SQL Training

Course-End Project Problem Statement

ScienceQtech Employee Performance Mapping

Problem scenario:

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.

ANS)

```
CREATE DATABASE employee;
USE employee;
```

-- Given below are create commands for creating tables for **data_science_team, proj_table** and **emp_record_table.** They are being imported from previously created datasets using Table Import Wizard.

```
CREATE TABLE emp_record_table (
EMP_ID varchar(4) PRIMARY KEY, FIRST_NAME VARCHAR(50),LAST_NAME
VARCHAR(50),GENDER VARCHAR(10),ROLE VARCHAR(50),DEPT VARCHAR(50),
EXP INT, COUNTRY VARCHAR(50), CONTINENT VARCHAR(50), SALARY
DECIMAL(10,2), EMP_RATING INT, MANAGER_ID INT, PROJ_ID INT
);

CREATE TABLE proj_table (
PROJECT_ID varchar(4)  PRIMARY KEY,
PROJ_NAME VARCHAR(100),
DOMAIN VARCHAR(100),
START_DATE DATE,
CLOSURE_DATE DATE,
DEV_QTR VARCHAR(10),
STATUS VARCHAR(50)
);
```

```
CREATE TABLE data_science_team (
  EMP_ID varchar(4)  PRIMARY KEY,
  FIRST_NAME VARCHAR(50),
  LAST_NAME VARCHAR(50),
  GENDER VARCHAR(10),
  ROLE VARCHAR(50),
  DEPT VARCHAR(50),
  EXP INT,
  COUNTRY VARCHAR(50),
  CONTINENT VARCHAR(50)
);
Select * from employee.emp_record_table;
Select * from employee.proj_table;
Select * from employee.data_science_team;
```

Output of all tables:

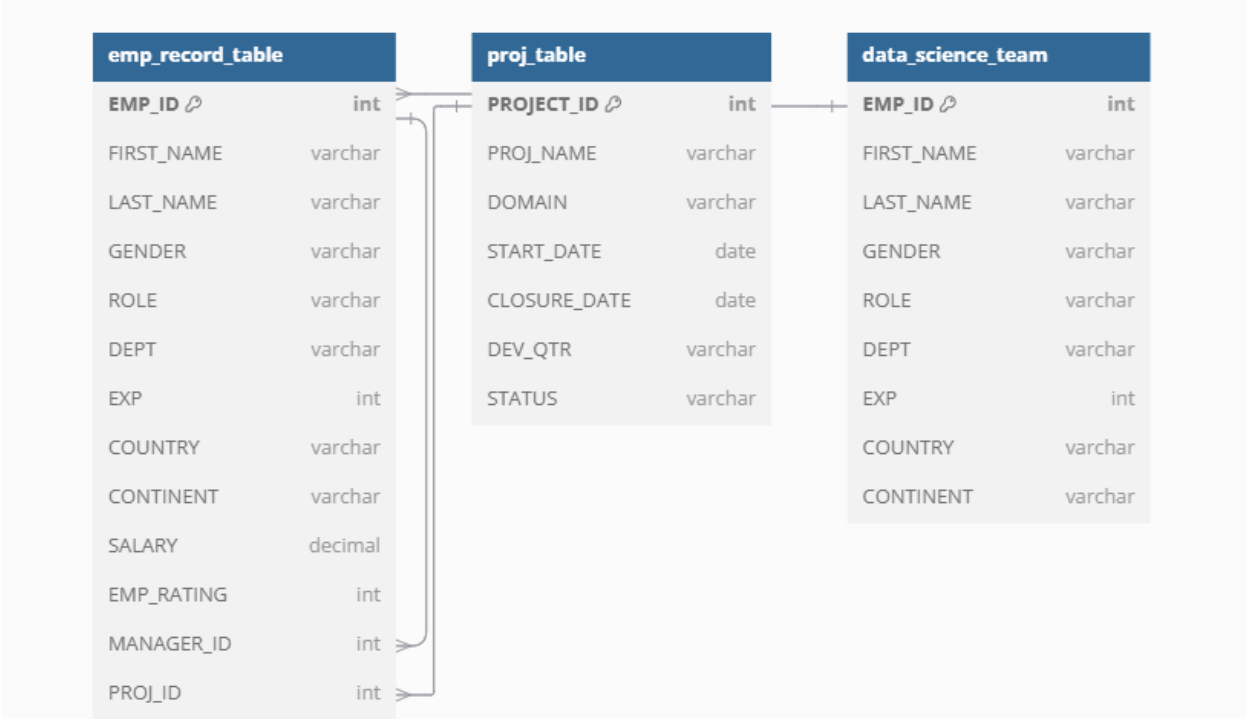
#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID
1	E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5	null	null
2	E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105
3	E010	William	Butler	M	LEAD DATA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

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

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

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

ANS)



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.

   ANS)

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

Output:

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

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

ANS)

- Employees with rating less than 2

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

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

■ Employees with rating greater than 4

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

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

■ Employees with rating between 2 and 4

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

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

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

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

#	NAME
1	EricHoffman
2	EmilyGrove
3	SteveHoffman

6. Write a query to list only those employees who have someone reporting to them. Also, show the number of reporters (including the President).
   ANS)
   SELECT m.EMP_ID, m.FIRST_NAME, m.LAST_NAME, COUNT(e.EMP_ID) AS NUMBER_OF_REPORTERS
   FROM employee.emp_record_table e
   JOIN employee.emp_record_table m
   WHERE e.MANAGER_ID = m.EMP_ID
   GROUP BY m.EMP_ID, m.FIRST_NAME, m.LAST_NAME;

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

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

ANS)
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';

#	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

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.

ANS)

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, ROLE, EMP_RATING, DEPT
    MAX(EMP_RATING) OVER (PARTITION BY DEPT) AS MAX_RATING
FROM employee.emp_record_table;
```

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

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

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

ANS)

```
SELECT ROLE, MIN(SALARY) AS MIN_SALARY, MAX(SALARY) AS MAX_SALARY
FROM employee.emp_record_table
GROUP BY ROLE;
```

#	ROLE	MIN_SALARY	MAX_SALARY
1	PRESIDENT	16500	16500
2	LEAD DATA SCIENTIST	8500	9000
3	SENIOR DATA SCIENTIST	5500	7700
4	MANAGER	8500	11000
5	ASSOCIATE DATA SCIENTIST	4000	5000
6	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.
    ANS)
    SELECT EMP_ID, FIRST_NAME, LAST_NAME, EXP,
        RANK() OVER (ORDER BY EXP DESC) AS EXPERIENCE_RANK
    FROM employee.emp_record_table;

#	EMP_ID	FIRST_NAME	LAST_NAME	EXP	EXPERIENCE_RANK
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
16	E478	David	Smith	3	16
17	E532	Claire	Brennan	3	16
18	E620	Katrina	Allen	2	18
19	E640	Jenifer	Jhones	1	19

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

    CREATE VIEW High_Salary_Employees AS
    SELECT EMP_ID, FIRST_NAME, LAST_NAME, SALARY, COUNTRY
    FROM emp_record_table
    WHERE SALARY > 6000;
    SELECT * from High_Salary_Employees;

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

12. Write a nested query to find employees with experience of more than ten years. Take data from the employee record table.
    ANS)
    SELECT EMP_ID, FIRST_NAME, LAST_NAME, EXP
    FROM employee.emp_record_table
    Where EMP_ID IN(Select EMP_ID from employee.emp_record_table
    WHERE EXP > 10);

#	EMP_ID	FIRST_NAME	LAST_NAME	EXP
1	E001	Arthur	Black	20
2	E005	Eric	Hoffman	11
3	E010	William	Butler	12
4	E083	Patrick	Voltz	15
5	E103	Emily	Grove	14
6	E428	Pete	Allen	14
7	E583	Janet	Hale	14
8	E612	Tracy	Norris	13

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

ANS)

```
DELIMITER $$

CREATE PROCEDURE GetExperiencedEmployees()
BEGIN
   SELECT EMP_ID, FIRST_NAME, LAST_NAME, EXP
```

```
    FROM employee.emp_record_table
    WHERE EXP > 3;
END $$

DELIMITER ;
Call GetExperiencedEmployees();
```

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

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

    The standard being:
    For an employee with experience less than or equal to 2 years assign 'JUNIOR DATA SCIENTIST',
    For an employee with the experience of 2 to 5 years assign 'ASSOCIATE DATA SCIENTIST',
    For an employee with the experience of 5 to 10 years assign 'SENIOR DATA SCIENTIST',
    For an employee with the experience of 10 to 12 years assign 'LEAD DATA SCIENTIST',
    For an employee with the experience of 12 to 16 years assign 'MANAGER'.
    ANS)
    DELIMITER $$

```
CREATE FUNCTION CheckJobProfile(EXPERIENCE INT)
RETURNS VARCHAR(50)
READS SQL DATA
DETERMINISTIC
BEGIN
   DECLARE JOB_PROFILE VARCHAR(50);
   IF EXPERIENCE <= 2 THEN
      SET JOB_PROFILE = 'JUNIOR DATA SCIENTIST';
   ELSEIF EXPERIENCE BETWEEN 2 AND 5 THEN
      SET JOB_PROFILE = 'ASSOCIATE DATA SCIENTIST';
   ELSEIF EXPERIENCE BETWEEN 5 AND 10 THEN
      SET JOB_PROFILE = 'SENIOR DATA SCIENTIST';
   ELSEIF EXPERIENCE BETWEEN 10 AND 12 THEN
      SET JOB_PROFILE = 'LEAD DATA SCIENTIST';
   ELSE
      SET JOB_PROFILE = 'MANAGER';
   END IF;
   RETURN JOB_PROFILE;
END $$

DELIMITER ;
Select *,employee.CheckJobProfile(EXP) as JOB_PROFILE from
employee.data_science_team;
```

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

15. Create an index to improve the cost and performance of the query to find the employee whose FIRST_NAME is ‘Eric’ in the employee table after checking the execution plan.
    ANS)
    CREATE INDEX idx_first_name ON emp_record_table(FIRST_NAME);

-- Query to find employee named 'Eric'
EXPLAIN SELECT * FROM emp_record_table WHERE FIRST_NAME = 'Eric';

Query Statistics

Timing (as measured at client side):
Execution time: 0:00:0.00043988

Timing (as measured by the server):
Execution time: 0:00:0.00031580
Table lock wait time: 0:00:0.00000400

Errors:
Had Errors: NO
Warnings: 1

Joins per Type:
Full table scans (Select_scan): 0
Joins using table scans (Select_full_join): 0
Joins using range search (Select_full_range_join): 0
Joins with range checks (Select_range_check): 0
Joins using range (Select_range): 0

Sorting:
Sorted rows (Sort_rows): 0
Sort merge passes (Sort_merge_passes): 0

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).
ANS)
SELECT EMP_ID, FIRST_NAME, LAST_NAME, SALARY, EMP_RATING,
(SALARY * 0.05 * EMP_RATING) AS BONUS
FROM emp_record_table;

#	EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID	BONUS
1	E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5	NULL	NULL	4125.00
2	E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105	1275.00
3	E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2	E428	P204	900.00
4	E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA	5500	5	E083	P103	1375.00
5	E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA	7700	1	E083	P302	385.00
6	E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5	E001	NULL	2375.00
7	E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4	E001	NULL	2100.00
8	E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5	E428	P204	1875.00
9	E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA	6500	2	E583	P109	650.00
10	E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA	7000	3	E583	NA	1050.00
11	E403	Steve	Hoffman	M	ASSOCIATE DATA SCIE...	FINANCE	4	USA	NORTH AMERICA	5000	3	E103	P105	750.00
12	E428	Pete	Allen	M	MANAGER	AUTOMOTIVE	14	GERMANY	EUROPE	11000	4	E001	NULL	2200.00
13	E478	David	Smith	M	ASSOCIATE DATA SCIE...	RETAIL	3	COLOMBIA	SOUTH AMERICA	4000	4	E583	P109	800.00
14	E505	Chad	Wilson	M	ASSOCIATE DATA SCIE...	HEALTHCARE	5	CANADA	NORTH AMERICA	5000	2	E083	P103	500.00
15	E532	Claire	Brennan	F	ASSOCIATE DATA SCIE...	AUTOMOTIVE	3	GERMANY	EUROPE	4300	1	E428	P204	215.00
16	E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOMBIA	SOUTH AMERICA	10000	2	E001	NULL	1000.00
17	E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	8500	4	E001	NULL	1700.00
18	E620	Katrina	Allen	F	JUNIOR DATA SCIENTIST	RETAIL	2	INDIA	ASIA	3000	1	E612	P406	150.00
19	E640	Jenifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA	2800	4	E612	P406	560.00

17. Write a query to calculate the average salary distribution based on the continent and country. Take data from the employee record table.
ANS)
SELECT CONTINENT, COUNTRY, AVG(SALARY) AS AVG_SALARY
FROM emp_record_table
GROUP BY CONTINENT, COUNTRY;

#	CONTINENT	COUNTRY	AVERAGE_SALARY
1	NORTH AMERICA	USA	9440.0000
2	EUROPE	FRANCE	9000.0000
3	NORTH AMERICA	CANADA	7000.0000
4	EUROPE	GERMANY	7600.0000
5	ASIA	CHINA	6500.0000
6	ASIA	INDIA	6166.6667
7	SOUTH AMERICA	COLOMBIA	5600.0000