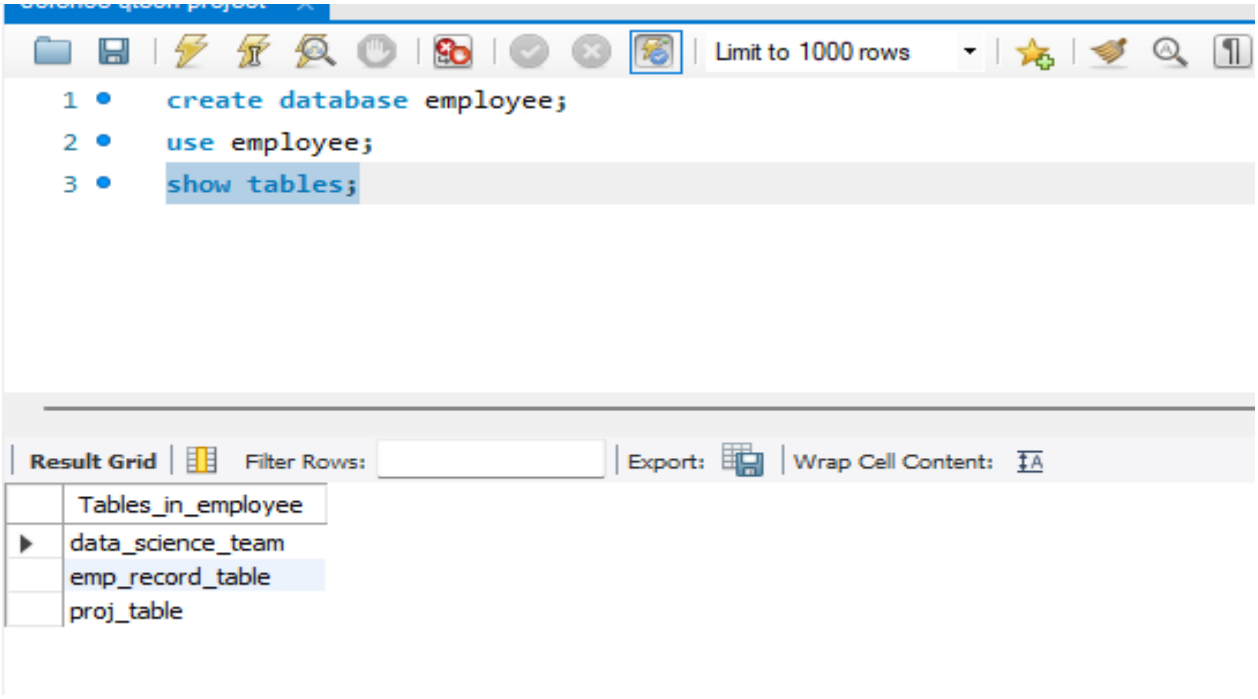
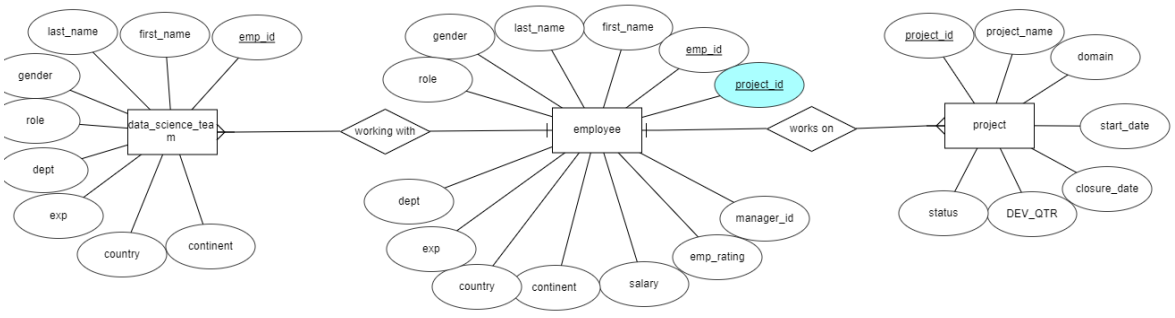
SQL PROJECT

ScienceQtech Employee Performance Mapping

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
5 •  SELECT EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT from emp_record_table;
```

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

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT
E260	Roy	Collins	M	RETAIL
E245	Nian	Zhen	M	RETAIL
E620	Katrina	Allen	F	RETAIL
E640	Jenifer	Jhones	F	RETAIL
E403	Steve	Hoffman	M	FINANCE
E204	Karene	Nowak	F	AUTOMOTIVE
E057	Dorothy	Wilson	F	HEALTHCARE
E010	William	Butler	M	AUTOMOTIVE
E478	David	Smith	M	RETAIL
E005	Eric	Hoffman	M	FINANCE
E052	Dianna	Wilson	F	HEALTHCARE
E505	Chad	Wilson	M	HEALTHCARE
E532	Claire	Brennan	F	AUTOMOTIVE
E083	Patrick	Voltz	M	HEALTHCARE
E583	Janet	Hale	F	RETAIL
E103	Emily	Grove	F	FINANCE
E612	Tracy	Norris	F	RETAIL
E428	Pete	Allen	M	AUTOMOTIVE
E001	Arthur	Black	M	ALL

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**

```
7 •  SELECT EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING
8    from emp_record_table
9    WHERE EMP_RATING<2  ;
10
```

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

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

- **greater than four**

```
11 •  SELECT EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING
12    from emp_record_table
13    WHERE EMP_RATING>4 ;
14
```

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

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

- **between two and four**

```
15 •  SELECT EMP_ID,FIRST_NAME,LAST_NAME,GENDER,DEPT,EMP_RATING
16    from emp_record_table
17    WHERE EMP_RATING BETWEEN 2 AND 4 ;
18
```

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

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

```
20 •  SELECT CONCAT(FIRST_NAME," ",LAST_NAME) AS NAME FROM emp_record_table
21    where DEPT='FINANCE' ;
22
23
```

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

NAME
Steve Hoffman
Eric Hoffman
Emily Grove

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

```
22
23 •  SELECT a.EMP_ID, a.FIRST_NAME,a.LAST_NAME,a.ROLE,a.EXP,count(a.EMP_ID) as EMP_COUNT
24    FROM emp_record_table a
25    inner join emp_record_table b
26    ON a.EMP_ID = b.MANAGER_ID
27    GROUP BY a.EMP_ID
28    ORDER BY a.EMP_ID;
```

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

EMP_ID	FIRST_NAME	LAST_NAME	ROLE	EXP	EMP_COUNT
E001	Arthur	Black	PRESIDENT	20	6
E083	Patrick	Voltz	MANAGER	15	3
E103	Emily	Grove	MANAGER	14	2
E428	Pete	Allen	MANAGER	14	3
E583	Janet	Hale	MANAGER	14	3
E612	Tracy	Norris	MANAGER	13	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.

```
31 •  select EMP_ID,FIRST_NAME,LAST_NAME,DEPT FROM emp_record_table
32    where DEPT='HEALTHCARE'
33    UNION
34    select EMP_ID,FIRST_NAME,LAST_NAME,DEPT FROM emp_record_table
35    where DEPT='FINANCE';
```

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

EMP_ID	FIRST_NAME	LAST_NAME	DEPT
E057	Dorothy	Wilson	HEALTHCARE
E052	Dianna	Wilson	HEALTHCARE
E505	Chad	Wilson	HEALTHCARE
E083	Patrick	Voltz	HEALTHCARE
E403	Steve	Hoffman	FINANCE
E005	Eric	Hoffman	FINANCE
E103	Emily	Grove	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.

```
38 •  SELECT  m.EMP_ID,m.FIRST_NAME,m.LAST_NAME,m.ROLE,m.DEPT,m.EMP_RATING,max(m.EMP_RATING)
39    OVER(PARTITION BY m.DEPT)
40    AS "MAX_DEPT_RATING"
41    FROM emp_record_table m
42    ORDER BY DEPT;
```

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

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

```
44 •  SELECT  EMP_ID,FIRST_NAME,LAST_NAME,ROLE,min(SALARY),max(SALARY)
45    FROM emp_record_table
46    GROUP BY ROLE;
```

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

EMP_ID	FIRST_NAME	LAST_NAME	ROLE	min(SALARY)	max(SALARY)
E260	Roy	Collins	SENIOR DATA SCIENTIST	5500	7700
E620	Katrina	Allen	JUNIOR DATA SCIENTIST	2800	3000
E403	Steve	Hoffman	ASSOCIATE DATA SCIENTIST	4000	5000
E010	William	Butler	LEAD DATA SCIENTIST	8500	9000
E083	Patrick	Voltz	MANAGER	8500	11000
E001	Arthur	Black	PRESIDENT	16500	16500

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

```
48 •    SELECT EMP_ID,FIRST_NAME,LAST_NAME,EXP,
49      RANK() OVER (ORDER BY EXP) AS EXP_RANK
50      FROM emp_record_table;
```

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

EMP_ID	FIRST_NAME	LAST_NAME	EXP	EXP_RANK
E640	Jenifer	Jhones	1	1
E620	Katrina	Allen	2	2
E478	David	Smith	3	3
E532	Claire	Brennan	3	3
E403	Steve	Hoffman	4	5
E505	Chad	Wilson	5	6
E245	Nian	Zhen	6	7
E052	Dianna	Wilson	6	7
E260	Roy	Collins	7	9
E204	Karene	Nowak	8	10
E057	Dorothy	Wilson	9	11
E005	Eric	Hoffman	11	12
E010	William	Butler	12	13
E612	Tracy	Norris	13	14
E583	Janet	Hale	14	15
E103	Emily	Grove	14	15
E428	Pete	Allen	14	15
E083	Patrick	Voltz	15	18
E001	Arthur	Black	20	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.

```
52 •    create  view country_wise_employee as
53      select EMP_ID,FIRST_NAME,LAST_NAME,COUNTRY,SALARY
54      FROM emp_record_table
55      where SALARY>6000;
56
57 •    select*from country_wise_employee;
58
```

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

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

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

```
59  select  EMP_ID,FIRST_NAME,LAST_NAME,EXP
60  from emp_record_table
61  where  EMP_ID IN(select MANAGER_ID from emp_record_table);
62
63
```

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

EMP_ID	FIRST_NAME	LAST_NAME	EXP
E083	Patrick	Voltz	15
E583	Janet	Hale	14
E103	Emily	Grove	14
E612	Tracy	Norris	13
E428	Pete	Allen	14
E001	Arthur	Black	20

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.

ame: emp_with_more_than_3_years_experience — The name of the routine is parsed automatically from statement. The DDL is parsed automatically while yo

DDL:

```
1  CREATE DEFINER=`root`@`localhost` PROCEDURE `emp_with_more_than_3_years_experience`()
2  BEGIN
3  select EMP_ID,FIRST_NAME,LAST_NAME,EXP
4  FROM emp_record_table
5  where EXP>3;
6  END
```

```
62
63  CALL emp_with_more_than_3_years_experience();
64
```

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

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

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'.

Employee_ROLE

```
CREATE DEFINER=`root`@`localhost` FUNCTION `Employee_ROLE`(EXP INT) RETURNS varchar(40) CHARSET utf8mb4
    DETERMINISTIC
BEGIN
DECLARE Employee_ROLE VARCHAR(40);
IF EXP>12 AND 16 THEN
SET Employee_ROLE="MANAGER";
ELSEIF EXP>10 AND 12 THEN
SET Employee_ROLE ="LEAD DATA SCIENTIST";
ELSEIF EXP>5 AND 10 THEN
SET Employee_ROLE ="SENIOR DATA SCIENTIST";
ELSEIF EXP>2 AND 5 THEN
SET Employee_ROLE ="ASSOCIATE DATA SCIENTIST";
ELSEIF EXP<=2 THEN
SET Employee_ROLE ="JUNIOR DATA SCIENTIST";
END IF;

RETURN (Employee_ROLE);
END
```

```
select EXP ,Employee_ROLE(EXP)
FROM data_science_team;
```

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

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

```
69 •  CREATE INDEX idx_first_name
70    ON emp_record_table(FIRST_NAME(20));
71 •  SELECT * FROM emp_record_table
72    WHERE FIRST_NAME='Eric';
73
```

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

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

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).

```
74
75 •  update emp_record_table
76    set SALARY = (select SALARY  +( select SALARY * 0.5 EMP_RATING));
77
78 •  SELECT*FROM emp_record_table;
```

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

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID
E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA	10500	3	E583
E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA	9750	2	E583
E620	Katrina	Allen	F	JUNIOR DATA SCIENTIST	RETAIL	2	INDIA	ASIA	4500	1	E612
E640	Jenifer	Jhones	F	JUNIOR DATA SCIENTIST	RETAIL	1	COLOMBIA	SOUTH AMERICA	4200	4	E612
E403	Steve	Hoffman	M	ASSOCIATE DATA SCIENTIST	FINANCE	4	USA	NORTH AMERICA	7500	3	E103
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	11250	5	E428
E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA	11550	1	E083
E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	13500	2	E428
E478	David	Smith	M	ASSOCIATE DATA SCIENTIST	RETAIL	3	COLOMBIA	SOUTH AMERICA	6000	4	E583
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	12750	3	E103
E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA	8250	5	E083
E505	Chad	Wilson	M	ASSOCIATE DATA SCIENTIST	HEALTHCARE	5	CANADA	NORTH AMERICA	7500	2	E083
E532	Claire	Brennan	F	ASSOCIATE DATA SCIENTIST	AUTOMOTIVE	3	GERMANY	EUROPE	6450	1	E428
E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	14250	5	E001
E583	Janet	Hale	F	MANAGER	RETAIL	14	COLOMBIA	SOUTH AMERICA	15000	2	E001
E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	15750	4	E001
E612	Tracy	Norris	F	MANAGER	RETAIL	13	INDIA	ASIA	12750	4	E001

record_table 1

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

```
81 •  select EMP_ID,FIRST_NAME,LAST_NAME,SALARY,COUNTRY,CONTINENT ,
82    AVG(SALARY)OVER (PARTITION BY COUNTRY) AS AVG_SALARY_COUNTRY,
83    AVG(SALARY)OVER (PARTITION BY CONTINENT) AS AVG_SALARY_CONTINENT
84    FROM emp_record_table ;
```

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

EMP_ID	FIRST_NAME	LAST_NAME	SALARY	COUNTRY	CONTINENT	AVG_SALARY_COUNTRY	AVG_SALARY_CONTINENT
E245	Nian	Zhen	9750	CHINA	ASIA	9750.0000	9375.0000
E260	Roy	Collins	10500	INDIA	ASIA	9250.0000	9375.0000
E620	Katrina	Allen	4500	INDIA	ASIA	9250.0000	9375.0000
E612	Tracy	Norris	12750	INDIA	ASIA	9250.0000	9375.0000
E010	William	Butler	13500	FRANCE	EUROPE	13500.0000	11925.0000
E204	Karene	Nowak	11250	GERMANY	EUROPE	11400.0000	11925.0000
E532	Claire	Brennan	6450	GERMANY	EUROPE	11400.0000	11925.0000
E428	Pete	Allen	16500	GERMANY	EUROPE	11400.0000	11925.0000
E052	Dianna	Wilson	8250	CANADA	NORTH AMERICA	10500.0000	12787.5000
E505	Chad	Wilson	7500	CANADA	NORTH AMERICA	10500.0000	12787.5000
E103	Emily	Grove	15750	CANADA	NORTH AMERICA	10500.0000	12787.5000
E403	Steve	Hoffman	7500	USA	NORTH AMERICA	14160.0000	12787.5000
E057	Dorothy	Wilson	11550	USA	NORTH AMERICA	14160.0000	12787.5000
E005	Eric	Hoffman	12750	USA	NORTH AMERICA	14160.0000	12787.5000
E083	Patrick	Voltz	14250	USA	NORTH AMERICA	14160.0000	12787.5000
E001	Arthur	Black	24750	USA	NORTH AMERICA	14160.0000	12787.5000
E640	Jenifer	Jhones	4200	COLOMBIA	SOUTH AMERICA	8400.0000	8400.0000

Result 3