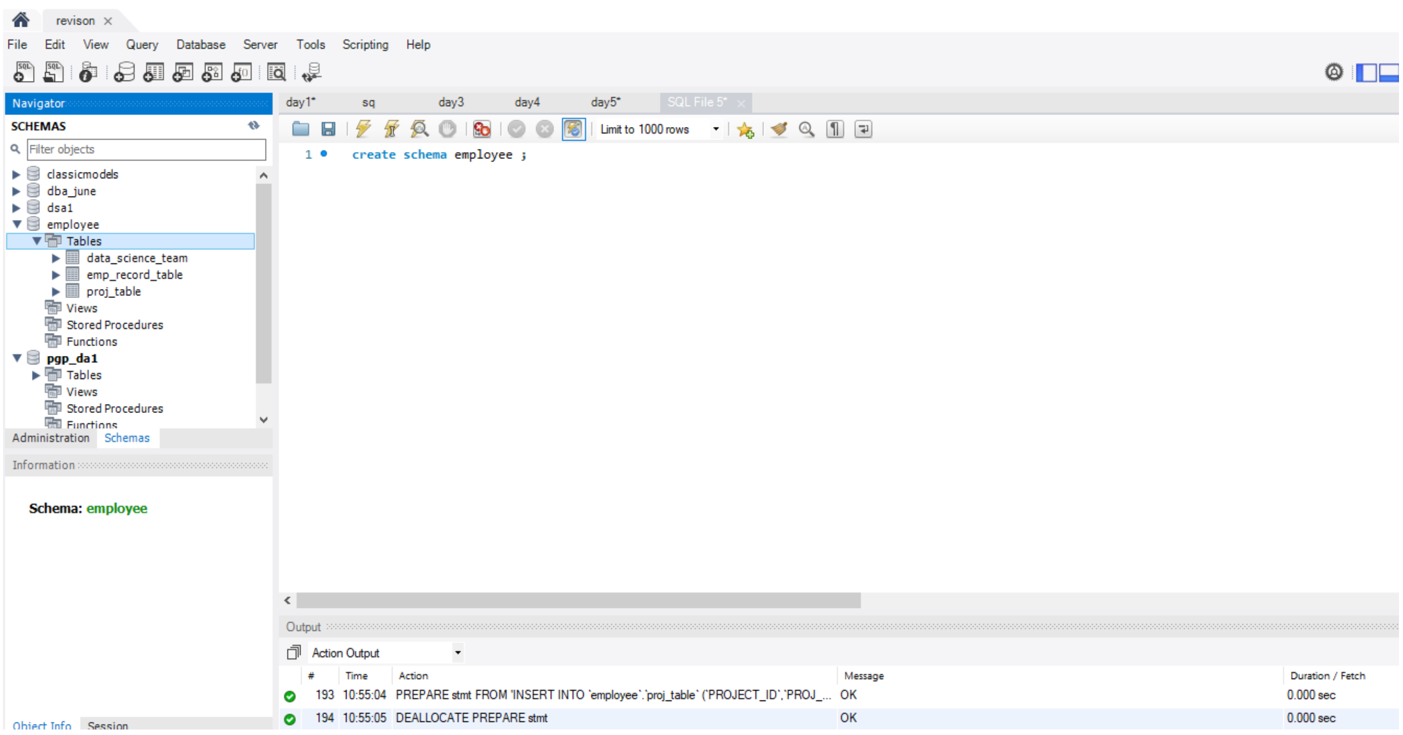
ScienceQtech Employee Performance Mapping

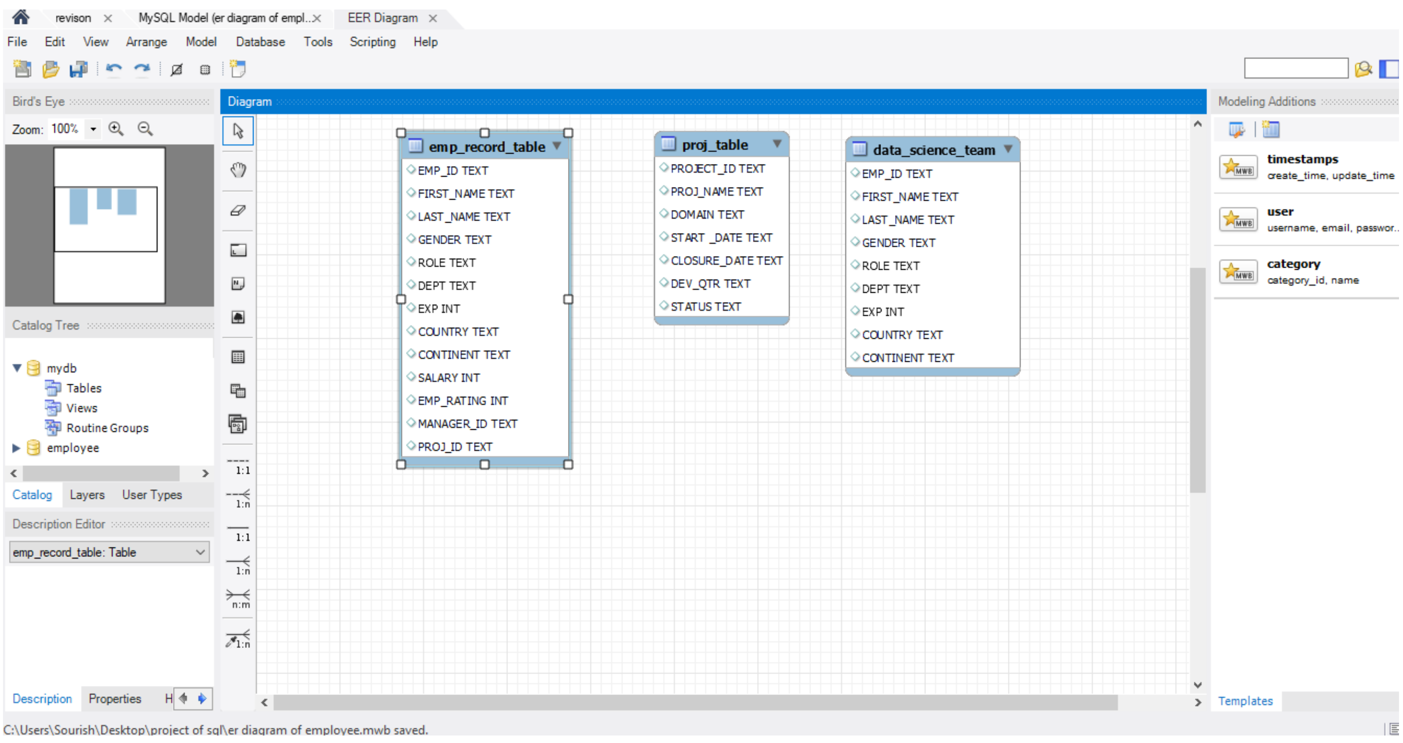
1. Create a database named *employee*, then import **data_science_team.csv proj_table.csv** and **emp_record_table.csv** into the **employee** database from the given resources.



```
create schema employee ;
```

```
  #    Time      Action                                                                   Message   Duration / Fetch
  193  10:55:04  PREPARE stmt FROM 'INSERT INTO `employee`.`proj_table` (`PROJECT_ID`,`PROJ_...  OK        0.000 sec
  194  10:55:05  DEALLOCATE PREPARE stmt                                                  OK        0.000 sec
```

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



emp_record_table
EMP_ID TEXT
FIRST_NAME TEXT
LAST_NAME TEXT
GENDER TEXT
ROLE TEXT
DEPT TEXT
EXP INT
COUNTRY TEXT
CONTINENT TEXT
SALARY INT
EMP_RATING INT
MANAGER_ID TEXT
PROJ_ID TEXT

proj_table
PROJECT_ID TEXT
PROJ_NAME TEXT
DOMAIN TEXT
START _DATE TEXT
CLOSURE_DATE TEXT
DEV_QTR TEXT
STATUS TEXT

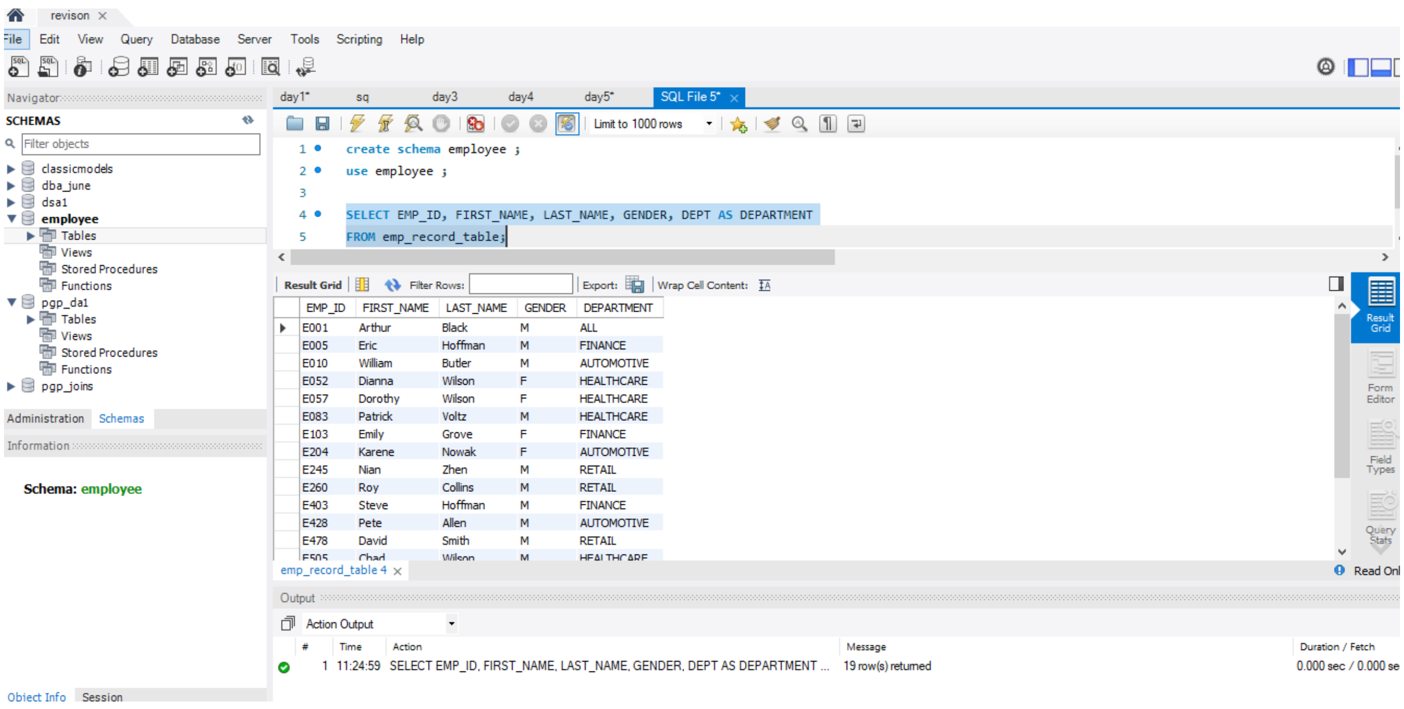
data_science_team
EMP_ID TEXT
FIRST_NAME TEXT
LAST_NAME TEXT
GENDER TEXT
ROLE TEXT
DEPT TEXT
EXP INT
COUNTRY TEXT
CONTINENT TEXT

C:\Users\Sourish\Desktop\project of sql\er diagram of employee.mwb saved.

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 AS DEPARTMENT
FROM emp_record_table;



```
create schema employee ;
use employee ;

SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT AS DEPARTMENT
FROM emp_record_table;
```

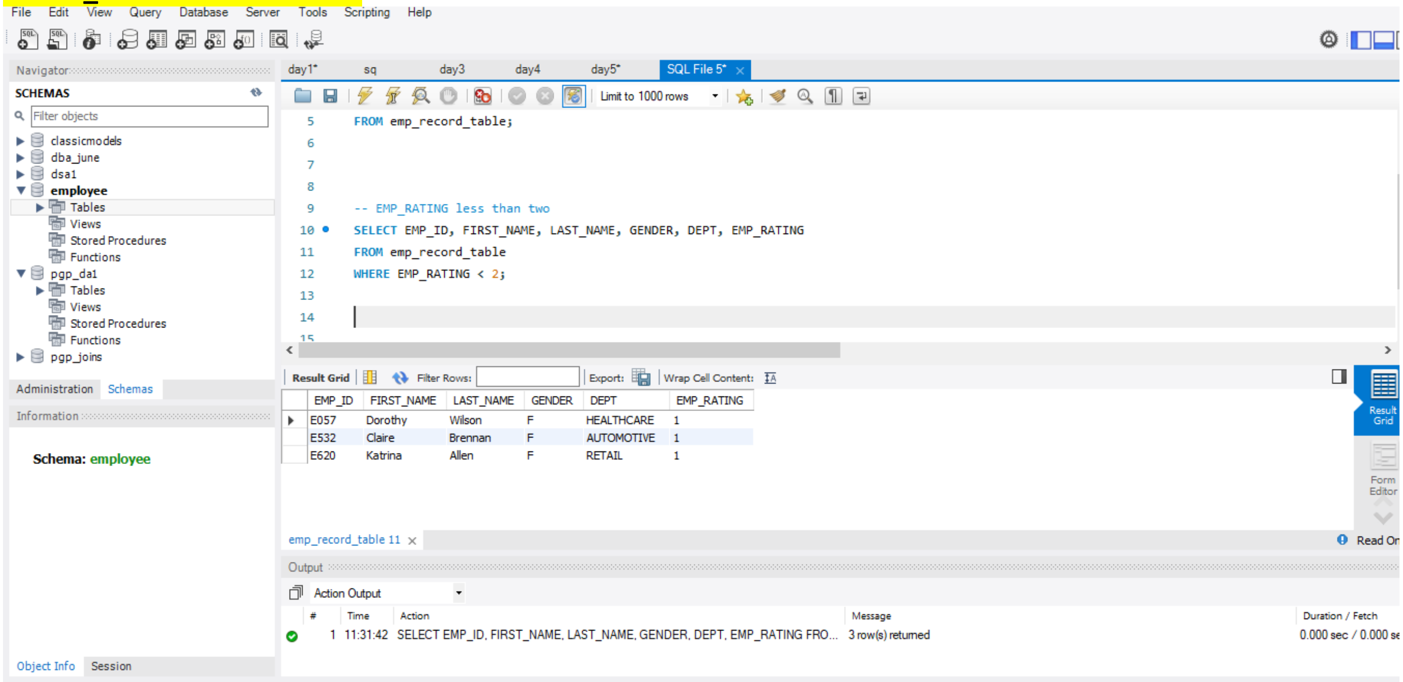
EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPARTMENT
E001	Arthur	Black	M	ALL
E005	Eric	Hoffman	M	FINANCE
E010	William	Butler	M	AUTOMOTIVE
E052	Dianna	Wilson	F	HEALTHCARE
E057	Dorothy	Wilson	F	HEALTHCARE
E083	Patrick	Voltz	M	HEALTHCARE
E103	Emily	Grove	F	FINANCE
E204	Karene	Nowak	F	AUTOMOTIVE
E245	Nian	Zhen	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

```
#  Time      Action                                                           Message             Duration / Fetch
1  11:24:59  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT AS DEPARTMENT ...  19 row(s) returned  0.000 sec / 0.000 se
```

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

=>

-- EMP_RATING less than two

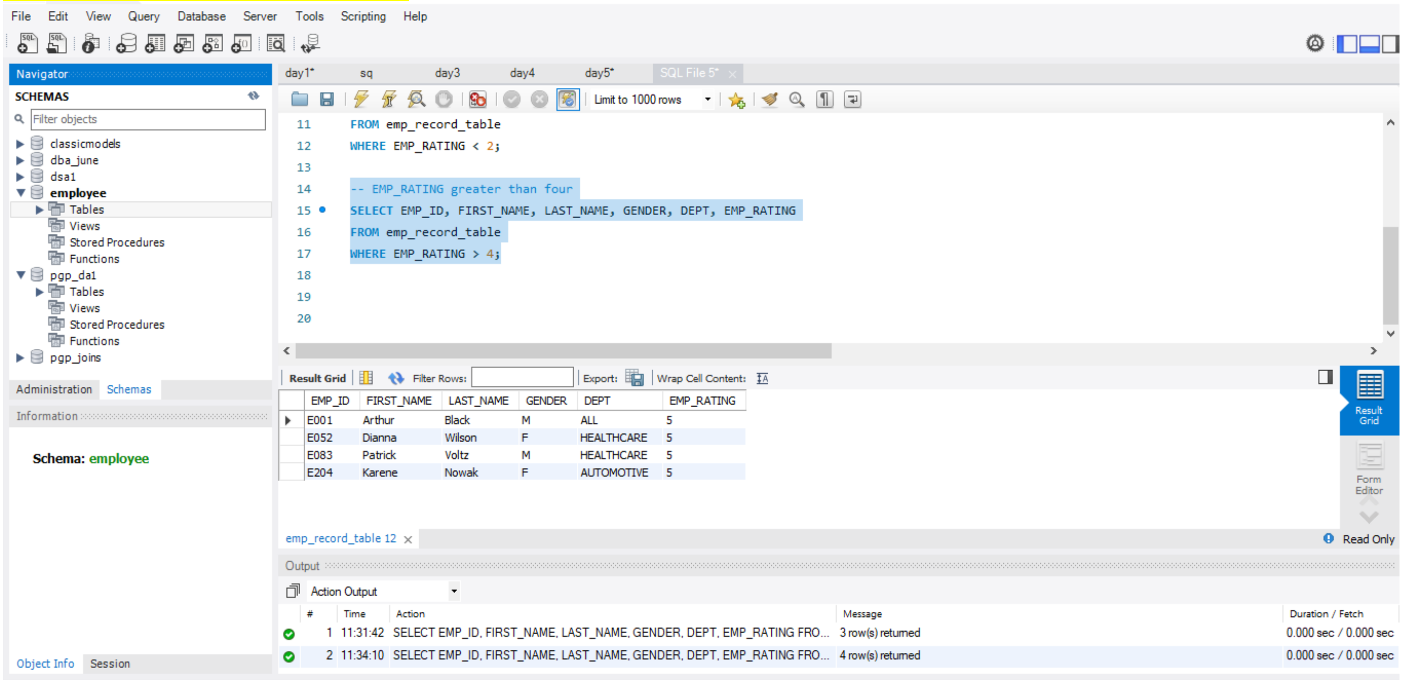


```
FROM emp_record_table;



-- EMP_RATING less than two
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING
FROM emp_record_table
WHERE EMP_RATING < 2;
```

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

```
#   Time      Action                                                                  Message              Duration / Fetch
1   11:31:42  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING FRO...   3 row(s) returned    0.000 sec / 0.000 se
```

-- EMP_RATING greater than four

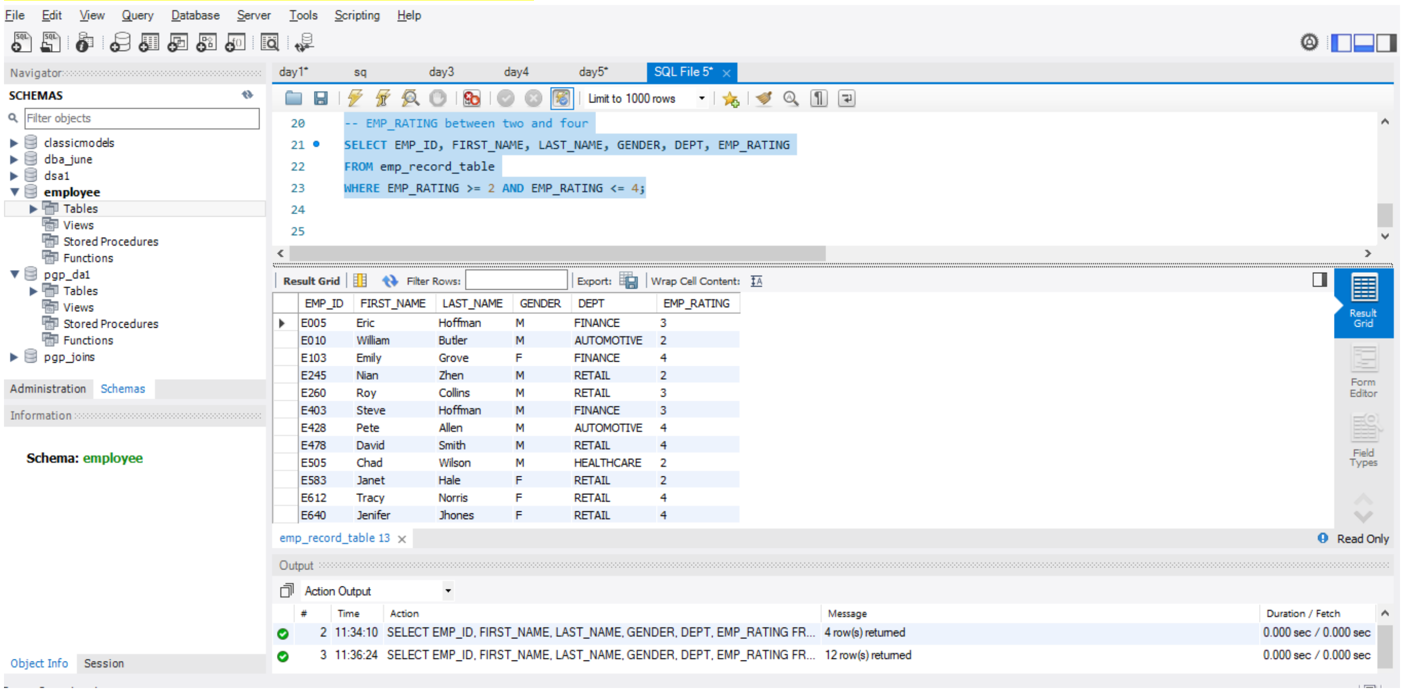


```
FROM emp_record_table
WHERE EMP_RATING < 2;

-- EMP_RATING greater than four
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING
FROM emp_record_table
WHERE EMP_RATING > 4;
```

EMP_ID	FIRST_NAME	LAST_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

```
#   Time      Action                                                                  Message              Duration / Fetch
1   11:31:42  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING FRO...   3 row(s) returned    0.000 sec / 0.000 sec
2   11:34:10  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING FRO...   4 row(s) returned    0.000 sec / 0.000 sec
```

-- EMP_RATING between two and four



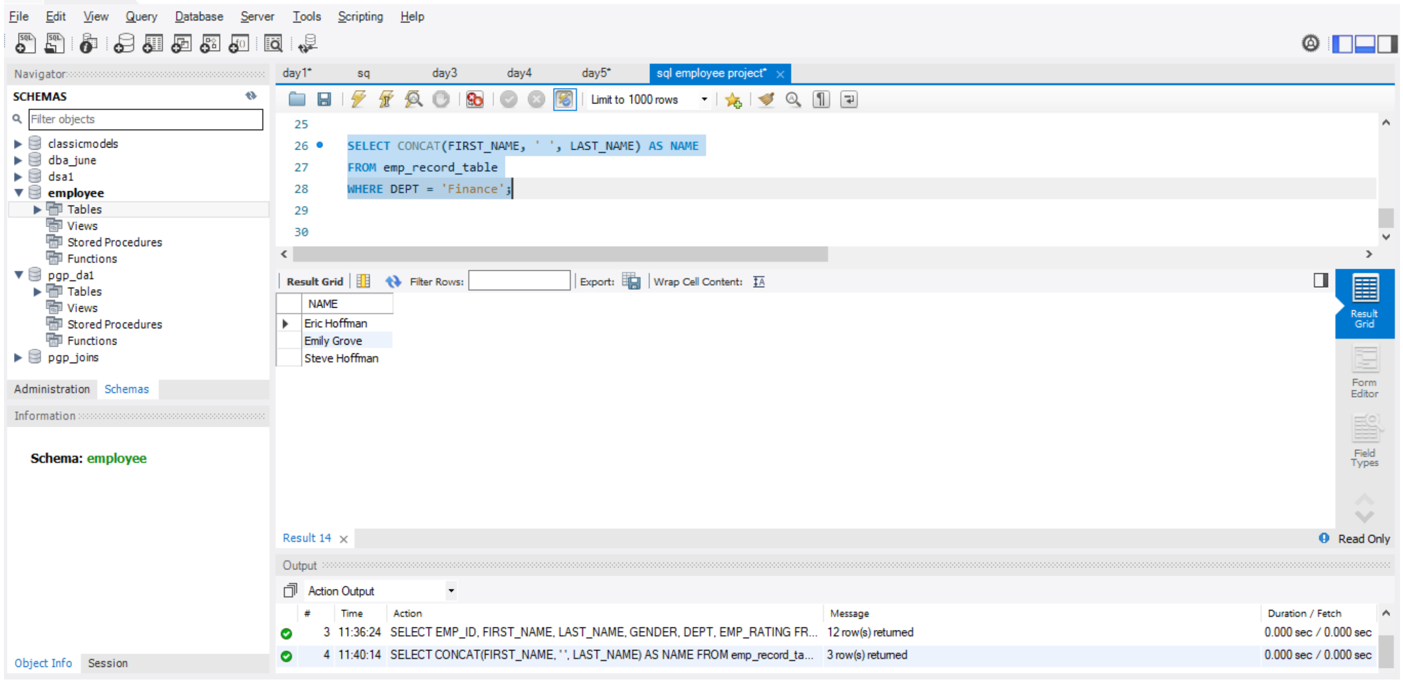
```sql
-- EMP_RATING between two and four
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING
FROM emp_record_table
WHERE EMP_RATING >= 2 AND EMP_RATING <= 4;
```

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPT	EMP_RATING
E005	Eric	Hoffman	M	FINANCE	3
E010	William	Butler	M	AUTOMOTIVE	2
E103	Emily	Grove	F	FINANCE	4
E245	Nian	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

```
#  Time      Action                                                                Message              Duration / Fetch
2  11:34:10  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING FR...  4 row(s) returned    0.000 sec / 0.000 sec
3  11:36:24  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING FR...  12 row(s) returned   0.000 sec / 0.000 sec
```

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.

=>

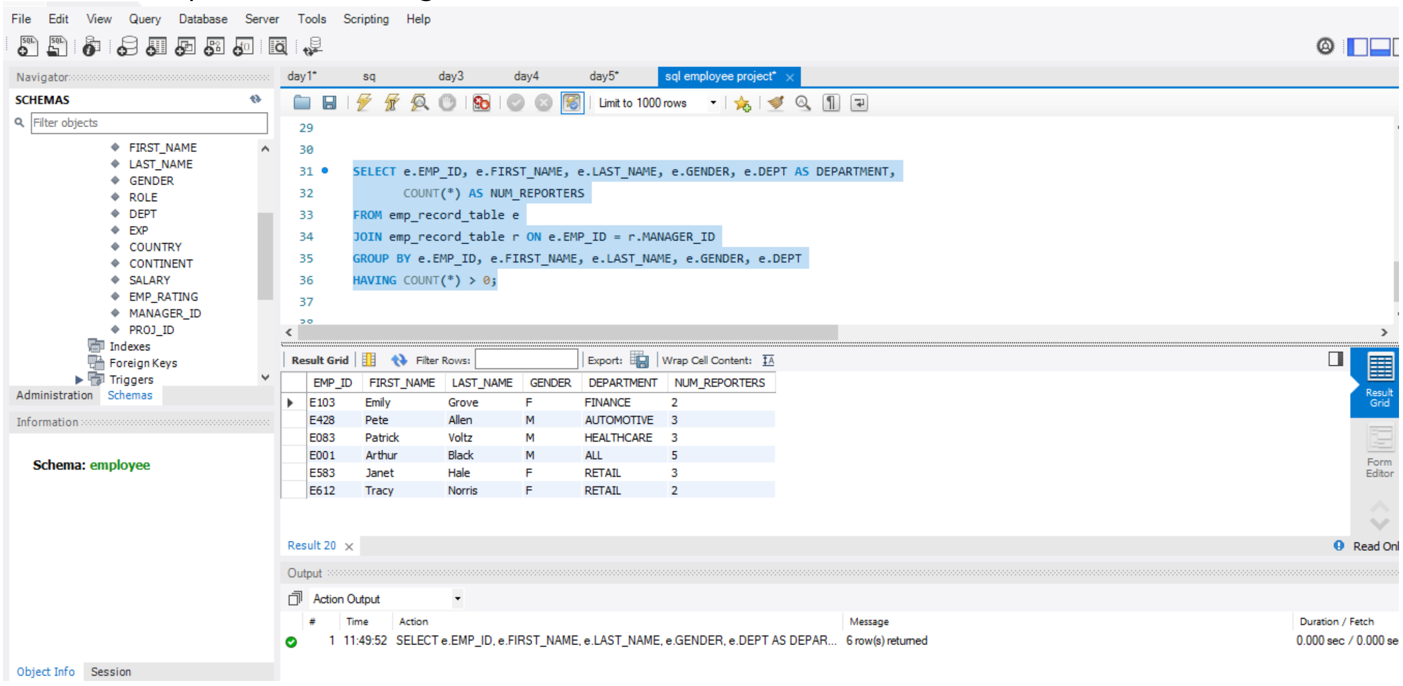


```sql
SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) AS NAME
FROM emp_record_table
WHERE DEPT = 'Finance';
```

NAME
Eric Hoffman
Emily Grove
Steve Hoffman

```
#  Time      Action                                                                Message              Duration / Fetch
3  11:36:24  SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT, EMP_RATING FR...  12 row(s) returned   0.000 sec / 0.000 sec
4  11:40:14  SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) AS NAME FROM emp_record_ta...  3 row(s) returned    0.000 sec / 0.000 sec
```

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



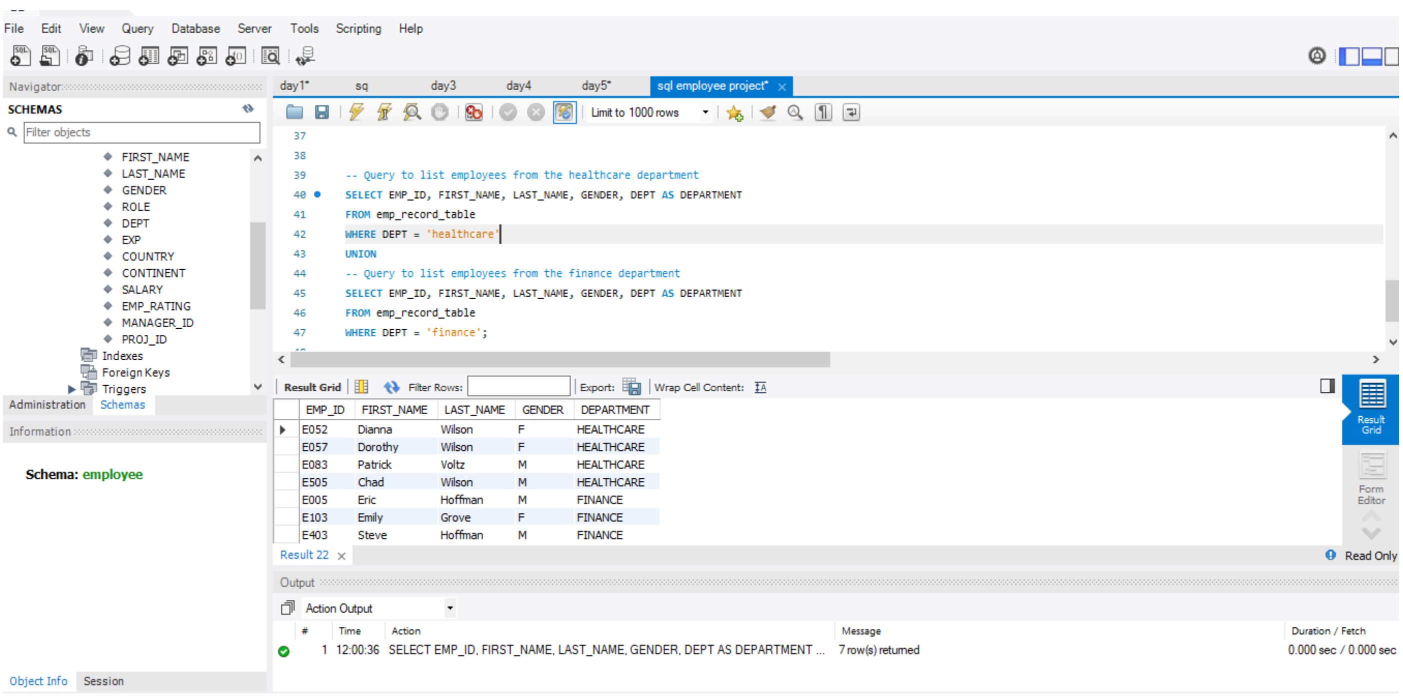
```
SELECT e.EMP_ID, e.FIRST_NAME, e.LAST_NAME, e.GENDER, e.DEPT AS DEPARTMENT,
       COUNT(*) AS NUM_REPORTERS
FROM emp_record_table e
JOIN emp_record_table r ON e.EMP_ID = r.MANAGER_ID
GROUP BY e.EMP_ID, e.FIRST_NAME, e.LAST_NAME, e.GENDER, e.DEPT
HAVING COUNT(*) > 0;
```

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPARTMENT	NUM_REPORTERS
E103	Emily	Grove	F	FINANCE	2
E428	Pete	Allen	M	AUTOMOTIVE	3
E083	Patrick	Voltz	M	HEALTHCARE	3
E001	Arthur	Black	M	ALL	5
E583	Janet	Hale	F	RETAIL	3
E612	Tracy	Norris	F	RETAIL	2

Schema: employee

#	Time	Action	Message	Duration / Fetch
1	11:49:52	SELECT e.EMP_ID, e.FIRST_NAME, e.LAST_NAME, e.GENDER, e.DEPT AS DEPAR...	6 row(s) returned	0.000 sec / 0.000 se

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



```
-- Query to list employees from the healthcare department
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT AS DEPARTMENT
FROM emp_record_table
WHERE DEPT = 'healthcare'
UNION
-- Query to list employees from the finance department
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT AS DEPARTMENT
FROM emp_record_table
WHERE DEPT = 'finance';
```

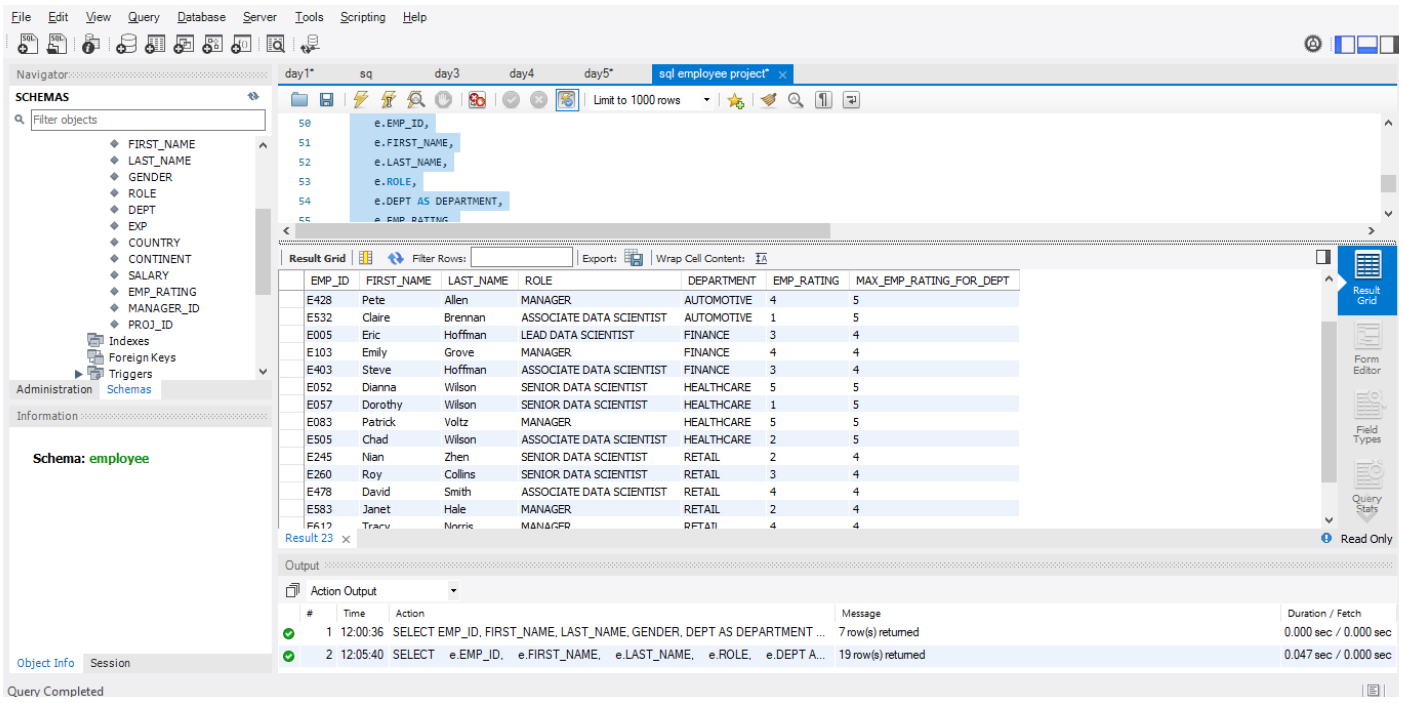
EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPARTMENT
E052	Dianna	Wilson	F	HEALTHCARE
E057	Dorothy	Wilson	F	HEALTHCARE
E083	Patrick	Voltz	M	HEALTHCARE
E505	Chad	Wilson	M	HEALTHCARE
E005	Eric	Hoffman	M	FINANCE
E103	Emily	Grove	F	FINANCE
E403	Steve	Hoffman	M	FINANCE

Schema: employee

#	Time	Action	Message	Duration / Fetch
1	12:00:36	SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT AS DEPARTMENT ...	7 row(s) returned	0.000 sec / 0.000 sec

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.

```
=> SELECT
    e.EMP_ID,
    e.FIRST_NAME,
    e.LAST_NAME,
    e.ROLE,
    e.DEPT AS DEPARTMENT,
    e.EMP_RATING,
    max_ratings.max_emp_rating AS MAX_EMP_RATING_FOR_DEPT
FROM
    emp_record_table e
JOIN (
    SELECT DEPT, MAX(EMP_RATING) AS max_emp_rating
    FROM emp_record_table
    GROUP BY DEPT
) max_ratings ON e.DEPT = max_ratings.DEPT
ORDER BY e.DEPT, e.EMP_ID;
```



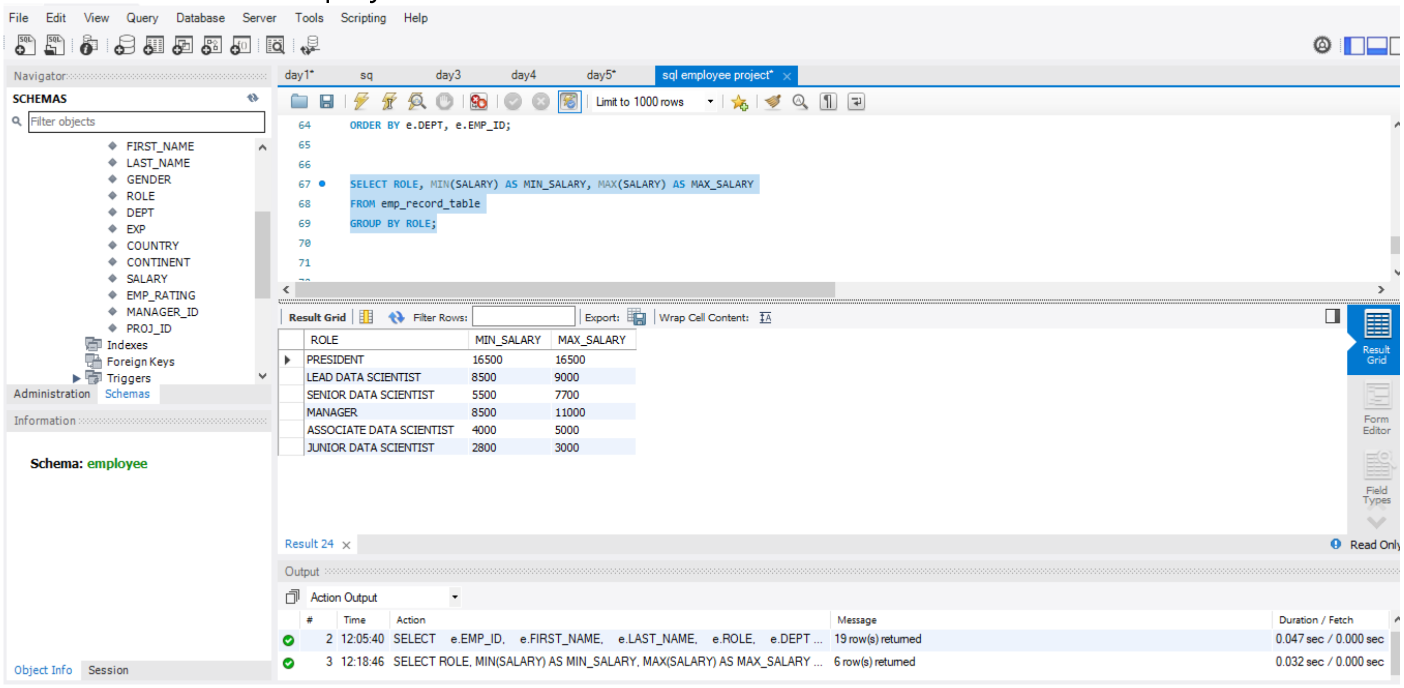
Schema: employee

```
        e.EMP_ID,
        e.FIRST_NAME,
        e.LAST_NAME,
        e.ROLE,
        e.DEPT AS DEPARTMENT,
        e.EMP_RATING
```

EMP_ID	FIRST_NAME	LAST_NAME	ROLE	DEPARTMENT	EMP_RATING	MAX_EMP_RATING_FOR_DEPT
E428	Pete	Allen	MANAGER	AUTOMOTIVE	4	5
E532	Claire	Brennan	ASSOCIATE DATA SCIENTIST	AUTOMOTIVE	1	5
E005	Eric	Hoffman	LEAD DATA SCIENTIST	FINANCE	3	4
E103	Emily	Grove	MANAGER	FINANCE	4	4
E403	Steve	Hoffman	ASSOCIATE DATA SCIENTIST	FINANCE	3	4
E052	Dianna	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	5	5
E057	Dorothy	Wilson	SENIOR DATA SCIENTIST	HEALTHCARE	1	5
E083	Patrick	Voltz	MANAGER	HEALTHCARE	5	5
E505	Chad	Wilson	ASSOCIATE DATA SCIENTIST	HEALTHCARE	2	5
E245	Nian	Zhen	SENIOR DATA SCIENTIST	RETAIL	2	4
E260	Roy	Collins	SENIOR DATA SCIENTIST	RETAIL	3	4
E478	David	Smith	ASSOCIATE DATA SCIENTIST	RETAIL	4	4
E583	Janet	Hale	MANAGER	RETAIL	2	4
E612	Tracy	Norris	MANAGER	RETAIL	4	4

#	Time	Action	Message	Duration / Fetch
1	12:00:36	SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPT AS DEPARTMENT ...	7 row(s) returned	0.000 sec / 0.000 sec
2	12:05:40	SELECT e.EMP_ID, e.FIRST_NAME, e.LAST_NAME, e.ROLE, e.DEPT A...	19 row(s) returned	0.047 sec / 0.000 sec

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.

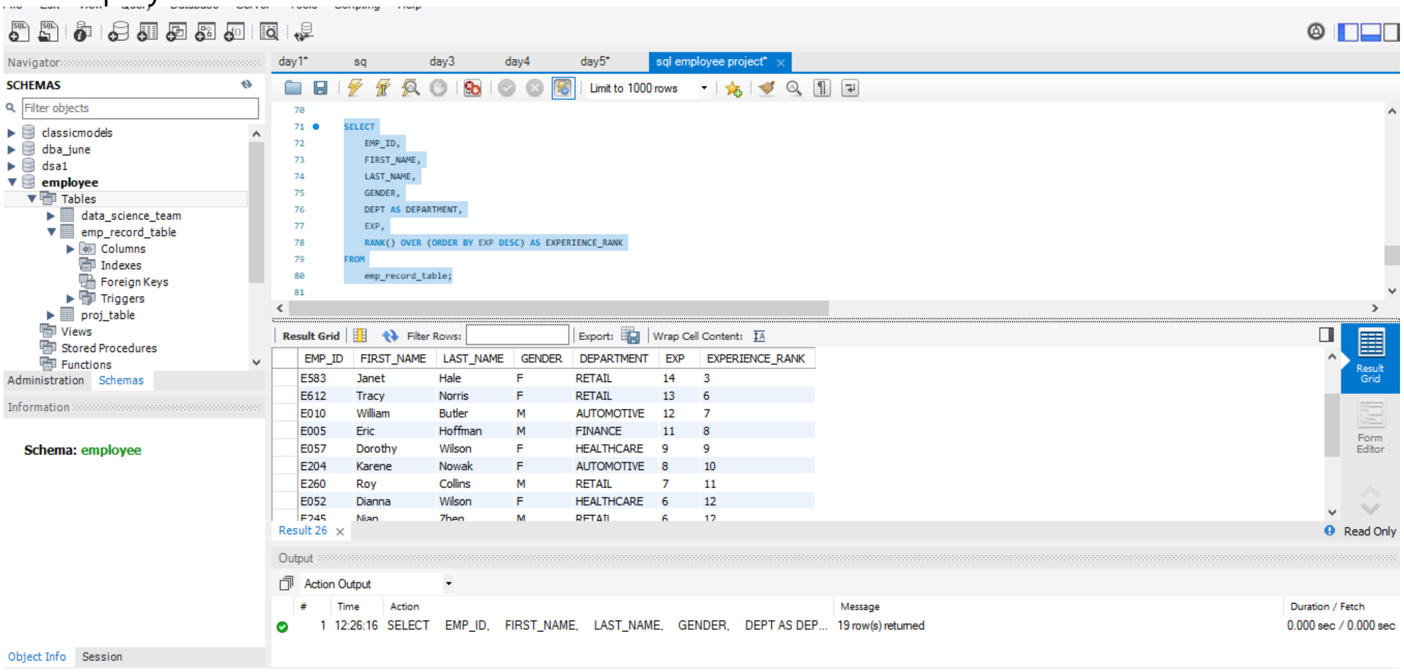


```
ORDER BY e.DEPT, e.EMP_ID;


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

ROLE	MIN_SALARY	MAX_SALARY
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

```
#  Time      Action                                                              Message              Duration / Fetch
2  12:05:40  SELECT  e.EMP_ID,  e.FIRST_NAME,  e.LAST_NAME,  e.ROLE,  e.DEPT ...  19 row(s) returned   0.047 sec / 0.000 sec
3  12:18:46  SELECT ROLE, MIN(SALARY) AS MIN_SALARY, MAX(SALARY) AS MAX_SALARY ...  6 row(s) returned   0.032 sec / 0.000 sec
```

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



```
SELECT
    EMP_ID,
    FIRST_NAME,
    LAST_NAME,
    GENDER,
    DEPT AS DEPARTMENT,
    EXP,
    RANK() OVER (ORDER BY EXP DESC) AS EXPERIENCE_RANK
FROM
    emp_record_table;
```

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPARTMENT	EXP	EXPERIENCE_RANK
E583	Janet	Hale	F	RETAIL	14	3
E612	Tracy	Norris	F	RETAIL	13	6
E010	William	Butler	M	AUTOMOTIVE	12	7
E005	Eric	Hoffman	M	FINANCE	11	8
E057	Dorothy	Wilson	F	HEALTHCARE	9	9
E204	Karene	Nowak	F	AUTOMOTIVE	8	10
E260	Roy	Collins	M	RETAIL	7	11
E052	Dianna	Wilson	F	HEALTHCARE	6	12
E245	Nian	Zhen	M	RETAIL	6	12

```
#  Time      Action                                                      Message              Duration / Fetch
1  12:26:16  SELECT   EMP_ID,   FIRST_NAME,   LAST_NAME,   GENDER,   DEPT AS DEP...  19 row(s) returned   0.000 sec / 0.000 sec
```

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.

=>code:

CREATE VIEW high_salary_employees_view AS

SELECT

EMP_ID,

FIRST_NAME,

LAST_NAME,

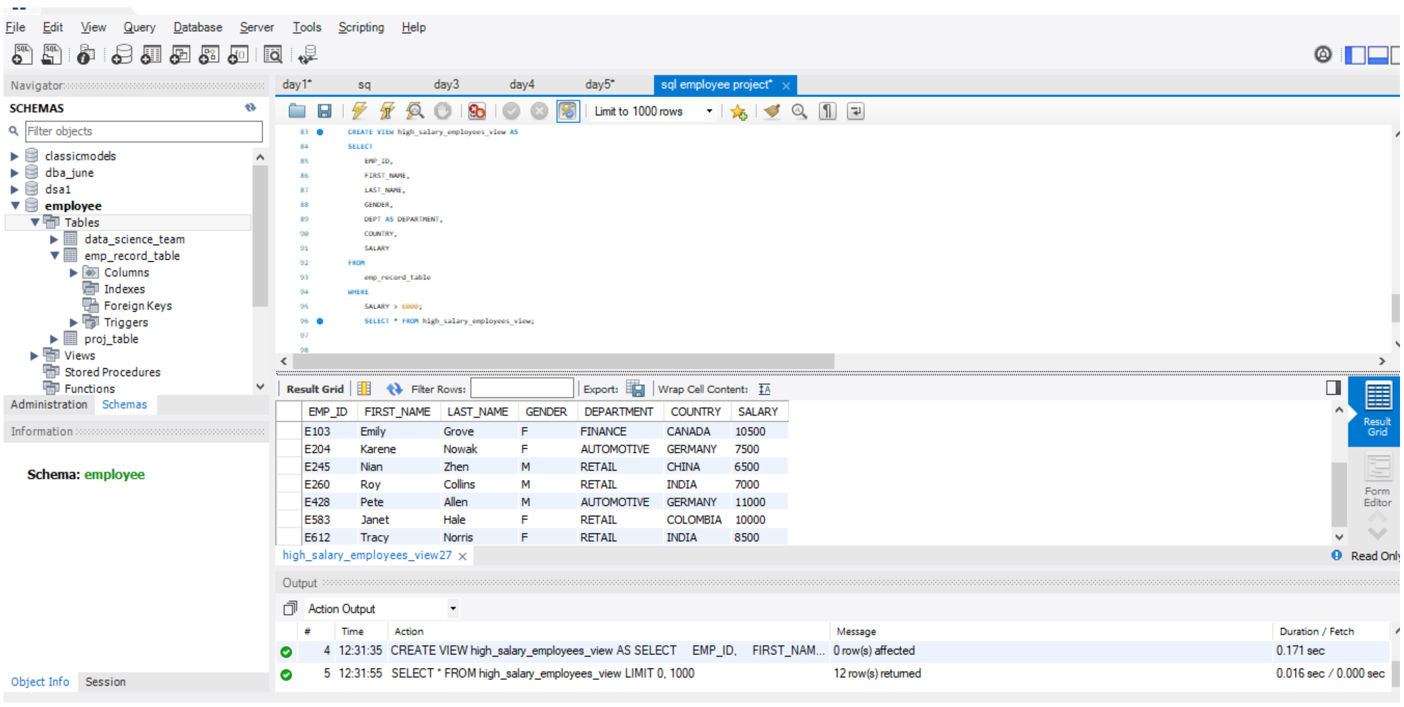
GENDER,

DEPT AS DEPARTMENT,

COUNTRY,

SALARY

```
FROM
    emp_record_table
WHERE
    SALARY > 6000;
```

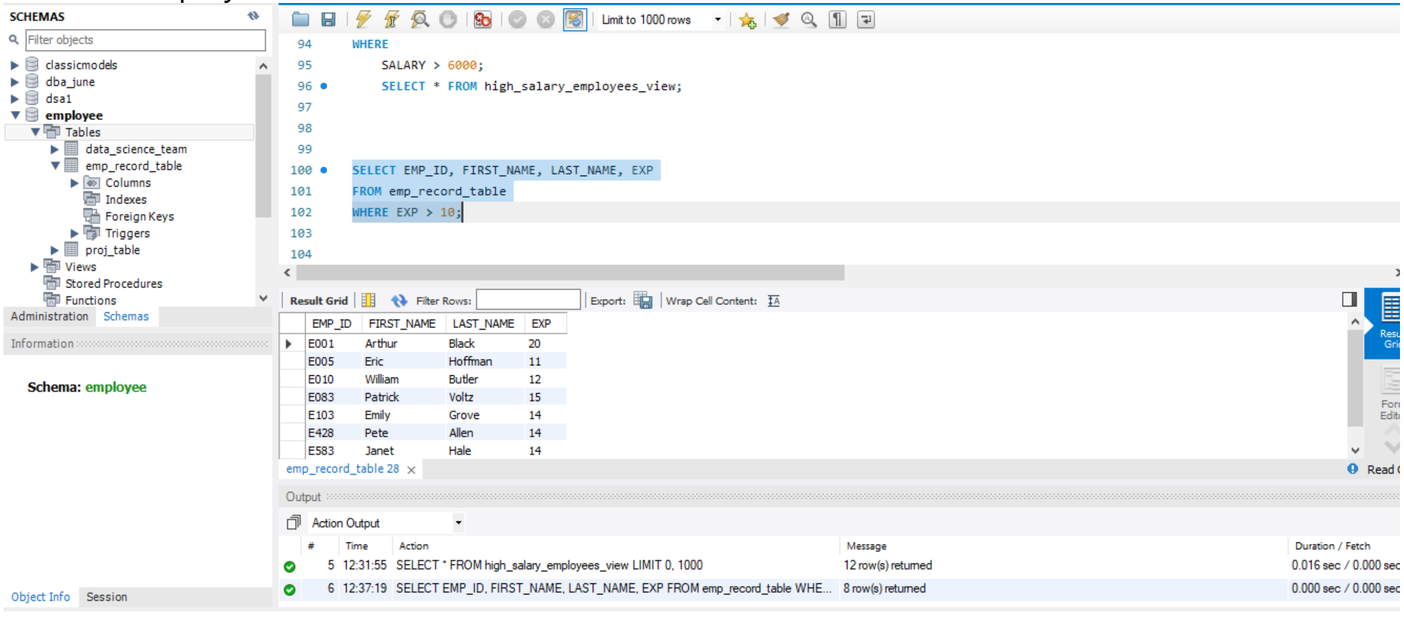


```
CREATE VIEW high_salary_employees_view AS
SELECT
    EMP_ID,
    FIRST_NAME,
    LAST_NAME,
    GENDER,
    DEPT AS DEPARTMENT,
    COUNTRY,
    SALARY
FROM
    emp_record_table
WHERE
    SALARY > 6000;
    SELECT * FROM high_salary_employees_view;
```

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPARTMENT	COUNTRY	SALARY
E103	Emily	Grove	F	FINANCE	CANADA	10500
E204	Karene	Nowak	F	AUTOMOTIVE	GERMANY	7500
E245	Nian	Zhen	M	RETAIL	CHINA	6500
E260	Roy	Collins	M	RETAIL	INDIA	7000
E428	Pete	Allen	M	AUTOMOTIVE	GERMANY	11000
E583	Janet	Hale	F	RETAIL	COLOMBIA	10000
E612	Tracy	Norris	F	RETAIL	INDIA	8500

#	Time	Action	Message	Duration / Fetch
4	12:31:35	CREATE VIEW high_salary_employees_view AS SELECT EMP_ID, FIRST_NAM...	0 row(s) affected	0.171 sec
5	12:31:55	SELECT * FROM high_salary_employees_view LIMIT 0, 1000	12 row(s) returned	0.016 sec / 0.000 sec

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

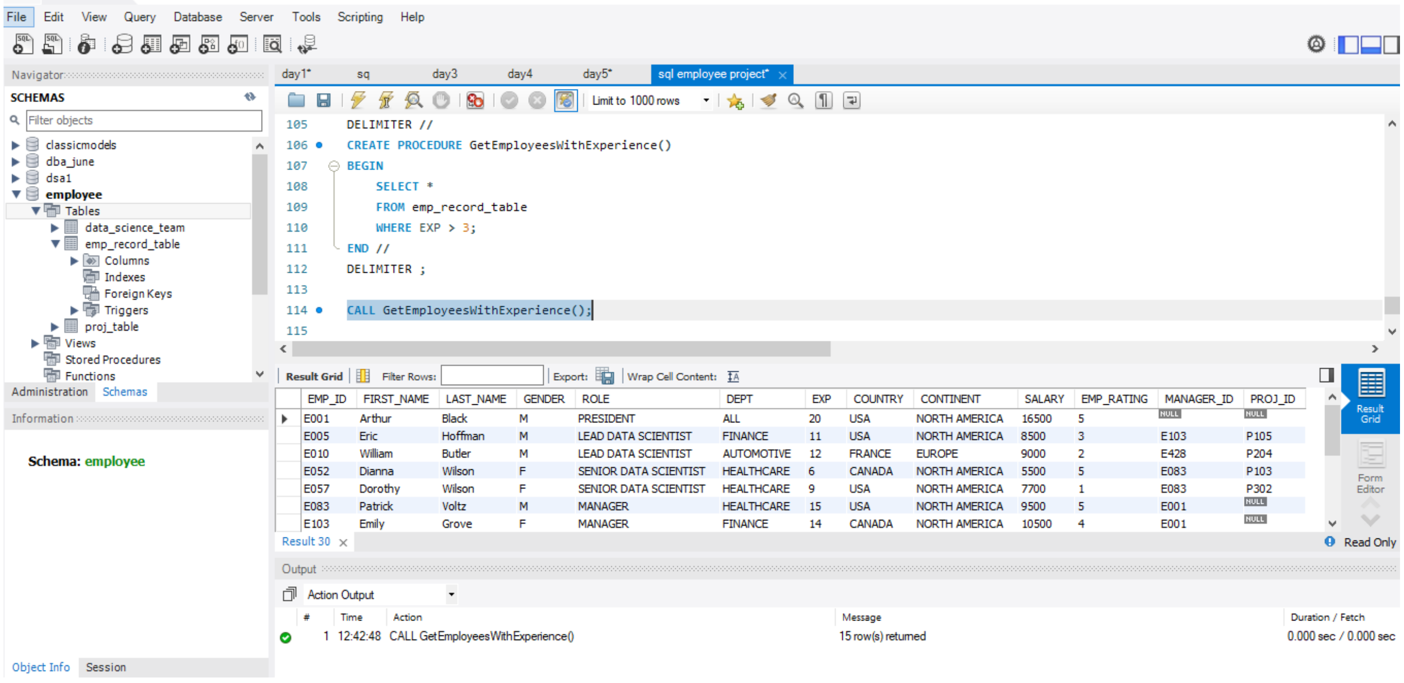


```
WHERE
    SALARY > 6000;
    SELECT * FROM high_salary_employees_view;



SELECT EMP_ID, FIRST_NAME, LAST_NAME, EXP
FROM emp_record_table
WHERE EXP > 10;
```

EMP_ID	FIRST_NAME	LAST_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

#	Time	Action	Message	Duration / Fetch
5	12:31:55	SELECT * FROM high_salary_employees_view LIMIT 0, 1000	12 row(s) returned	0.016 sec / 0.000 sec
6	12:37:19	SELECT EMP_ID, FIRST_NAME, LAST_NAME, EXP FROM emp_record_table WHE...	8 row(s) returned	0.000 sec / 0.000 sec

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.



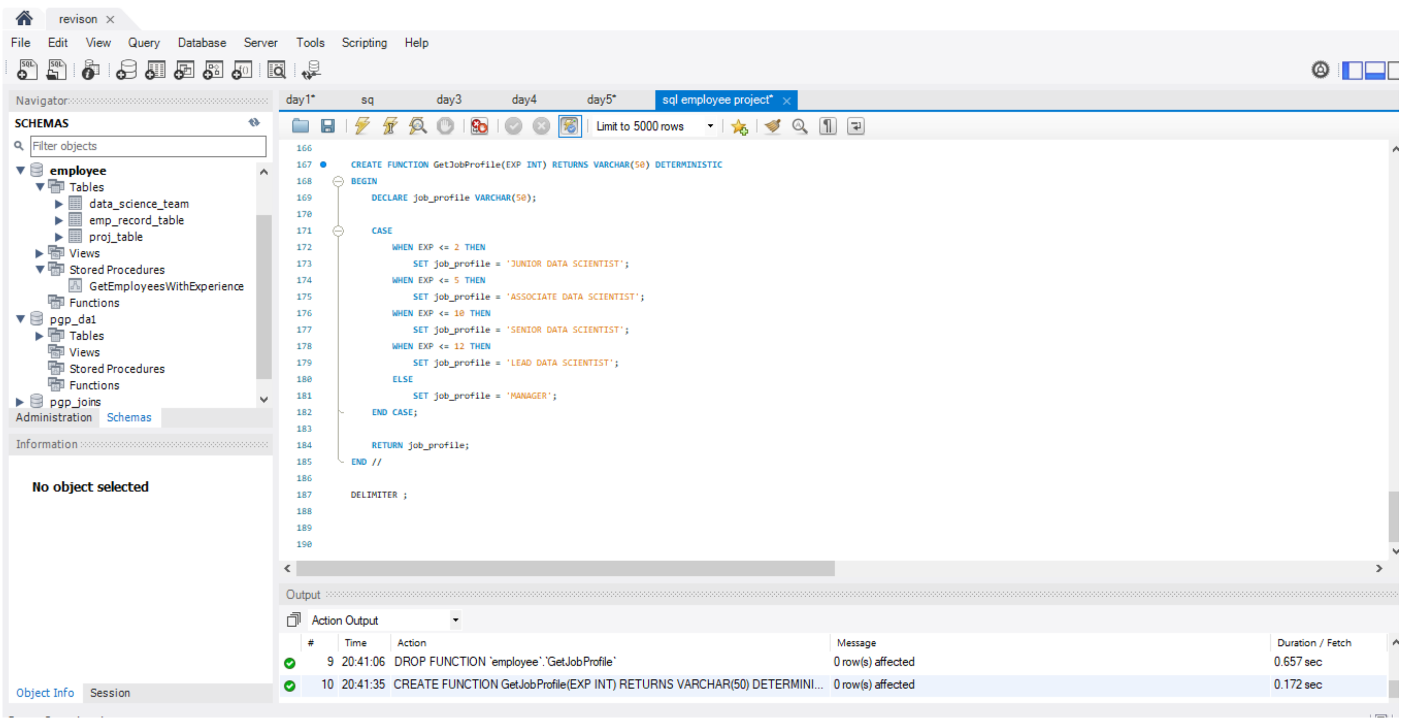
```sql
DELIMITER //
CREATE PROCEDURE GetEmployeesWithExperience()
BEGIN
    SELECT *
    FROM emp_record_table
    WHERE EXP > 3;
END //
DELIMITER ;

CALL GetEmployeesWithExperience();
```

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5	NULL	NULL
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105
E010	William	Butler	M	LEAD DATA SCIENTIST	AUTOMOTIVE	12	FRANCE	EUROPE	9000	2	E428	P204
E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	6	CANADA	NORTH AMERICA	5500	5	E083	P103
E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	9	USA	NORTH AMERICA	7700	1	E083	P302
E083	Patrick	Voltz	M	MANAGER	HEALTHCARE	15	USA	NORTH AMERICA	9500	5	E001	NULL
E103	Emily	Grove	F	MANAGER	FINANCE	14	CANADA	NORTH AMERICA	10500	4	E001	NULL

```
#   Time      Action                            Message              Duration / Fetch
1   12:42:48  CALL GetEmployeesWithExperience() 15 row(s) returned   0.000 sec / 0.000 sec
```

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.

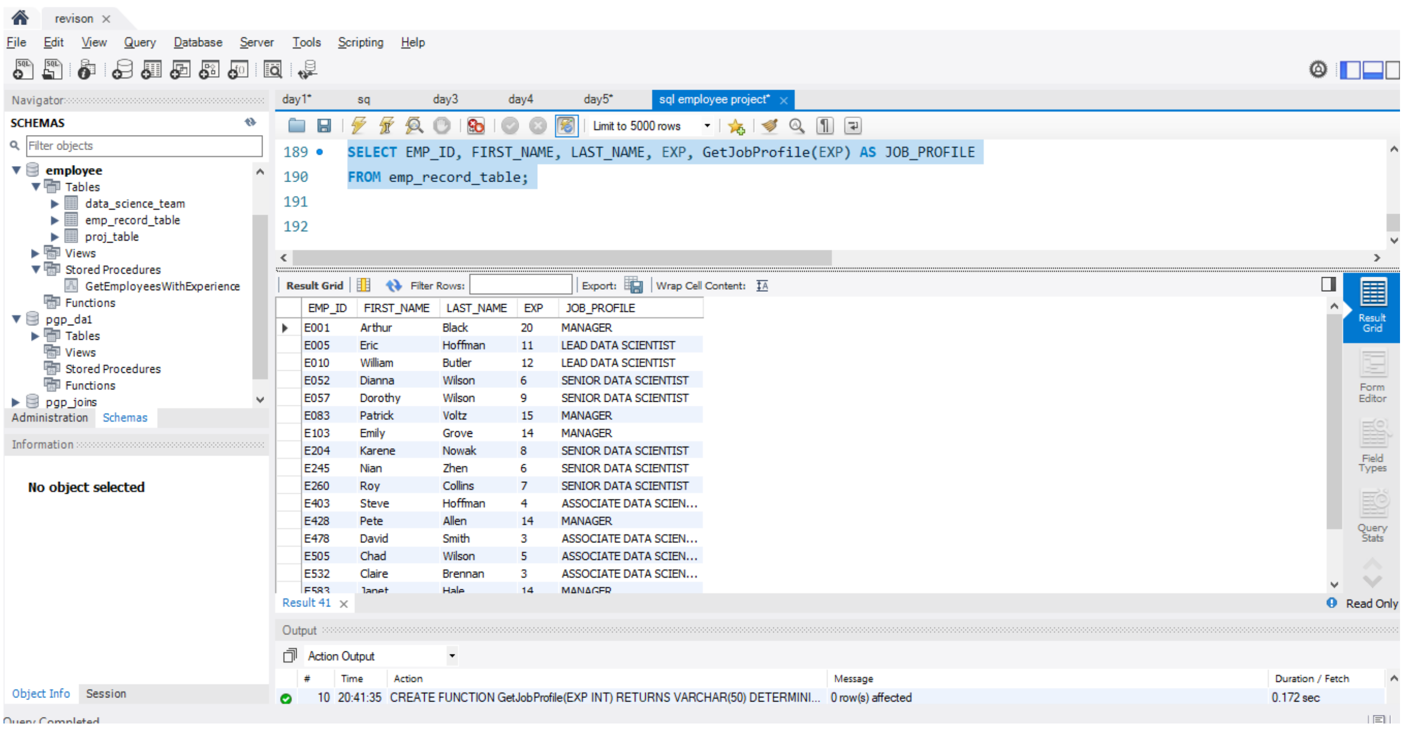
The standard being:
For an employee with experience less than or equal to 2 years assign 'JUNIOR DATA SCIENTIST',
For an employee with the experience of 2 to 5 years assign 'ASSOCIATE DATA SCIENTIST',
For an employee with the experience of 5 to 10 years assign 'SENIOR DATA SCIENTIST',
For an employee 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'.



```sql
CREATE FUNCTION GetJobProfile(EXP INT) RETURNS VARCHAR(50) DETERMINISTIC
BEGIN
    DECLARE job_profile VARCHAR(50);

    CASE
        WHEN EXP <= 2 THEN
            SET job_profile = 'JUNIOR DATA SCIENTIST';
        WHEN EXP <= 5 THEN
            SET job_profile = 'ASSOCIATE DATA SCIENTIST';
        WHEN EXP <= 10 THEN
            SET job_profile = 'SENIOR DATA SCIENTIST';
        WHEN EXP <= 12 THEN
            SET job_profile = 'LEAD DATA SCIENTIST';
        ELSE
            SET job_profile = 'MANAGER';
    END CASE;

    RETURN job_profile;
END //

DELIMITER ;
```

```
#   Time      Action                                                               Message             Duration / Fetch
9   20:41:06  DROP FUNCTION `employee`.`GetJobProfile`                             0 row(s) affected   0.657 sec
10  20:41:35  CREATE FUNCTION GetJobProfile(EXP INT) RETURNS VARCHAR(50) DETERMINI...  0 row(s) affected   0.172 sec
```

Usage Example:



```sql
SELECT EMP_ID, FIRST_NAME, LAST_NAME, EXP, GetJobProfile(EXP) AS JOB_PROFILE
FROM emp_record_table;
```

EMP_ID	FIRST_NAME	LAST_NAME	EXP	JOB_PROFILE
E001	Arthur	Black	20	MANAGER
E005	Eric	Hoffman	11	LEAD DATA SCIENTIST
E010	William	Butler	12	LEAD DATA SCIENTIST
E052	Dianna	Wilson	6	SENIOR DATA SCIENTIST
E057	Dorothy	Wilson	9	SENIOR DATA SCIENTIST
E083	Patrick	Voltz	15	MANAGER
E103	Emily	Grove	14	MANAGER
E204	Karene	Nowak	8	SENIOR DATA SCIENTIST
E245	Nian	Zhen	6	SENIOR DATA SCIENTIST
E260	Roy	Collins	7	SENIOR DATA SCIENTIST
E403	Steve	Hoffman	4	ASSOCIATE DATA SCIEN...
E428	Pete	Allen	14	MANAGER
E478	David	Smith	3	ASSOCIATE DATA SCIEN...
E505	Chad	Wilson	5	ASSOCIATE DATA SCIEN...
E532	Claire	Brennan	3	ASSOCIATE DATA SCIEN...
E583	Janet	Hale	14	MANAGER

```
#   Time      Action                                                               Message             Duration / Fetch
10  20:41:35  CREATE FUNCTION GetJobProfile(EXP INT) RETURNS VARCHAR(50) DETERMINI...  0 row(s) affected   0.172 sec
```

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.

```
-- Step 1: Check the execution plan
```

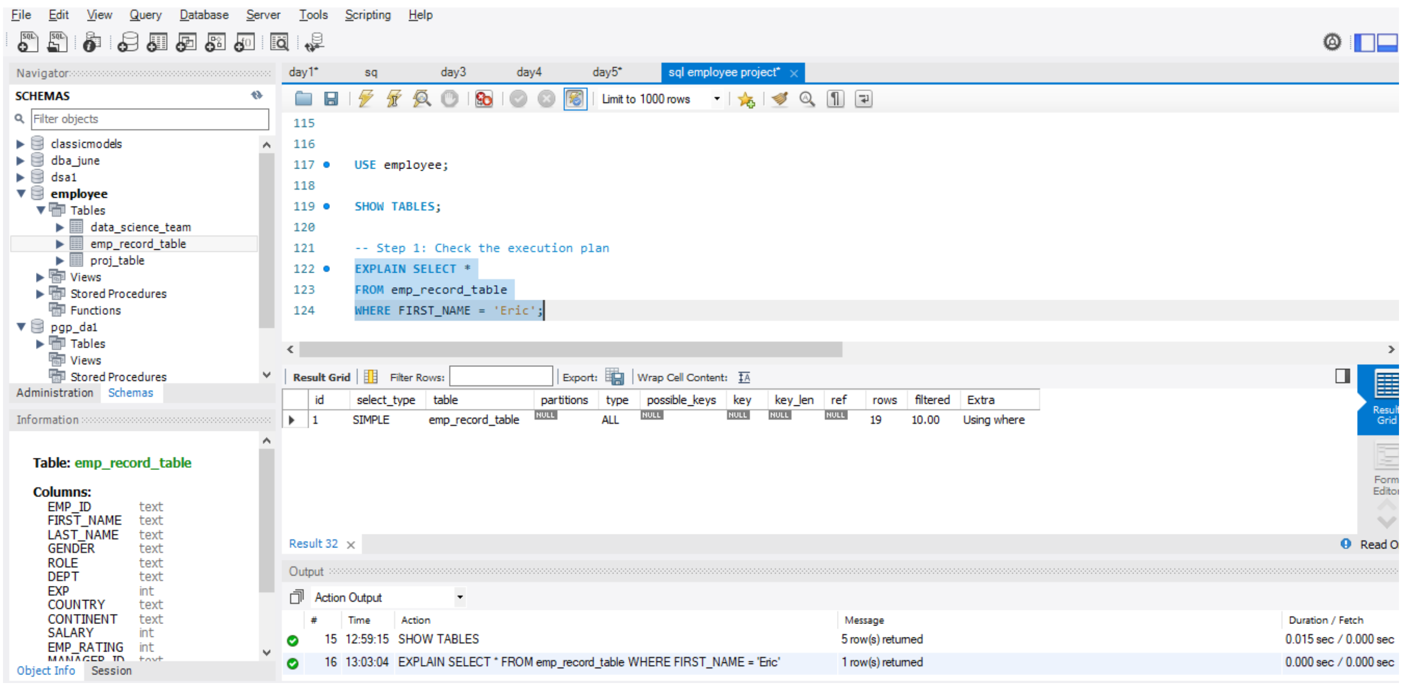


Table: emp_record_table

Columns:

EMP_ID	text
FIRST_NAME	text
LAST_NAME	text
GENDER	text
ROLE	text
DEPT	text
EXP	int
COUNTRY	text
CONTINENT	text
SALARY	int
EMP_RATING	int
MANAGER_ID	text

```
USE employee;

SHOW TABLES;

-- Step 1: Check the execution plan
EXPLAIN SELECT *
FROM emp_record_table
WHERE FIRST_NAME = 'Eric';
```

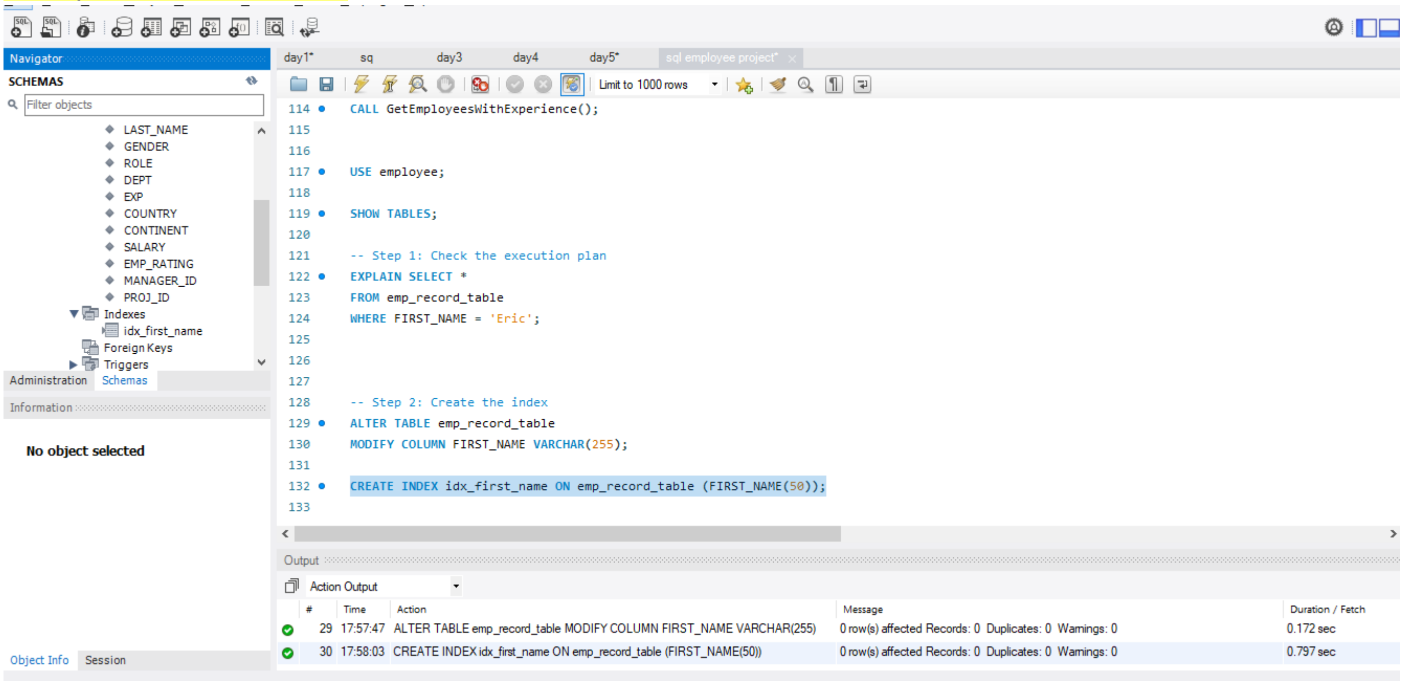
id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	emp_record_table	NULL	ALL	NULL	NULL	NULL	NULL	19	10.00	Using where

Output

Action Output

#	Time	Action	Message	Duration / Fetch
15	12:59:15	SHOW TABLES	5 row(s) returned	0.015 sec / 0.000 sec
16	13:03:04	EXPLAIN SELECT * FROM emp_record_table WHERE FIRST_NAME = 'Eric'	1 row(s) returned	0.000 sec / 0.000 sec

-- Step 2: Create the index



No object selected

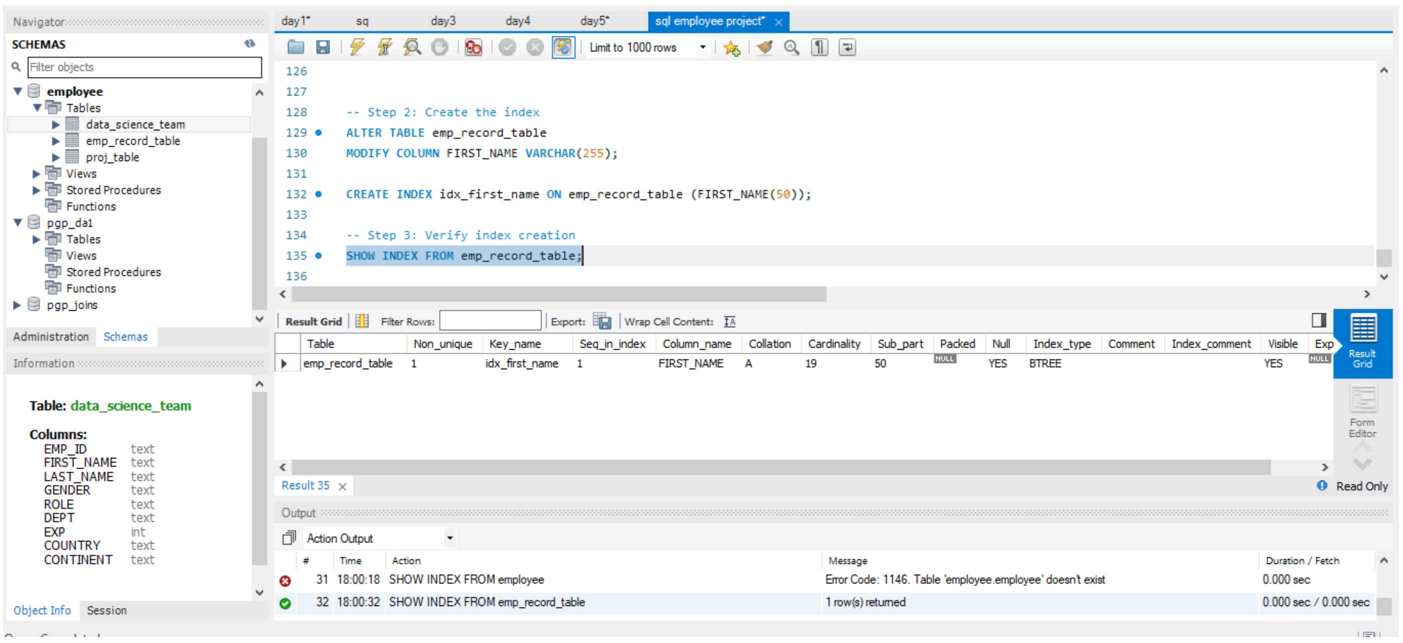
```
CALL GetEmployeesWithExperience();


USE employee;

SHOW TABLES;

-- Step 1: Check the execution plan
EXPLAIN SELECT *
FROM emp_record_table
WHERE FIRST_NAME = 'Eric';



-- Step 2: Create the index
ALTER TABLE emp_record_table
MODIFY COLUMN FIRST_NAME VARCHAR(255);

CREATE INDEX idx_first_name ON emp_record_table (FIRST_NAME(50));

```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
29	17:57:47	ALTER TABLE emp_record_table MODIFY COLUMN FIRST_NAME VARCHAR(255)	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.172 sec
30	17:58:03	CREATE INDEX idx_first_name ON emp_record_table (FIRST_NAME(50))	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.797 sec

-- Step 3: Verify index creation

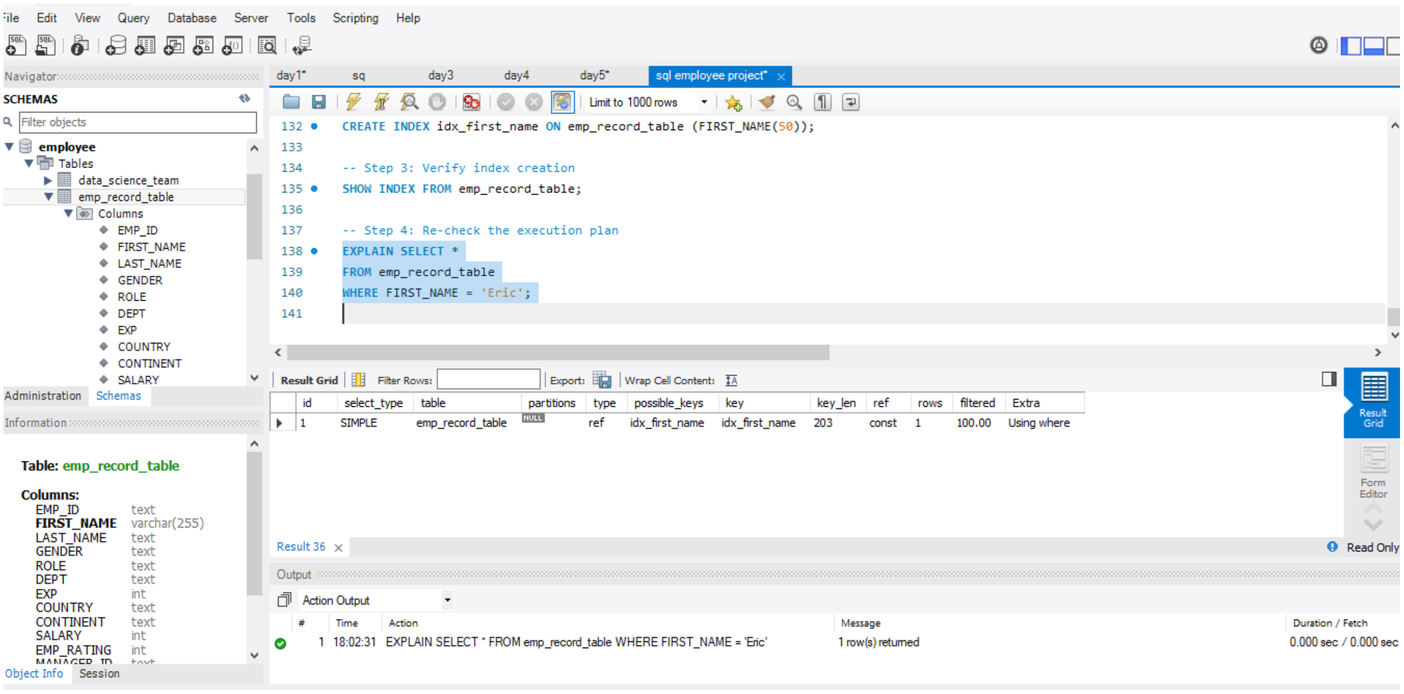


```sql
-- Step 2: Create the index
ALTER TABLE emp_record_table
MODIFY COLUMN FIRST_NAME VARCHAR(255);

CREATE INDEX idx_first_name ON emp_record_table (FIRST_NAME(50));

-- Step 3: Verify index creation
SHOW INDEX FROM emp_record_table;
```

Table	Non_unique	Key_name	Seq_in_index	Column_name	Collation	Cardinality	Sub_part	Packed	Null	Index_type	Comment	Index_comment	Visible	Exp
emp_record_table	1	idx_first_name	1	FIRST_NAME	A	19	50	NULL	YES	BTREE			YES	NULL

```
#   Time      Action                               Message                                                  Duration / Fetch
31  18:00:18  SHOW INDEX FROM employee             Error Code: 1146. Table 'employee.employee' doesn't exist  0.000 sec
32  18:00:32  SHOW INDEX FROM emp_record_table     1 row(s) returned                                        0.000 sec / 0.000 sec
```

-- Step 4: Re-check the execution plan

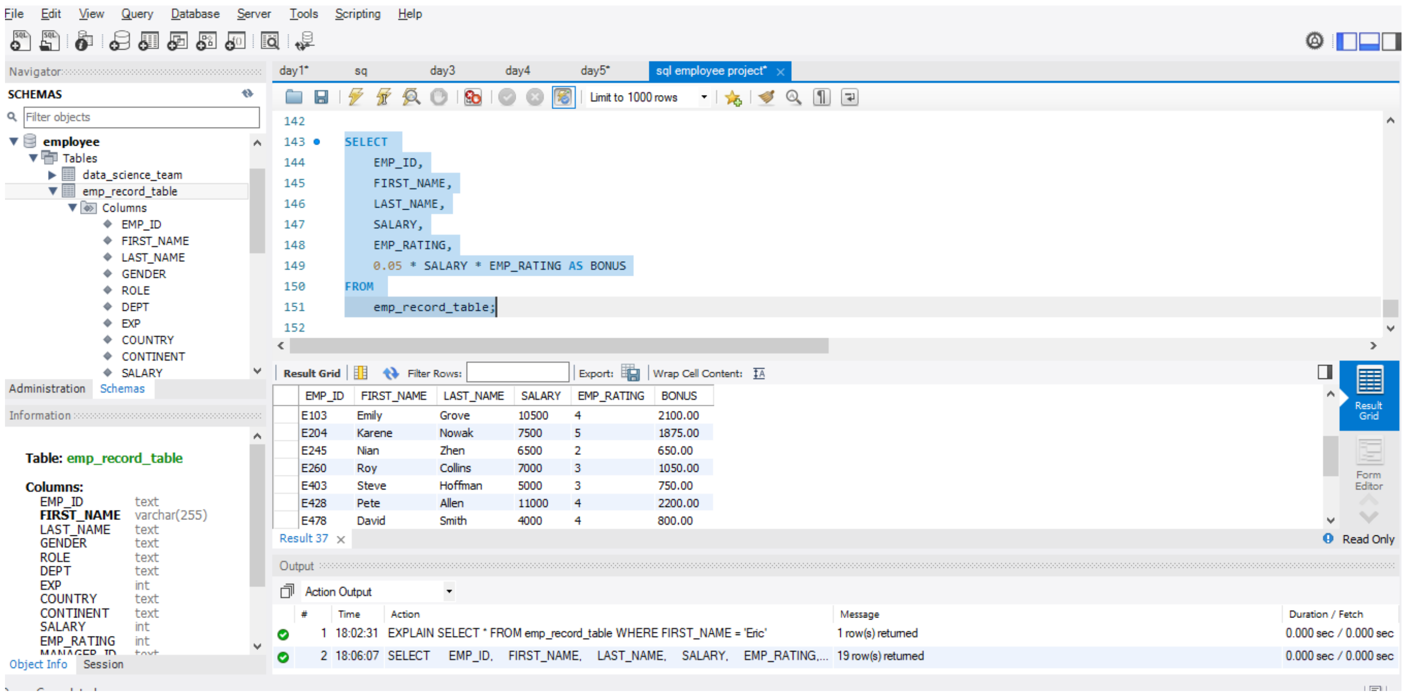


```sql
CREATE INDEX idx_first_name ON emp_record_table (FIRST_NAME(50));

-- Step 3: Verify index creation
SHOW INDEX FROM emp_record_table;

-- Step 4: Re-check the execution plan
EXPLAIN SELECT *
FROM emp_record_table
WHERE FIRST_NAME = 'Eric';
```

id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
1	SIMPLE	emp_record_table	NULL	ref	idx_first_name	idx_first_name	203	const	1	100.00	Using where

```
#   Time      Action                                                          Message            Duration / Fetch
1   18:02:31  EXPLAIN SELECT * FROM emp_record_table WHERE FIRST_NAME = 'Eric'  1 row(s) returned  0.000 sec / 0.000 sec
```

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).

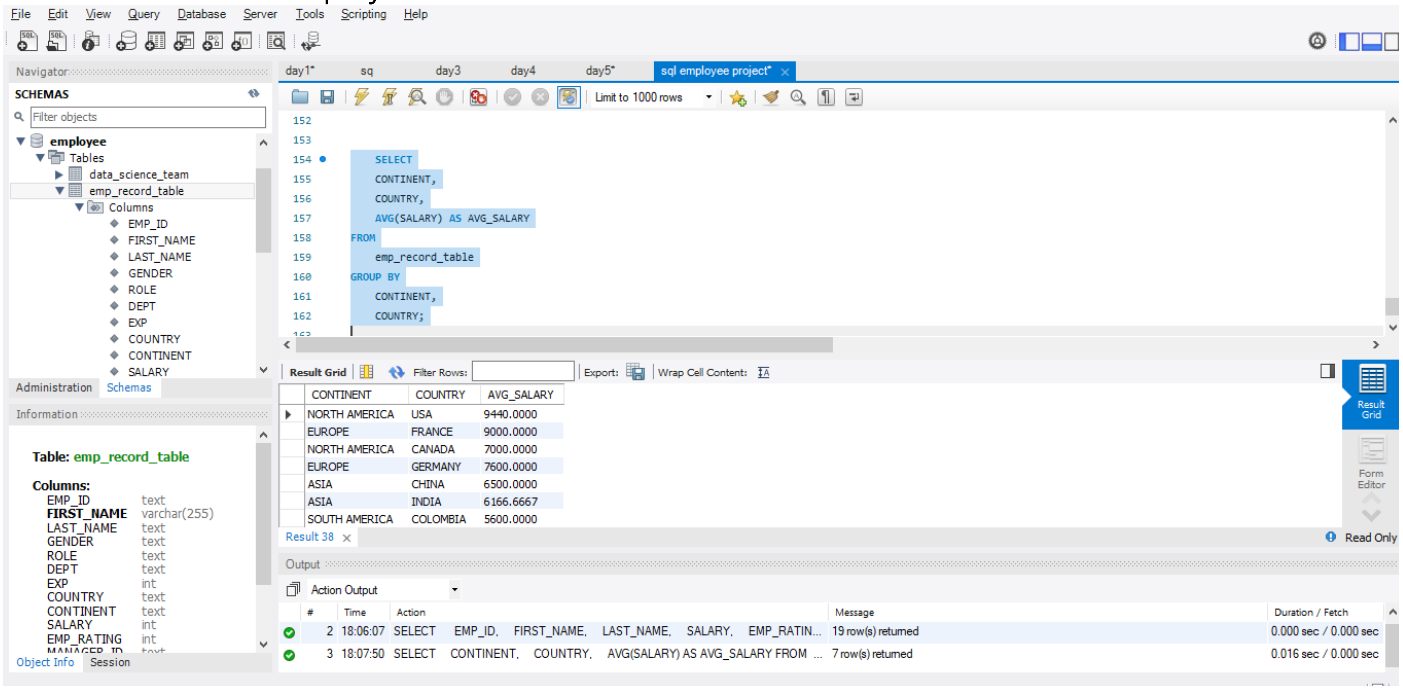


```sql
SELECT
    EMP_ID,
    FIRST_NAME,
    LAST_NAME,
    SALARY,
    EMP_RATING,
    0.05 * SALARY * EMP_RATING AS BONUS
FROM
    emp_record_table;
```

EMP_ID	FIRST_NAME	LAST_NAME	SALARY	EMP_RATING	BONUS
E103	Emily	Grove	10500	4	2100.00
E204	Karene	Nowak	7500	5	1875.00
E245	Nian	Zhen	6500	2	650.00
E260	Roy	Collins	7000	3	1050.00
E403	Steve	Hoffman	5000	3	750.00
E428	Pete	Allen	11000	4	2200.00
E478	David	Smith	4000	4	800.00

```
#  Time      Action                                                      Message           Duration / Fetch
1  18:02:31  EXPLAIN SELECT * FROM emp_record_table WHERE FIRST_NAME = 'Eric'   1 row(s) returned   0.000 sec / 0.000 sec
2  18:06:07  SELECT  EMP_ID,  FIRST_NAME,  LAST_NAME,  SALARY,  EMP_RATING,...   19 row(s) returned   0.000 sec / 0.000 sec
```

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



```sql
SELECT
    CONTINENT,
    COUNTRY,
    AVG(SALARY) AS AVG_SALARY
FROM
    emp_record_table
GROUP BY
    CONTINENT,
    COUNTRY;
```

CONTINENT	COUNTRY	AVG_SALARY
NORTH AMERICA	USA	9440.0000
EUROPE	FRANCE	9000.0000
NORTH AMERICA	CANADA	7000.0000
EUROPE	GERMANY	7600.0000
ASIA	CHINA	6500.0000
ASIA	INDIA	6166.6667
SOUTH AMERICA	COLOMBIA	5600.0000

```
#  Time      Action                                                      Message           Duration / Fetch
2  18:06:07  SELECT  EMP_ID,  FIRST_NAME,  LAST_NAME,  SALARY,  EMP_RATIN...   19 row(s) returned   0.000 sec / 0.000 sec
3  18:07:50  SELECT  CONTINENT,  COUNTRY,  AVG(SALARY) AS AVG_SALARY FROM ...   7 row(s) returned   0.016 sec / 0.000 sec
```