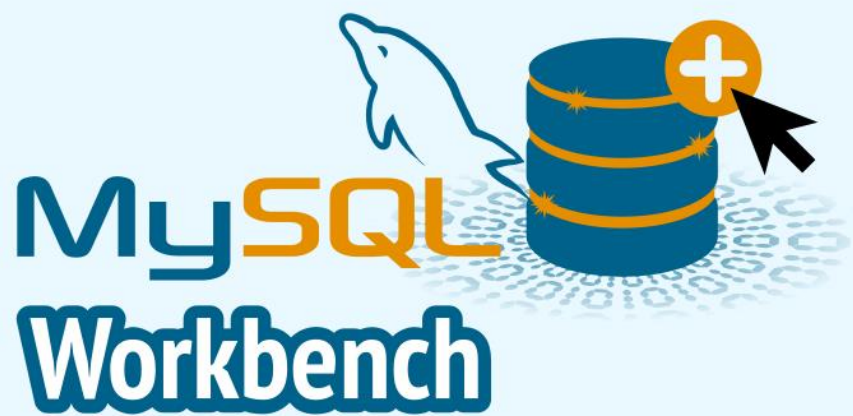


## SQL Project : Science Qtech Employee Performance Mapping



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

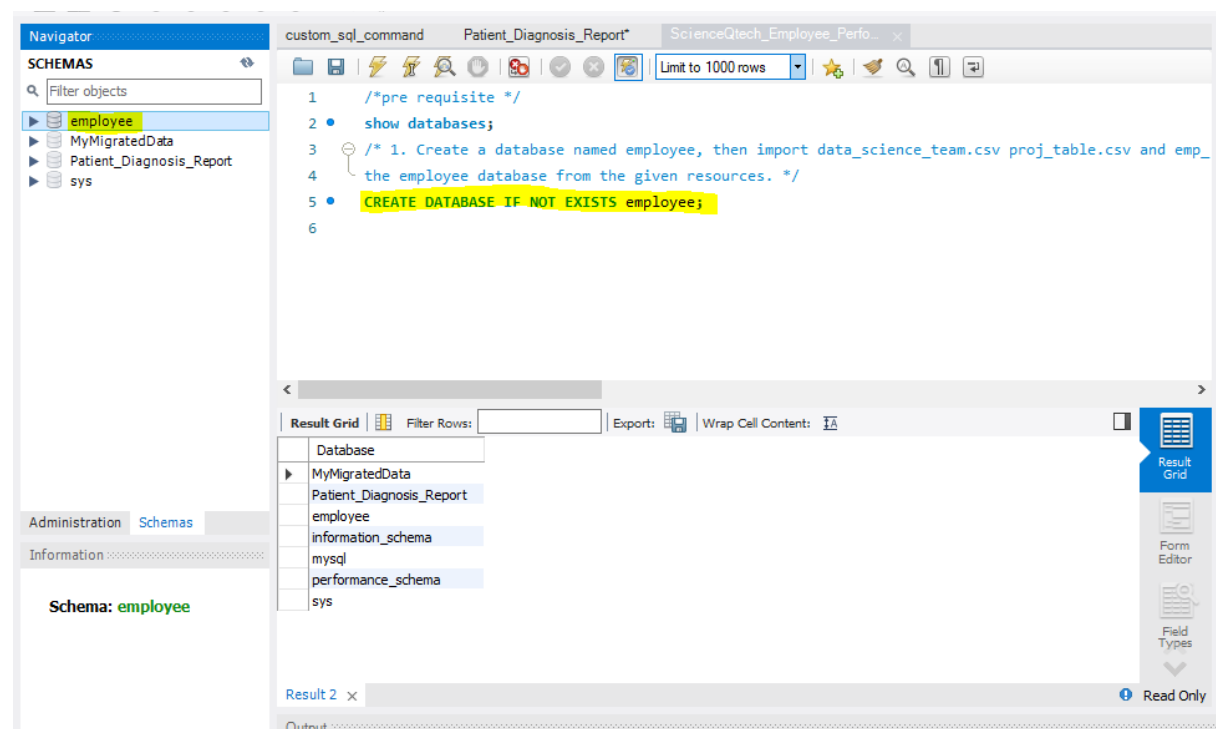
The tasks to be performed:

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 :



# Science Qtech Employee Performance Mapping

## 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

The screenshot shows the SQL Developer interface with the 'employee' schema selected in the left pane. The main window displays the SQL command to create the 'emp\_record' table. The table has the following columns: emp\_id (VARCHAR(6), PRIMARY KEY), f\_name (VARCHAR(10)), l\_name (VARCHAR(10)), gender (VARCHAR(10)), role (VARCHAR(30)), dept (VARCHAR(15)), exp (INT), country (VARCHAR(15)), continent (VARCHAR(15)), salary (INT), emp\_rating (INT), manager\_id (VARCHAR(5)), and proj\_id (varchar(5)). The 'Result Grid' at the bottom shows a single row with all columns containing NULL values.

emp_id	f_name	l_name	gender	role	dept	exp	country	continent	salary	emp_rating	manager_id	proj_id
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

## SQL CODE

```
DESCRIBE emp_record;
```

## OUTPUT

The screenshot shows the SQL Developer interface with the 'employee' schema selected. The main window displays the SQL command 'DESCRIBE emp\_record;'. The 'Result Grid' at the bottom shows the table structure with columns: Field, Type, Null, Key, Default, and Extra.

Field	Type	Null	Key	Default	Extra
emp_id	varchar(6)	NO	PRI	NULL	
f_name	varchar(10)	NO		NULL	
l_name	varchar(10)	NO		NULL	
gender	varchar(10)	NO		NULL	
role	varchar(30)	NO		NULL	

# 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

The screenshot shows the SQL Developer interface. The left pane displays the 'SCHEMAS' tree with the 'employee' schema selected. The main pane shows a custom SQL command window with the following code:

```
30 • CREATE TABLE IF NOT EXISTS proj_table (  
31   proj_id VARCHAR(5) not null PRIMARY KEY,  
32   proj_name VARCHAR(30) not null,  
33   domain VARCHAR(15) not null,  
34   start_date DATE not null,  
35   closure_date DATE not null,  
36   dev_qtr VARCHAR(4) not null,  
37   status VARCHAR(10) not null  
38 );  
39  
40 /* check that table exists or not */  
41 • SELECT * FROM proj_table;  
42  
43 /*Describe its schema */  
44 • DESCRIBE proj_table;
```

The bottom pane shows the 'Result Grid' with the following data:

Field	Type	Null	Key	Default	Extra
proj_id	varchar(5)	NO	PRI	NULL	
proj_name	varchar(30)	NO		NULL	
domain	varchar(15)	NO		NULL	
start_date	date	NO		NULL	
closure_date	date	NO		NULL	

## 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

The screenshot shows the SQL Enterprise Manager interface. On the left, the 'SCHEMAS' pane shows the 'employee' schema selected. The main pane displays a SQL script for creating and describing a table named 'data\_sci\_team'. The script includes a 'CREATE TABLE IF NOT EXISTS' statement with columns: emp\_id (VARCHAR(6), PRIMARY KEY), f\_name (VARCHAR(10)), l\_name (VARCHAR(10)), gender (VARCHAR(10)), role (VARCHAR(30)), dept (VARCHAR(15)), exp (INT), country (VARCHAR(15)), and continent (VARCHAR(15)). Below the script, the 'Result Grid' shows the table's structure with columns: Field, Type, Null, Key, Default, and Extra. The table 'data\_sci\_team' is listed with its columns and their properties.

Field	Type	Null	Key	Default	Extra
emp_id	varchar(6)	NO	PRI		
f_name	varchar(10)	NO			
l_name	varchar(10)	NO			
gender	varchar(10)	NO			
role	varchar(30)	NO			

## 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.

The screenshot shows the 'Table Data Import' wizard. The 'Select File to Import' step is active. It displays a text box for the 'File Path' with the value 'F:\di\Data\_science\_portfolios\My\_SQL\_data\_analysis\_report\ScienceQtech Employee Performance Mapping\1643891559\_p'. A 'Browse...' button is next to the text box. Below the text box, there is a note: 'Table Data Import allows you to easily import CSV, JSON datafiles. You can also create destination table on the fly.'

3. Click on next and select destination.

# Science Qtech Employee Performance Mapping

**Table Data Import**

**Select Destination**

Select destination table and additional options.

☒ Use existing table: employee.emp\_record

☐ Create new table: employee emp\_record\_table

☐ Truncate table before import

## 4. Configure import settings

**Table Data Import**

**Configure Import Settings**

Detected file format: csv

Encoding: utf-8

Columns:

Source Column	Dest Column
<input checked="" type="checkbox"/> EMP_ID	emp_id
<input checked="" type="checkbox"/> FIRST_NAME	f_name
<input checked="" type="checkbox"/> LAST_NAME	l_name
<input checked="" type="checkbox"/> GENDER	gender
<input checked="" type="checkbox"/> ROLE	role
<input checked="" type="checkbox"/> DEPT	dept

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AM...	16500
E005	Eric	Hoffman	M	LEAD DATA...	FINANCE	11	USA	NORTH AM...	8500
E010	William	Butler	M	LEAD DATA...	AUTOMOTI...	12	FRANCE	EUROPE	9000
E052	Dianna	Wilson	F	SENIOR DA...	HEALTHCARE	6	CANADA	NORTH AM...	5500

< Back Next > Cancel

## 5. Click on next, and finally import data.

**Import Data**

The following tasks will now be performed. Please monitor the execution.

☐ Prepare Import

☐ Import data file

Click [Next >] to execute.

# Science Qtech Employee Performance Mapping

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

```
SELECT * FROM emp_record;
```

**emp\_record**

The screenshot shows a database management tool interface. On the left, a 'SCHEMAS' pane shows a tree view with 'employee' expanded, containing 'Tables' (data\_sci\_team, emp\_record, proj\_table), 'Views', 'Stored Procedures', and 'Functions'. Below this, 'Table: emp\_record' is detailed with columns: emp\_id (varchar(6), PK), f\_name (varchar(10)), l\_name (varchar(10)), gender (varchar(10)), and role (varchar(20)). The main pane shows a SQL command window with the following code:

```
19 emp_rating INT not null,  
20 manager_id VARCHAR(5),  
21 proj_id varchar(5));  
22  
23 /* check that table exists or not */  
24 • SELECT * FROM emp_record;  
25
```

The 'Result Grid' shows the following data:

emp_id	f_name	l_name	gender	role	dept	exp	country	continent
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA
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
E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA
E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	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
E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE
E478	David	Smith	M	ASSOCIATE DATA SCIENTIST	RETAIL	3	COLOMBIA	SOUTH AMERICA
E505	Chad	Wilson	M	ASSOCIATE DATA SCIENTIST	HEALTHCARE	5	CANADA	NORTH AMERICA
F532	Claire	Brennan	F	ASSOCIATE DATA SCIENTIST	AUTOMOTIVE	3	GERMANY	EUROPE

## IMPORT DATA INTO TABLES (via command line)

SHOW GLOBAL VARIABLES LIKE 'local\_infile';

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
Variable_name	Value			
local_infile	ON			

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

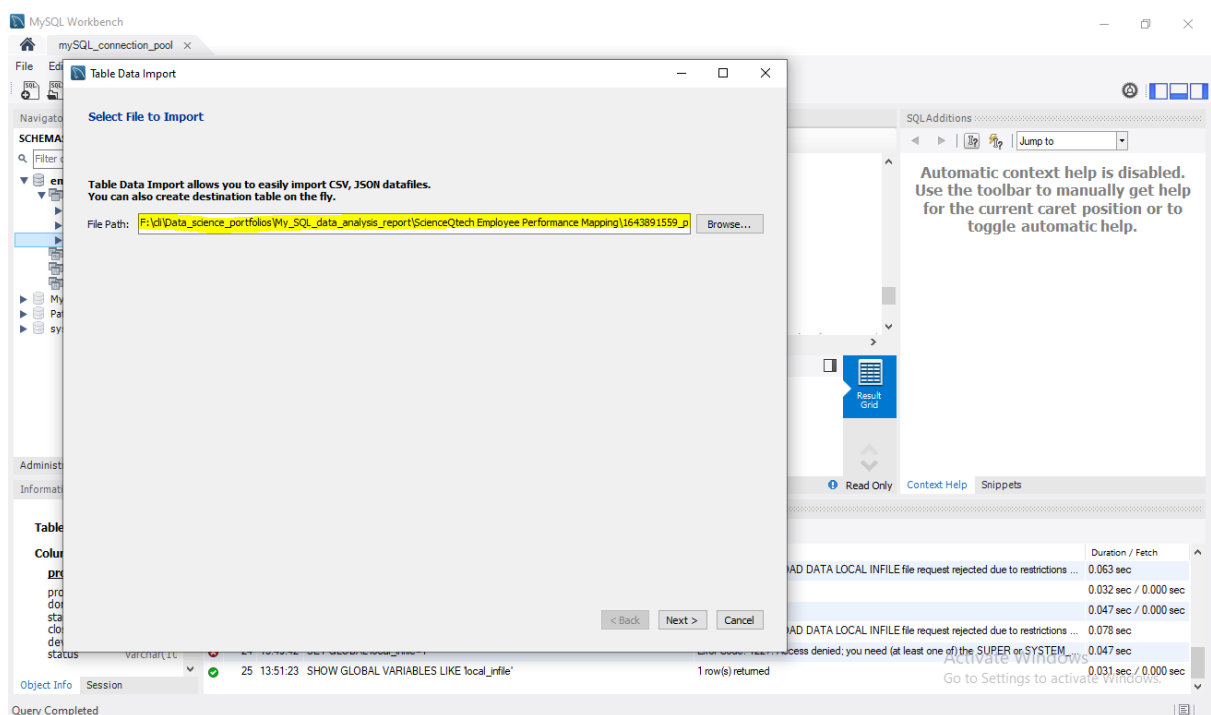
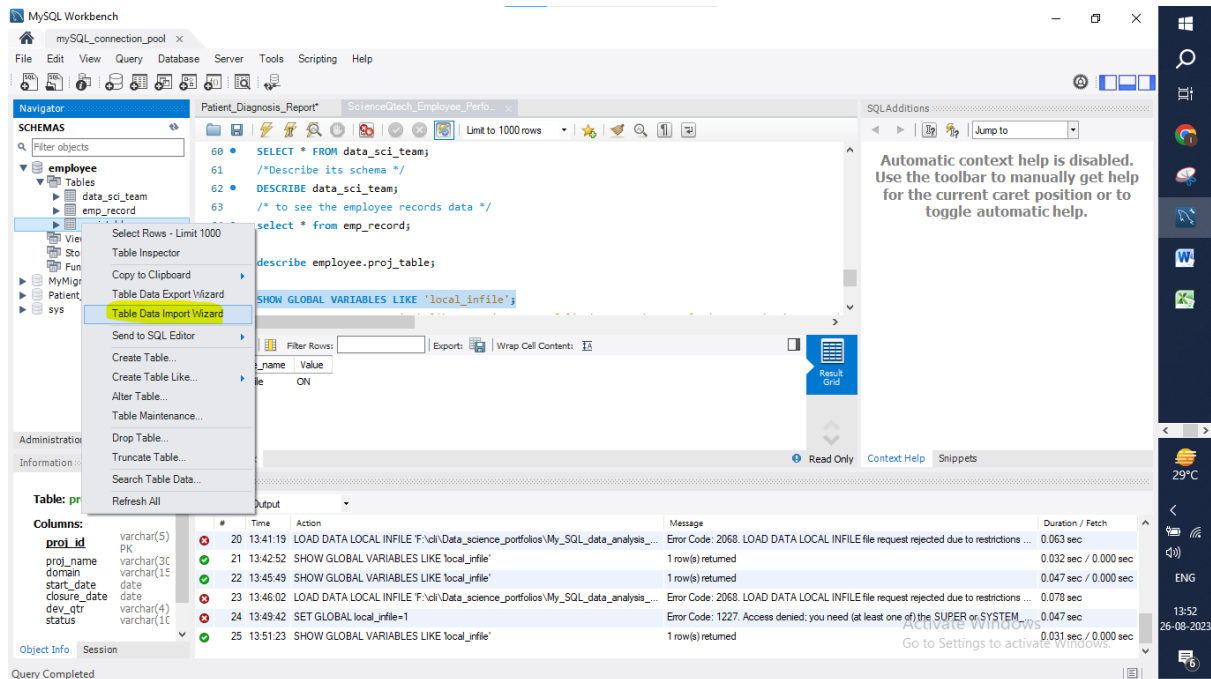
TERMINATED BY '\n' IGNORE 1 ROWS

('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

Select Destination

Select destination table and additional options.

☒ Use existing table: 

employee.proj\_table

☐ Create new table: 

employee

proj\_table

☐ Truncate table before import

< Back

Next >

Cancel

Table Data Import

Configure Import Settings

Detected file format: csv

Encoding: 

utf-8

Columns:

☒ Source Column

Dest Column

☒ PROJECT\_ID

proj\_id

☒ PROJ\_NAME

proj\_name

☒ DOMAIN

domain

☒ START\_DATE

start\_date

☒ CLOSURE\_DATE

closure\_dat

☒ DEV\_QTR

dev\_qtr

PROJECT_ID	PROJ_NAME	DOMAIN	START_D...	CLOSURE_...	DEV_QTR	STATUS
P103	Drug Disco...	HEALTHCARE	04-06-2021	6/20/2021	Q1	DONE
P105	Fraud Dete...	FINANCE	04-11-2021	6/25/2021	Q1	DONE
P109	MarketBas...	RETAIL	04-12-2021	6/30/2021	Q1	DELAYED
P204	Supply Chai...	AUTOMOTI...	07/15/2021	9/28/2021	Q2	WIP
P302	Early Detec...	HEALTHCARE	10-08-2021	12/18/2021	Q3	YTS

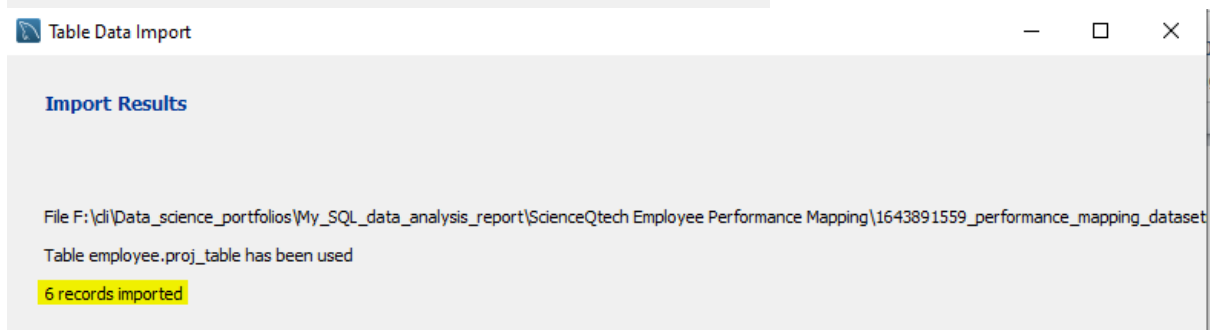
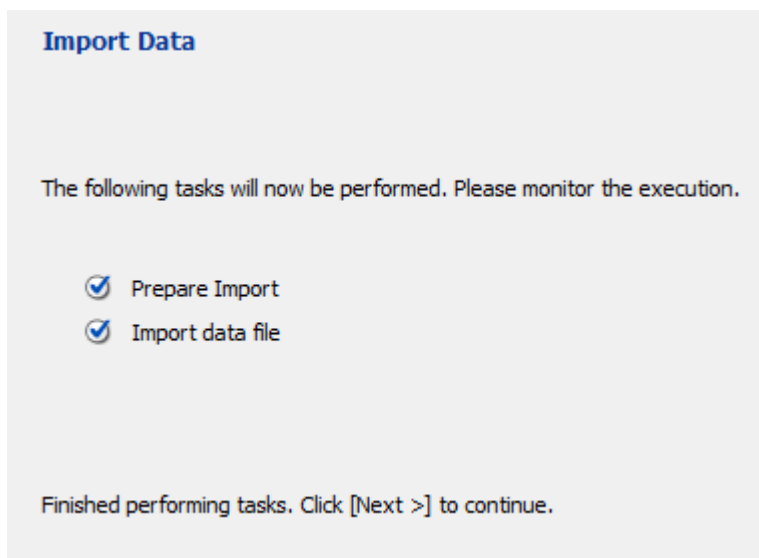
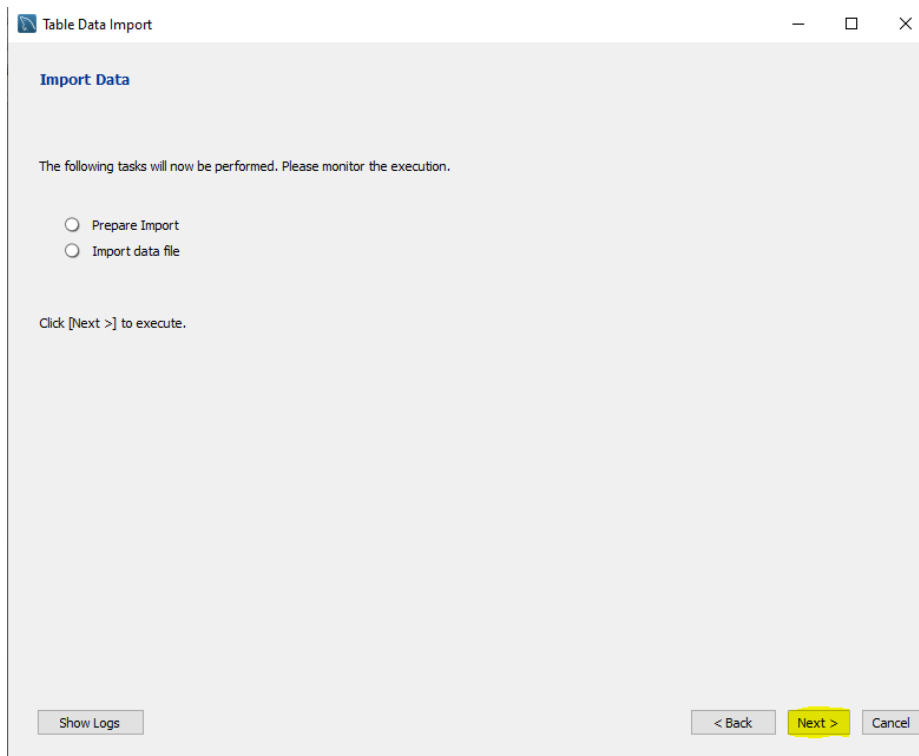
< Back

Next >

Cancel

9 | Page

# Science Qtech Employee Performance Mapping



# Science Qtech Employee Performance Mapping

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
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL

**Data\_science\_team**

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

**Import Results**

File F:\di\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	Jennifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

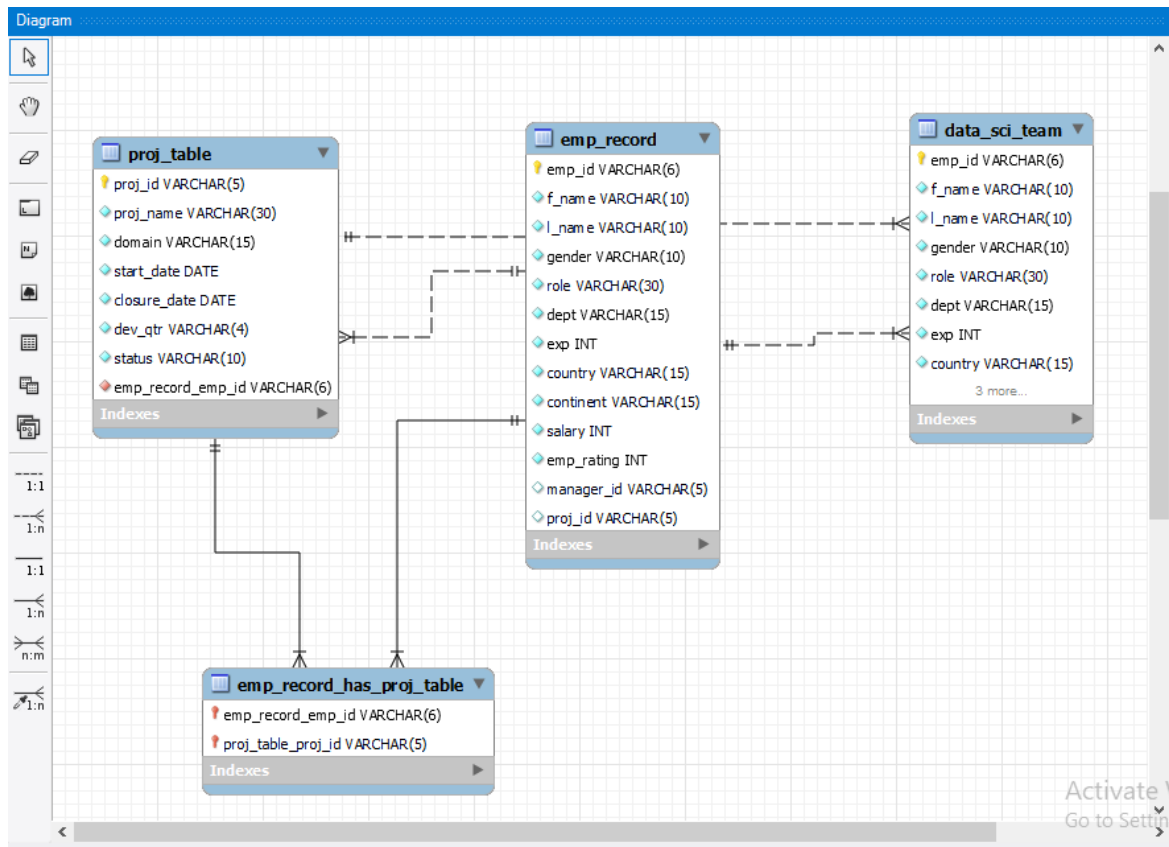
# Science Qtech Employee Performance Mapping

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

**SQL code:**

Reverse Engineering of employee database.

**Output:**

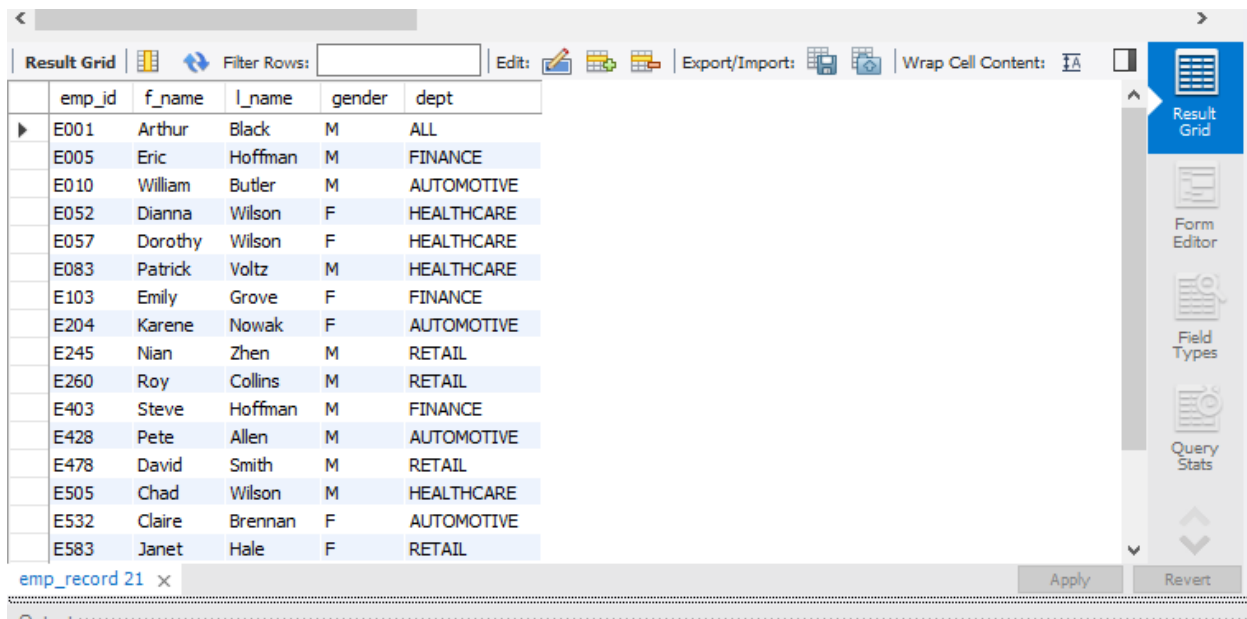


3. Write a query to fetch EMP\_ID, FIRST\_NAME, LAST\_NAME, GENDER, and DEPARTMENT from the employee record table, and make a list of employees and details of their department.

**SQL code:** `Select emp_id, f_name, l_name, gender, dept from employee.emp_record;`

**Output:**

## Science Qtech Employee Performance Mapping



The screenshot shows a database application interface. At the top, there's a toolbar with icons for 'Result Grid', 'Filter Rows', 'Edit', 'Export/Import', and 'Wrap Cell Content'. Below the toolbar is a table with columns: emp\_id, f\_name, l\_name, gender, and dept. The table contains 18 rows of employee data. On the right side, there's a vertical toolbar with icons for 'Result Grid', 'Form Editor', 'Field Types', and 'Query Stats'. At the bottom, there's a status bar with 'emp\_record 21', 'Apply', and 'Revert' buttons.

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:

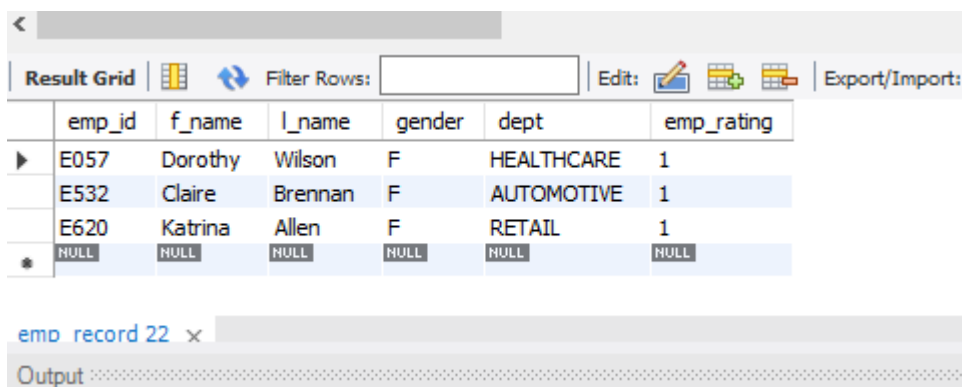
- less than two
- greater than four
- between two and four

**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:**



The screenshot shows the same database application interface as before, but now displaying the results of a SQL query. The table has an additional column, emp\_rating. The results show three rows where emp\_rating is 1. Below the table, there's a status bar with 'emp\_record 22' and 'Output' buttons.

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

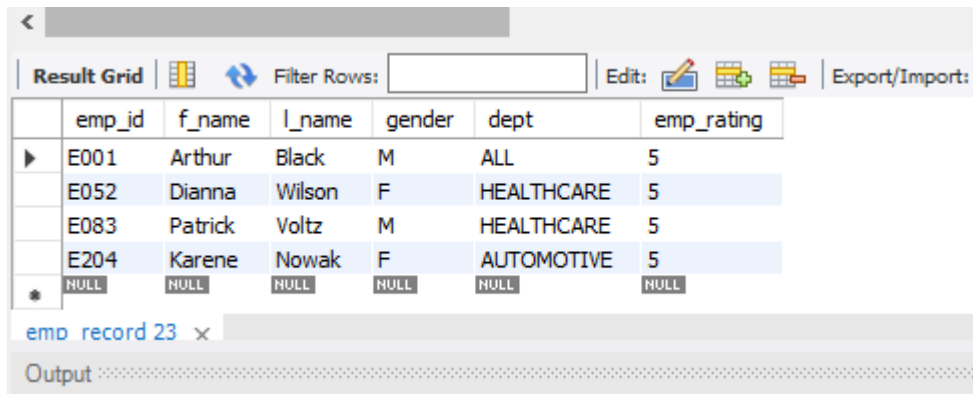
# Science Qtech Employee Performance Mapping

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:



	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 x

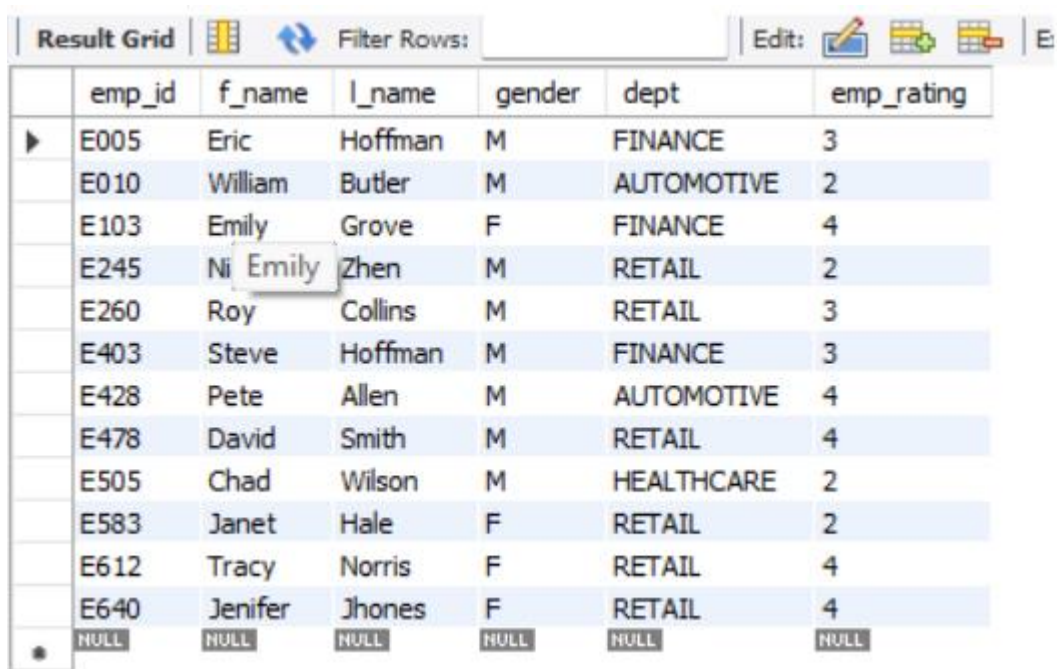
Output

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:



	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

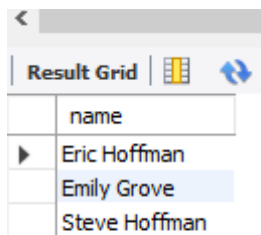
## Science Qtech Employee Performance Mapping

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:



The screenshot shows a database interface with a 'Result Grid' tab. The grid contains a single column named 'name' with three rows of data: 'Eric Hoffman', 'Emily Grove', and 'Steve Hoffman'.

name
Eric Hoffman
Emily Grove
Steve Hoffman

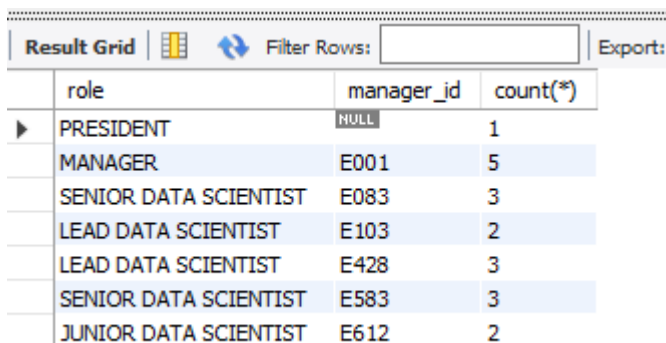
Result 26 x

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:



The screenshot shows a database interface with a 'Result Grid' tab. The grid contains three columns: 'role', 'manager\_id', and 'count(\*)'. The data is grouped by 'manager\_id' and ordered by it. The first row shows 'PRESIDENT' with a 'manager\_id' of 'NULL' and a 'count(\*)' of 1. The subsequent rows show various roles grouped by their manager\_id: 'MANAGER' (5), 'SENIOR DATA SCIENTIST' (3), 'LEAD DATA SCIENTIST' (2), 'LEAD DATA SCIENTIST' (3), 'SENIOR DATA SCIENTIST' (3), and 'JUNIOR DATA SCIENTIST' (2).

role	manager_id	count(*)
PRESIDENT	NULL	1
MANAGER	E001	5
SENIOR DATA SCIENTIST	E083	3
LEAD DATA SCIENTIST	E103	2
LEAD DATA SCIENTIST	E428	3
SENIOR DATA SCIENTIST	E583	3
JUNIOR DATA SCIENTIST	E612	2



## Science Qtech Employee Performance Mapping

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 x

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 :

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

## Science Qtech Employee Performance Mapping

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 :

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

Result Grid



Filter Rows:

Export:

	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

Result 32 ×

## Science Qtech Employee Performance Mapping



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:	<input type="text"/>	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  
);
```

## Science Qtech Employee Performance Mapping

**Output :**

Result Grid				Filter Rows: <input type="text"/>	Edit: <input type="text"/>
	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 :**

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 SCIENTIST	FINANCE	4	USA	NORTH AMERICA	5000	3
	E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4
	E505	Chad	Wilson	M	ASSOCIATE DATA SCIENTIST	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

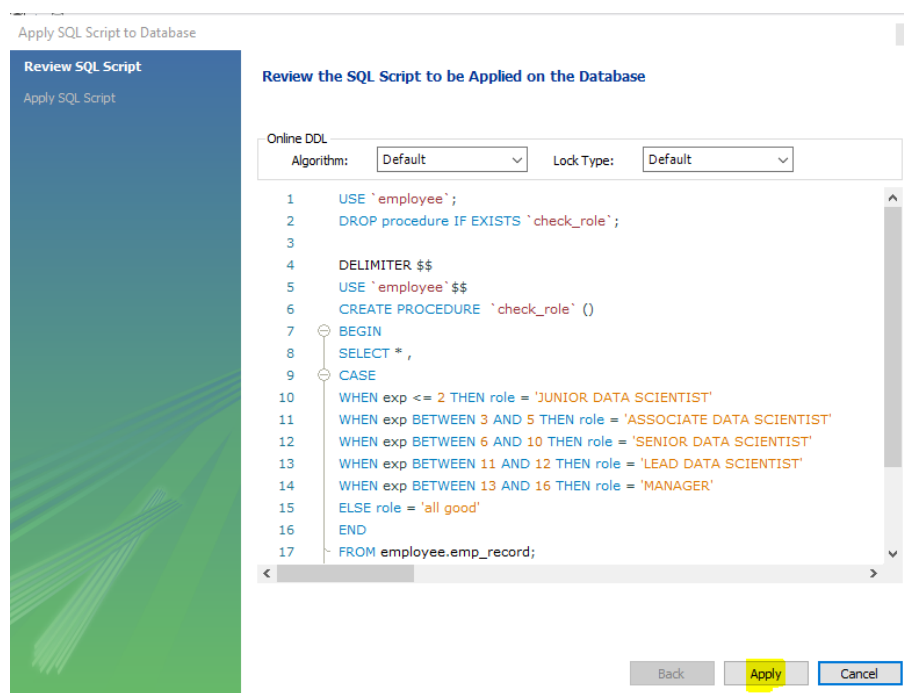
## Science Qtech Employee Performance Mapping

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
```



# Science Qtech Employee Performance Mapping

## 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
```

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 SCIENTIST	FINANCE	4	USA	NORTH AMERICA	5000	3
E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4
E478	David	Smith	M	ASSOCIATE DATA SCIENTIST	RETAIL	3	COLOMBIA	SOUTH AMERICA	4000	4
E505	Chad	Wilson	M	ASSOCIATE DATA SCIENTIST	HEALTHCARE	5	CANADA	NORTH AMERICA	5000	2
E532	Claire	Brennan	F	ASSOCIATE DATA SCIENTIST	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

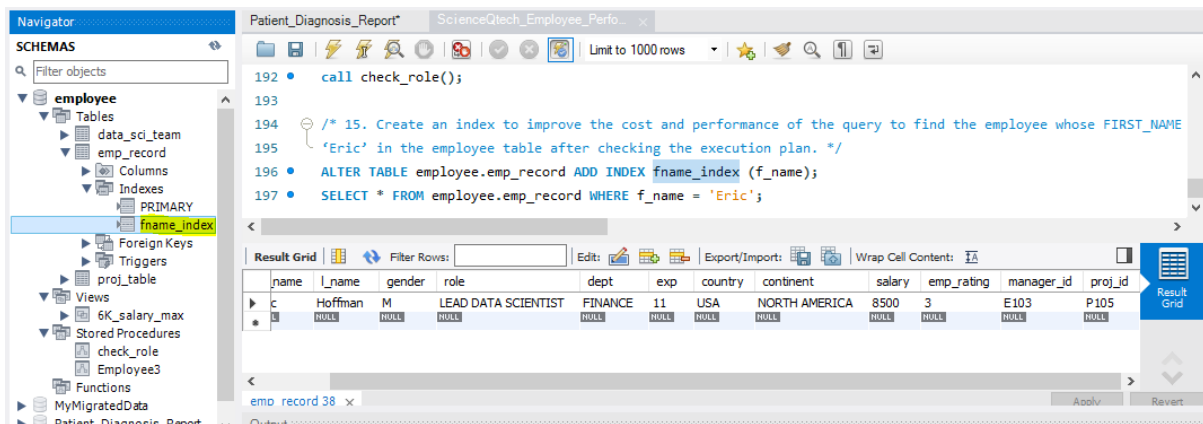
15. Create an index to improve the cost and performance of the query to find the employee whose FIRST\_NAME is 'Eric' in the employee table after checking the execution plan.

## SQL code:

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

## output:

# Science Qtech Employee Performance Mapping



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

## Science Qtech Employee Performance Mapping

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:**

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
continent	AVG(salary)		
ASIA	6250.0000		
EUROPE	7950.0000		
NORTH AMERICA	8525.0000		
SOUTH AMERICA	5600.0000		

Result 41 ×

Average salary based on the country.

**SQL code:**

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

**Output:**

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
country	AVG(salary)		
CANADA	7000.0000		
CHINA	6500.0000		
COLOMBIA	5600.0000		
FRANCE	9000.0000		
GERMANY	7600.0000		
INDIA	6166.6667		
USA	9440.0000		

Result 42 ×