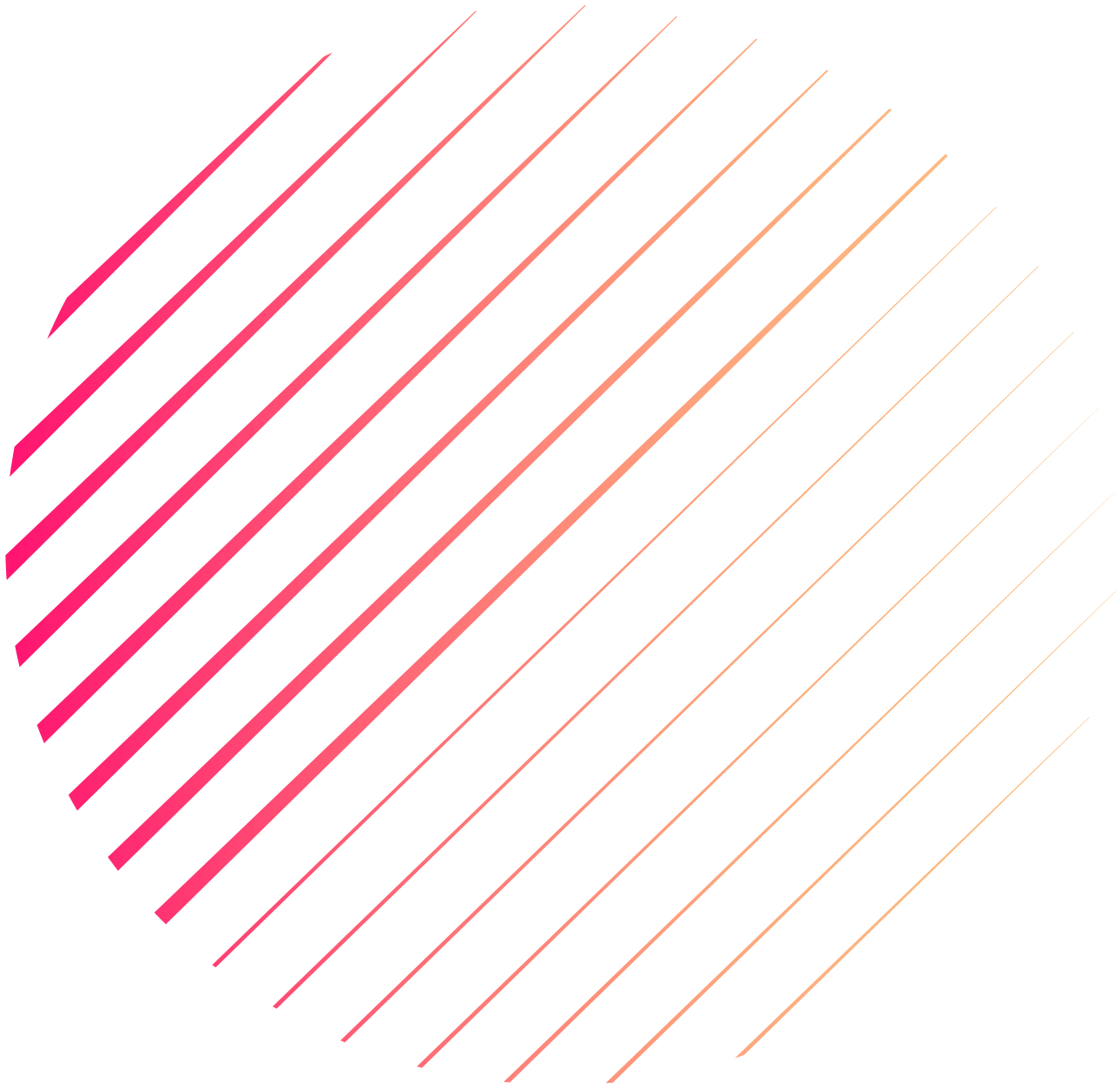
SQL

Structured Query Language



Under Guidance:

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(BTM BRANCH)

Presented By

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Project Title:

SQLtech is a startup that works in the Data Science field

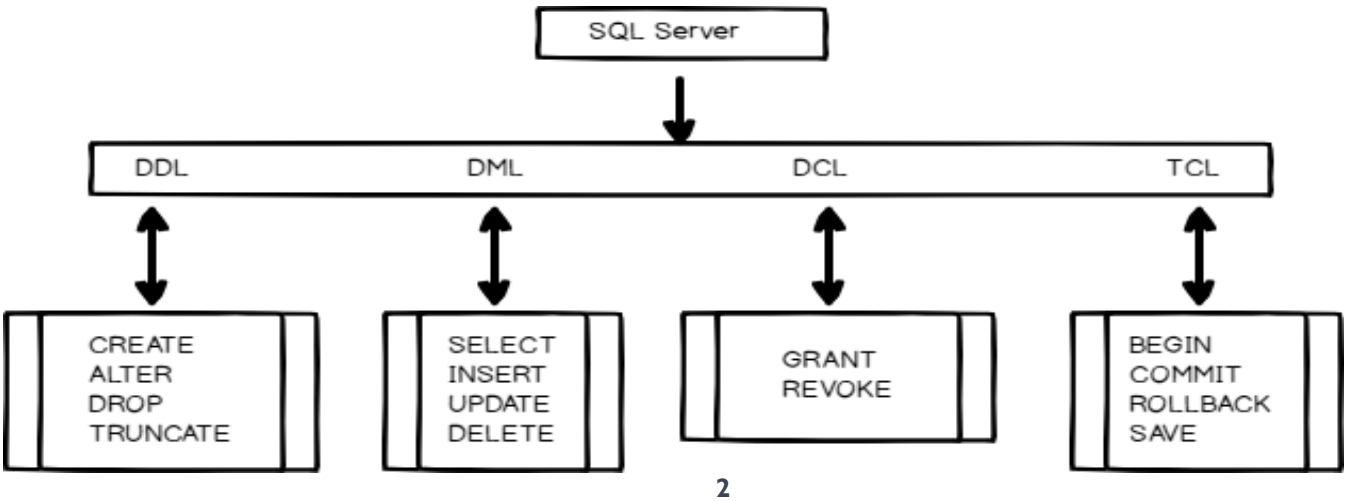
Description

SQLtech is a startup that works in the Data Science field. SQLtech 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.

WHAT IS SQL

SQL (Structured Query Language) is a domain-specific language used for managing and manipulating relational databases.

MySQL
MySQL is an open-source relational database management system (RDBMS) widely used for web applications,

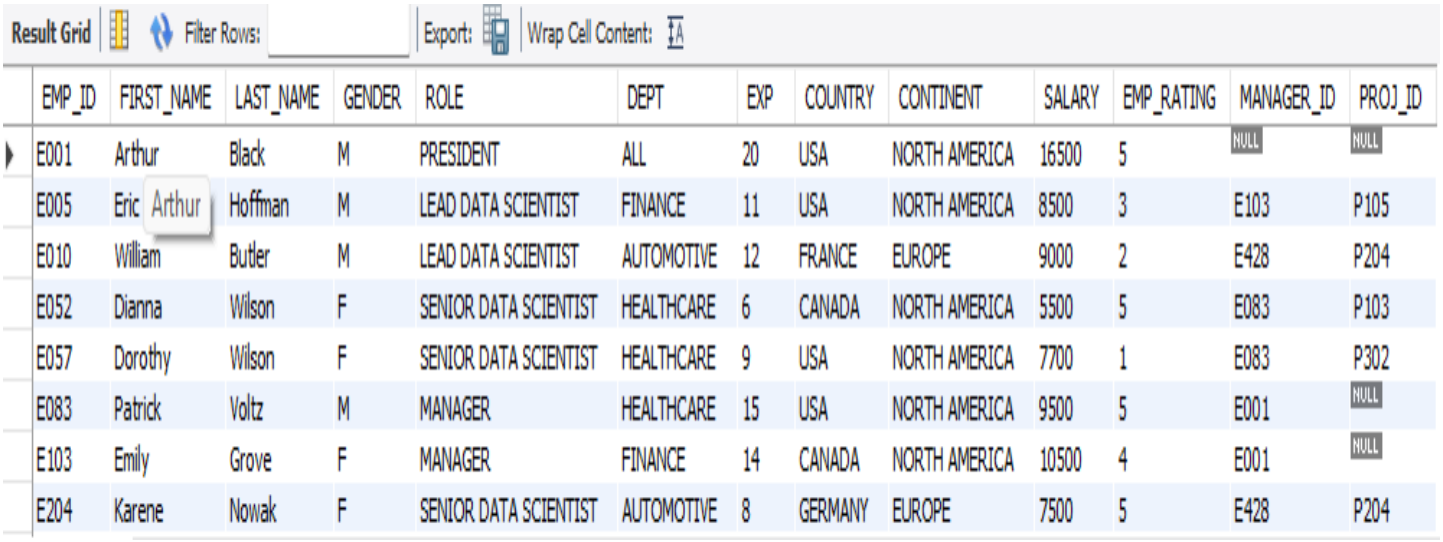


1 Create a database named employee, then import data_science_team.csv proj_table.csv and emp_record_table.csv into the employee database from the given resources.

data_science_team

query

```
use tamil;
select * from emp_record_table;
```

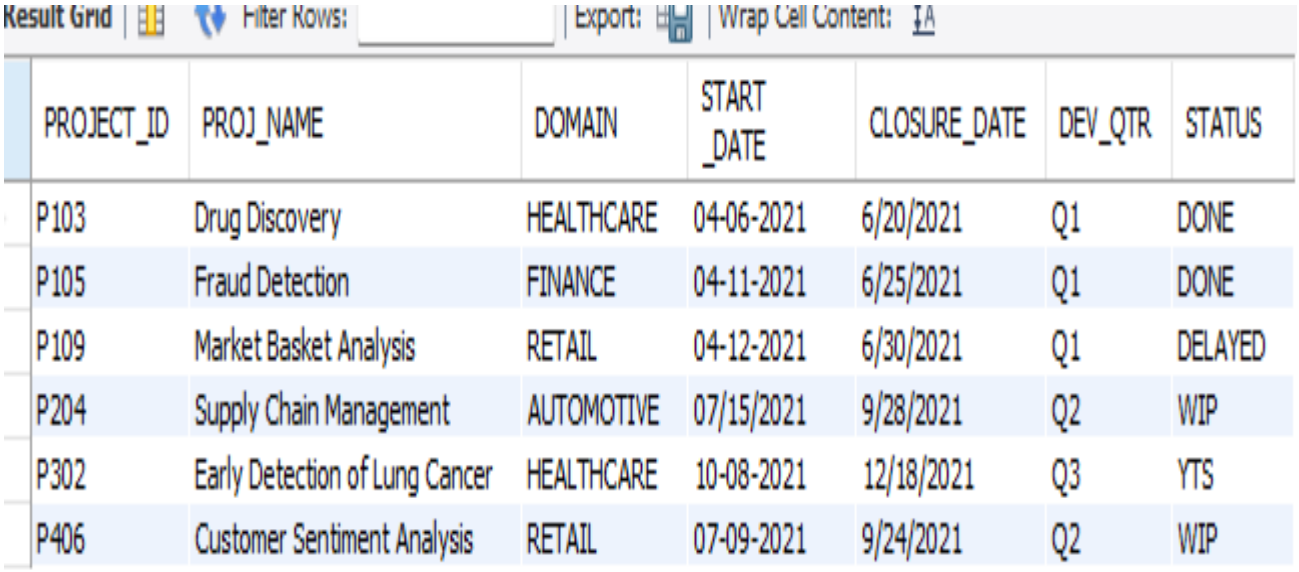


EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5	NULL	NULL
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105
E010	William	Butler	M	LEAD DATA SCIENTIST	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
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5	E428	P204

proj_table

query

```
use tamil;
select * from proj_table;
```



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

emp_record_table

query

```
use tamil;
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	PROJ_I
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
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5	E428	P204

2 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.

Query

```
use tamil;
create table notnull21
(emp_id int not null,First_Name VARCHAR(35),
Last_Name VARCHAR(20),GENDER varchar(45),DEPARTMENT     varchar(55));
select * from notnull21;
insert into notnull21(emp_ID, FIRST_NAME, LAST_NAME,Gender,Department)
values(45, "kondamari","balaji","m","mech"),
(20, "john","anil","m","ece"),
(30, "kondamari","harish","m","it");
select * from notnull21;
```

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

emp_id	First_Name	Last_Name	GENDER	DEPARTMENT
45	kondamari	balaji	m	mech
20	john	anil	m	ece
30	kondamari	harish	m	it

3. 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

Query

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPt, EMP_RATING
  FROM emp_record_table
    WHERE EMP_RATING < 2;
```

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

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

greater than four

Query

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPt, EMP_RATING
FROM emp_record_table
WHERE EMP_RATING > 4;
```

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

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

between two and four

Query

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

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

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

4 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.

Query

```
    use tamil;
create table notnull23
(emp_id int not null,first_name varchar(40),
last_name varchar(15),gender varchar(50),Department varchar(43),emp_rating varchar(10));
select * from notnull23;
insert into notnull23(emp_ID, FIRST_NAME, LAST_NAME,Gender,Department,emp_rating)
values(30,"kondamari","balaji","m","mech",7);
 select * from notnull23;
```

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

emp_id	first_name	last_name	gender	Department	emp_rating
30	kondamari	balaji	m	mech	7

5 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

```
  SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) AS NAME
FROM EMPLOYEES
WHERE DEPt = 'Finance';
```

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

NAME
Steve Hoffman
Eric Hoffman
Emily Grove

6 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.

Query

```
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPt, EMP_RATING
FROM  emp_record_table
WHERE DEPt = 'Healthcare'
UNION ALL
SELECT EMP_ID, FIRST_NAME, LAST_NAME, GENDER, DEPt, EMP_RATING
FROM  emp_record_table
WHERE DEPt = 'Finance';
```

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

EMP_ID	FIRST_NAME	LAST_NAME	GENDER	DEPt	EMP_RATING
E052	Dianna	Wilson	F	HEALTHCARE	5
E057	Dorothy	Wilson	F	HEALTHCARE	1
E083	Patrick	Voltz	M	HEALTHCARE	5
E505	Chad	Wilson	M	HEALTHCARE	2
E005	Eric	Hoffman	M	FINANCE	3
E103	Emily	Grove	F	FINANCE	4
E403	Steve	Hoffman	M	FINANCE	3

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

Query

```
  SELECT
   role AS Role,first_name,
   MIN(salary) AS Min_Salary,
   MAX(salary) AS Max_Salary
FROM
emp_record_table
GROUP BY
   role,first_name;
```

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

Role	first_name	Min_Salary	Max_Salary
PRESIDENT	Arthur	16500	16500
LEAD DATA SCIENTIST	Eric	8500	8500
LEAD DATA SCIENTIST	William	9000	9000
SENIOR DATA SCIENTIST	Dianna	5500	5500
SENIOR DATA SCIENTIST	Dorothy	7700	7700
MANAGER	Patrick	9500	9500
MANAGER	Emily	10500	10500
SENIOR DATA SCIENTIST	Karene	7500	7500
SENIOR DATA SCIENTIST	Nian	6500	6500
SENIOR DATA SCIENTIST	Roy	7000	7000
ASSOCIATE DATA SCIEN...	Steve	5000	5000

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

Query

```
  delimiter //
create procedure exp_emp()
```

```
begin
        select * from emp_record_table
    where exp >3;
end
//
call exp_emp;
```

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	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	ANADA	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
E204	Karene	Nowak	F	SENIOR DATA SCIENTIST	AUTOMOTIVE	8	GERMANY	EUROPE	7500	5	E428	P204
E245	Nian	Zhen	M	SENIOR DATA SCIENTIST	RETAIL	6	CHINA	ASIA	6500	2	E583	P109
E260	Roy	Collins	M	SENIOR DATA SCIENTIST	RETAIL	7	INDIA	ASIA	7000	3	E583	NA
E403	Steve	Hoffman	M	ASSOCIATE DATA SCIEN...	FINANCE	4	USA	NORTH AMERICA	5000	3	E103	P105

9 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.

Query

```
CREATE VIEW Highsalaryemp1 AS
SELECT
    emp_id,
   first_name,
    gender,
    exp,
    country,
    total_salary
FROM
    emp_data
WHERE
   total_salary > 6000;
SELECT * FROM HighSalaryemp1;
```

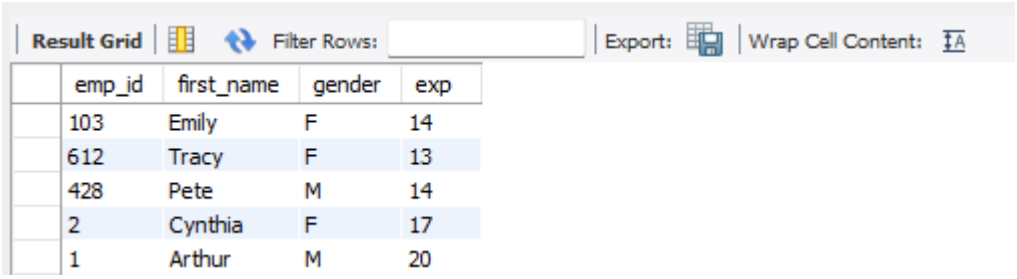
Result Grid | Filter Rows: | Export: | Wrap Cell Conte

emp_id	first_name	gender	exp	country	total_salary
640	Jenifer	F	1	COLOMBIA	11200
403	Steve	M	4	USA	15000
57	Dorothy	F	9	USA	7700
10	William	M	12	FRANCE	18000
478	David	M	3	COLOMBIA	16000

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

Query

```
create view morethanten1 as
    select
    emp_id,first_name,gender,exp
   from emp_data
   where exp >10;
   select * from morethanten1;
```



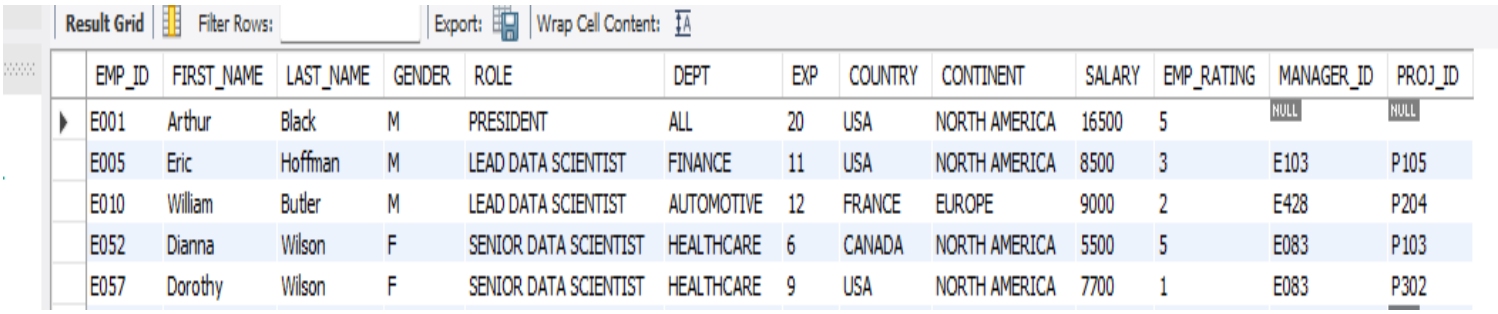
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

emp_id	first_name	gender	exp
103	Emily	F	14
612	Tracy	F	13
428	Pete	M	14
2	Cynthia	F	17
1	Arthur	M	20

11 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.

Query

```
CREATE DEFINER=`root`@`localhost` PROCEDURE `emp_count 1`(inout
records int , in exp int)
BEGIN
select count(*) into records from emp_data
where emp_data.exp=exp;
END
```



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

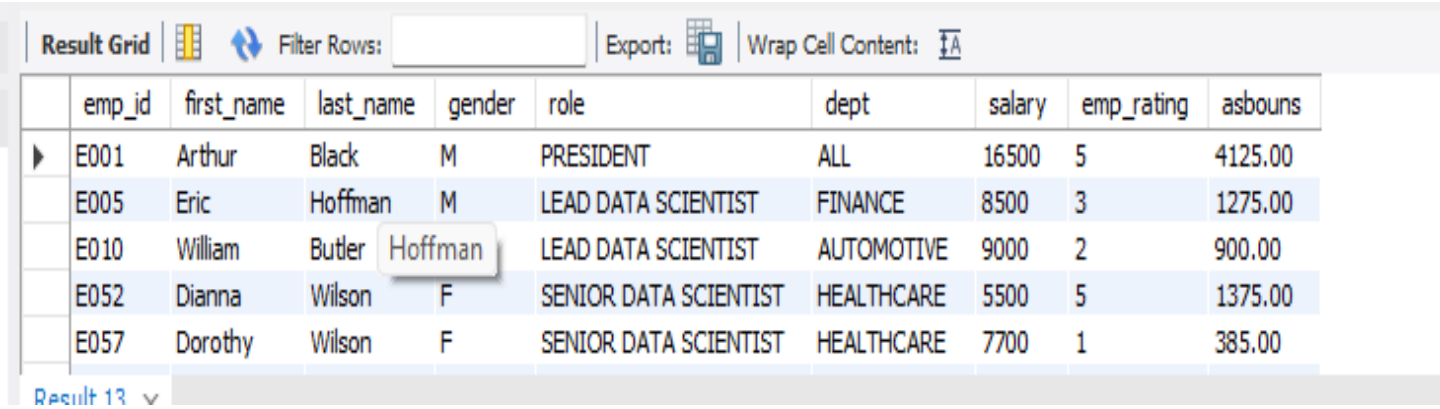
EMP_ID	FIRST_NAME	LAST_NAME	GENDER	ROLE	DEPT	EXP	COUNTRY	CONTINENT	SALARY	EMP_RATING	MANAGER_ID	PROJ_ID
E001	Arthur	Black	M	PRESIDENT	ALL	20	USA	NORTH AMERICA	16500	5	NULL	NULL
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	11	USA	NORTH AMERICA	8500	3	E103	P105
E010	William	Butler	M	LEAD DATA SCIENTIST	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

12 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).

Query

```
select
```

```
emp_id,first_name,last_name,gender,role,dept,salary,emp_rating,
(0.05 * salary * emp_rating)asbouns
from
emp_record_table;
```



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

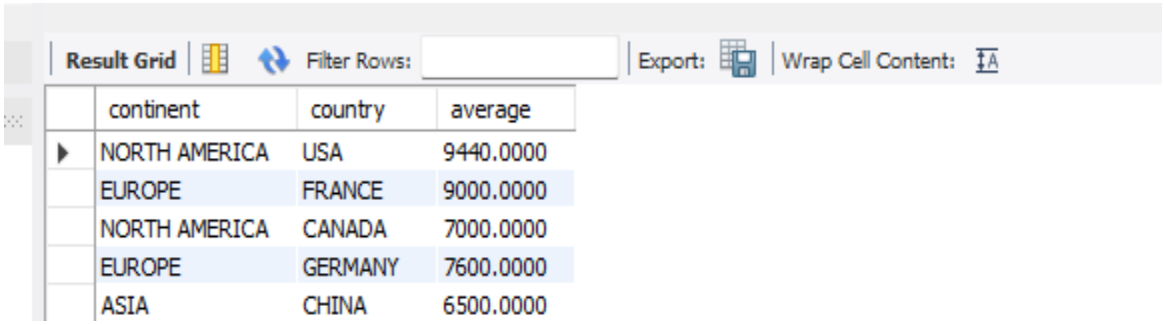
emp_id	first_name	last_name	gender	role	dept	salary	emp_rating	asbouns
E001	Arthur	Black	M	PRESIDENT	ALL	16500	5	4125.00
E005	Eric	Hoffman	M	LEAD DATA SCIENTIST	FINANCE	8500	3	1275.00
E010	William	Butler	Hoffman	LEAD DATA SCIENTIST	AUTOMOTIVE	9000	2	900.00
E052	Dianna	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	5500	5	1375.00
E057	Dorothy	Wilson	F	SENIOR DATA SCIENTIST	HEALTHCARE	7700	1	385.00

Result 13

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

Query

```
 select continent,country,avg(salary) as average
from emp_record_table
group by continent,country;
```



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

continent	country	average
NORTH AMERICA	USA	9440.0000
EUROPE	FRANCE	9000.0000
NORTH AMERICA	CANADA	7000.0000
EUROPE	GERMANY	7600.0000
ASIA	CHINA	6500.0000

THANK YOU