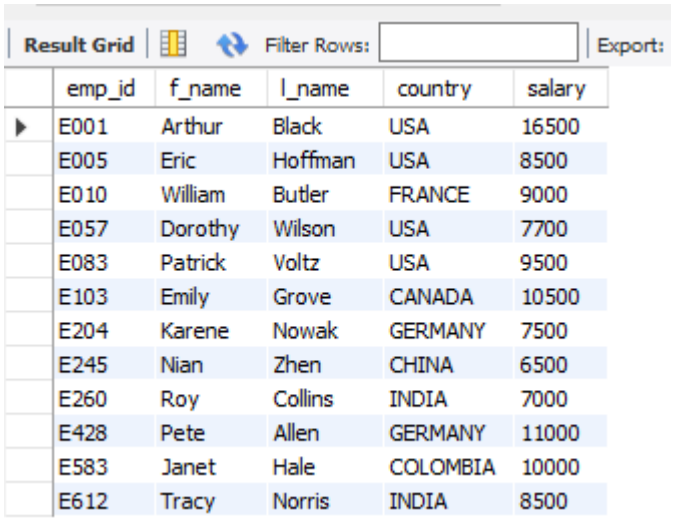
11. Write a query to create a view that displays employees in various countries whose salary is more than six thousand. Take data from the employee record table.

SQL CODE :

```
CREATE VIEW 6K_salary_max AS
SELECT emp_id, f_name, l_name, country, salary
FROM employee.emp_record
WHERE salary > 6000;

SELECT * FROM 6K_salary_max;
```

Output :



Result Grid | Filter Rows: | Export:

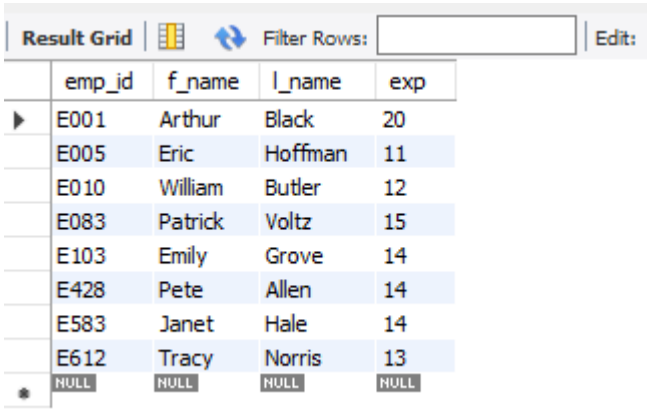
emp_id	f_name	l_name	country	salary
E001	Arthur	Black	USA	16500
E005	Eric	Hoffman	USA	8500
E010	William	Butler	FRANCE	9000
E057	Dorothy	Wilson	USA	7700
E083	Patrick	Voltz	USA	9500
E103	Emily	Grove	CANADA	10500
E204	Karene	Nowak	GERMANY	7500
E245	Nian	Zhen	CHINA	6500
E260	Roy	Collins	INDIA	7000
E428	Pete	Allen	GERMANY	11000
E583	Janet	Hale	COLOMBIA	10000
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, f_name, l_name, exp
FROM employee.emp_record
WHERE exp IN (
SELECT exp
FROM emp_record
WHERE exp > 10
);
```

Output :



emp_id	f_name	l_name	exp
E001	Arthur	Black	20
E005	Eric	Hoffman	11
E010	William	Butler	12
E083	Patrick	Voltz	15
E103	Emily	Grove	14
E428	Pete	Allen	14
E583	Janet	Hale	14
E612	Tracy	Norris	13
NULL	NULL	NULL	NULL

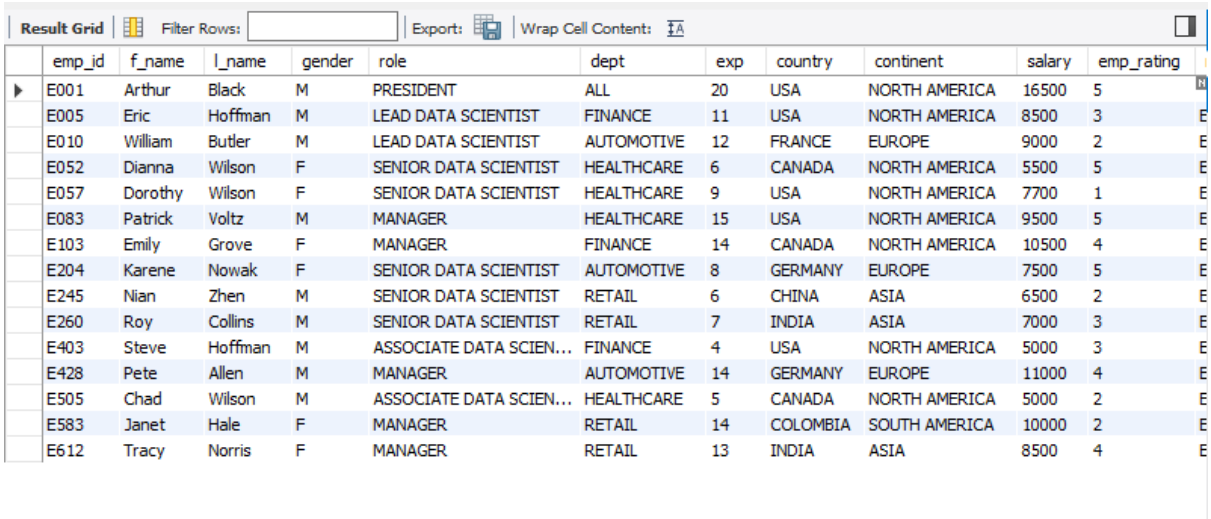
13. Write a query to create a stored procedure to retrieve the details of the employees whose experience is more than three years. Take data from the employee record table.

SQL CODE :

```
DELIMITER //
CREATE PROCEDURE Employee3()
BEGIN
SELECT * FROM employee.emp_record
WHERE exp > 3;
END //
DELIMITER ;

call Employee3();
```

Output :



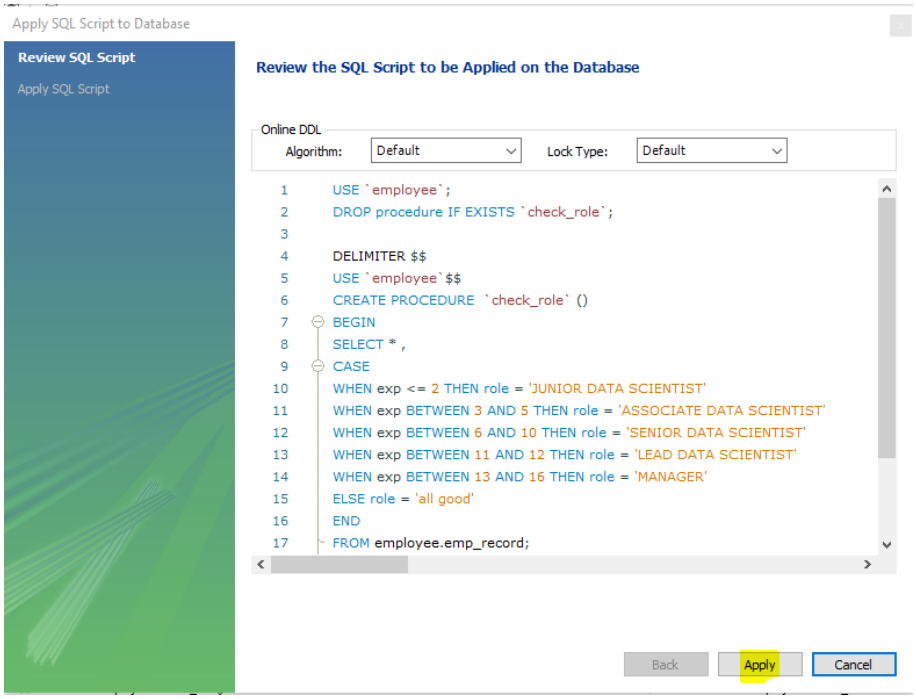
emp_id	f_name	l_name	gender	role	dept	exp	country	continent	salary	emp_rating
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3
E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2
E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA	5500	5
E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA	7700	1
E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5
E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5
E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA	6500	2
E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA	7000	3
E403	Steve	Hoffman	M	ASSOCIATE DATA SCIEN...	FINANCE	4	USA	NORTH AMERICA	5000	3
E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4
E505	Chad	Wilson	M	ASSOCIATE DATA SCIEN...	HEALTHCARE	5	CANADA	NORTH AMERICA	5000	2
E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOMBIA	SOUTH AMERICA	10000	2
E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	8500	4

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'.

```
CREATE PROCEDURE  `check_role` ()
BEGIN
SELECT * ,
CASE
WHEN exp <= 2 THEN role = 'JUNIOR DATA SCIENTIST'
WHEN exp BETWEEN 3 AND 5 THEN role = 'ASSOCIATE DATA SCIENTIST'
WHEN exp BETWEEN 6 AND 10 THEN role = 'SENIOR DATA SCIENTIST'
WHEN exp BETWEEN 11 AND 12 THEN role = 'LEAD DATA SCIENTIST'
WHEN exp BETWEEN 13 AND 16 THEN role = 'MANAGER'
ELSE role = 'all good'
END
FROM employee.emp_record;
END
```



Alter Store Procedure

```
CREATE DEFINER=`admin`@`%` PROCEDURE `check_role`()
BEGIN
SELECT * ,
CASE
        WHEN exp <= 2 THEN role = 'JUNIOR DATA SCIENTIST'
        WHEN exp BETWEEN 3 AND 5 THEN role = 'ASSOCIATE DATA SCIENTIST'
        WHEN exp BETWEEN 6 AND 10 THEN role = 'SENIOR DATA SCIENTIST'
        WHEN exp BETWEEN 11 AND 12 THEN role = 'LEAD DATA SCIENTIST'
        WHEN exp BETWEEN 13 AND 16 THEN role = 'MANAGER'
ELSE role = 'all good'
END AS QuantityText
FROM employee.emp_record;
END
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

emp_id	f_name	l_name	gender	role	dept	exp	country	continent	salary	emp_rating
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3
E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2
E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA	5500	5
E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA	7700	1
E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5
E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5
E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA	6500	2
E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA	7000	3
E403	Steve	Hoffman	M	ASSOCIATE DATA SCIEN...	FINANCE	4	USA	NORTH AMERICA	5000	3
E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4
E478	David	Smith	M	ASSOCIATE DATA SCIEN...	RETAIL	3	COLOMBIA	SOUTH AMERICA	4000	4
E505	Chad	Wilson	M	ASSOCIATE DATA SCIEN...	HEALTHCARE	5	CANADA	NORTH AMERICA	5000	2
E532	Claire	Brennan	F	ASSOCIATE DATA SCIEN...	AUTOMOTIVE	3	GERMANY	EUROPE	4300	1
E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOMBIA	SOUTH AMERICA	10000	2
E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	8500	4
E620	Katrina	Allen	F	JUNIOR DATA SCIENTIST	RETAIL	2	INDIA	ASIA	3000	1
E640	Jenifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA	2800	4

Result Grid | Form Editor | Field Types | Query Stats | Execution Plan

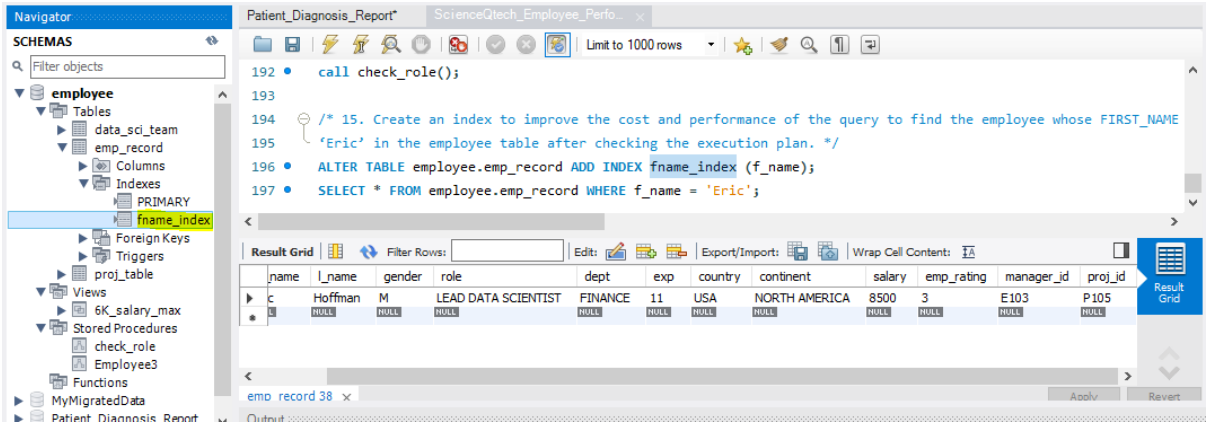
Result 37 | Read Only

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:

```
ALTER TABLE employee.emp_record ADD INDEX fname_index (f_name);
SELECT * FROM emp_record WHERE f_name = ‘Eric’;
```

output:



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 f_name, l_name, salary, ((salary * .05)*emp_rating) AS bonus
FROM employee.emp_record;
```

Output:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

f_name	l_name	salary	bonus
Arthur	Black	16500	4125.00
Eric	Hoffman	8500	1275.00
William	Butler	9000	900.00
Dianna	Wilson	5500	1375.00
Dorothy	Wilson	7700	385.00
Patrick	Voltz	9500	2375.00
Emily	Grove	10500	2100.00
Karene	Nowak	7500	1875.00
Nian	Zhen	6500	650.00
Roy	Collins	7000	1050.00
Steve	Hoffman	5000	750.00
Pete	Allen	11000	2200.00
David	Smith	4000	800.00
Chad	Wilson	5000	500.00
Claire	Brennan	4300	215.00
Janet	Hale	10000	1000.00
Tracy	Norris	8500	1700.00
Katrina	Allen	3000	150.00
Jenifer	Jhones	2800	560.00

Result 39

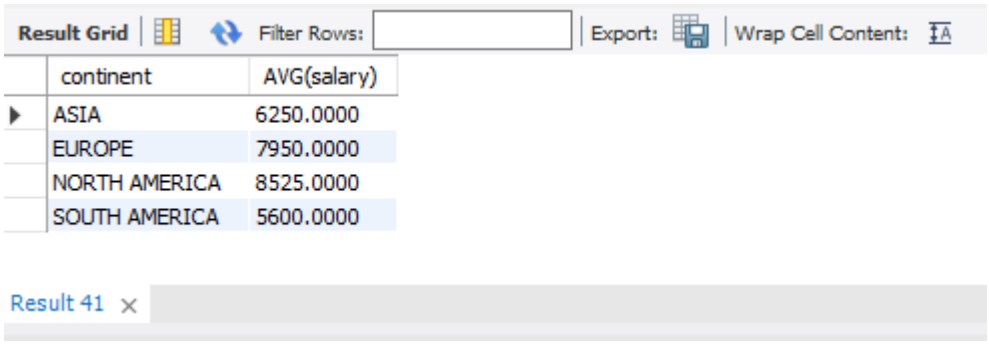
Output

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

Average salary based on the continent.
SQL code:

```
SELECT continent, AVG(salary)
FROM employee.emp_record
GROUP BY continent
ORDER BY continent ASC;
```

Output:

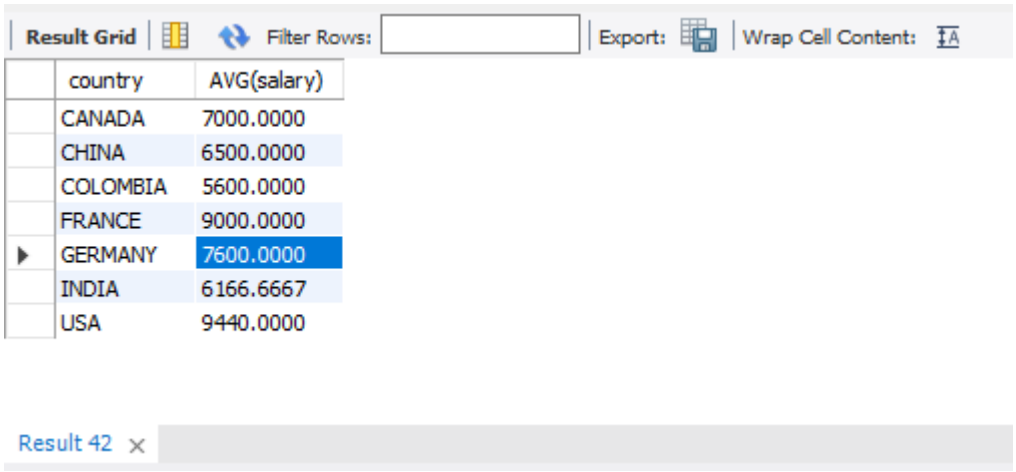


continent	AVG(salary)
ASIA	6250.0000
EUROPE	7950.0000
NORTH AMERICA	8525.0000
SOUTH AMERICA	5600.0000

Average salary based on the country.
SQL code:

```
SELECT country, AVG(salary)
FROM employee.emp_record
GROUP BY country
ORDER BY country ASC;
```

Output:



country	AVG(salary)
CANADA	7000.0000
CHINA	6500.0000
COLOMBIA	5600.0000
FRANCE	9000.0000
GERMANY	7600.0000
INDIA	6166.6667
USA	9440.0000