SQL

Content:-

max
count
having
inner join
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join
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case

Employee Table

id	name	salary	department	branch
1	Alice	60000	HR	1
2	Bob	40000	IT	2
3	Charlie	30000	IT	2
4	Diana	70000	HR	1
5	Edward	20000	Sales	NULL

Branch Table

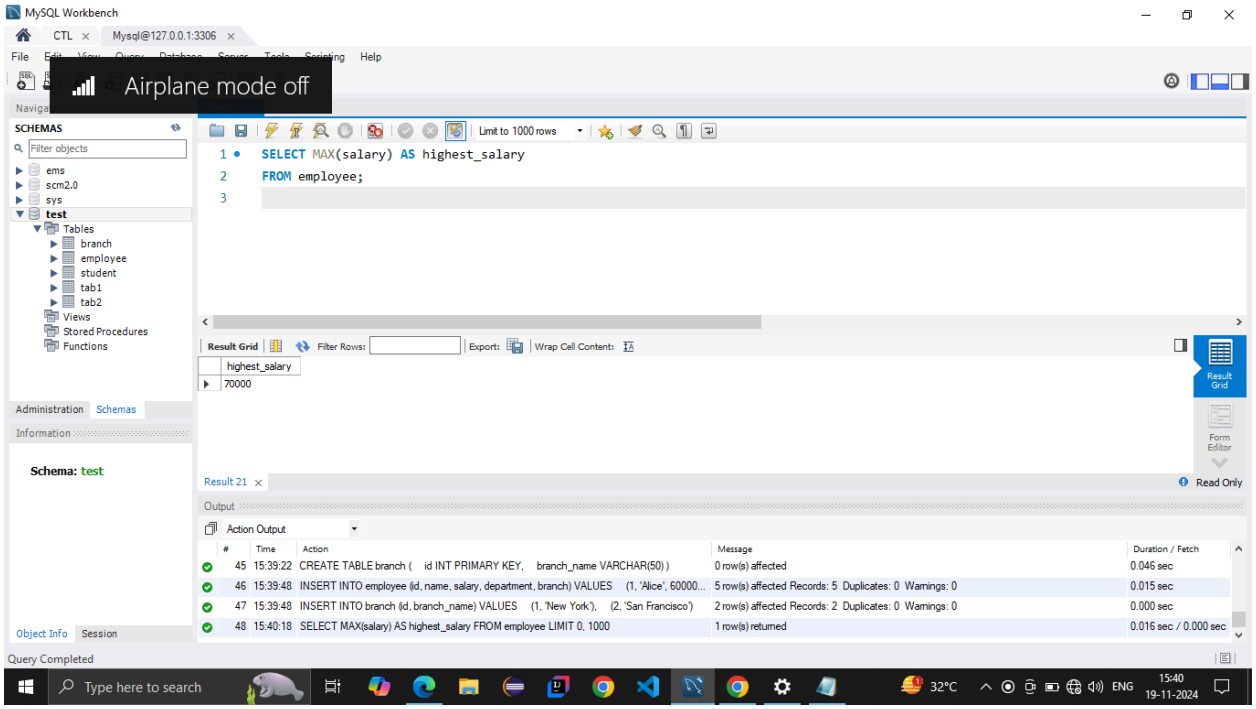
ID	Branch_Name
1	New York
2	San Francisco

1. MAX

Definition: The MAX function returns the highest value in a column.

Query: Find the employee with the highest salary.

```
SELECT MAX(salary) AS highest_salary
FROM employee;
```

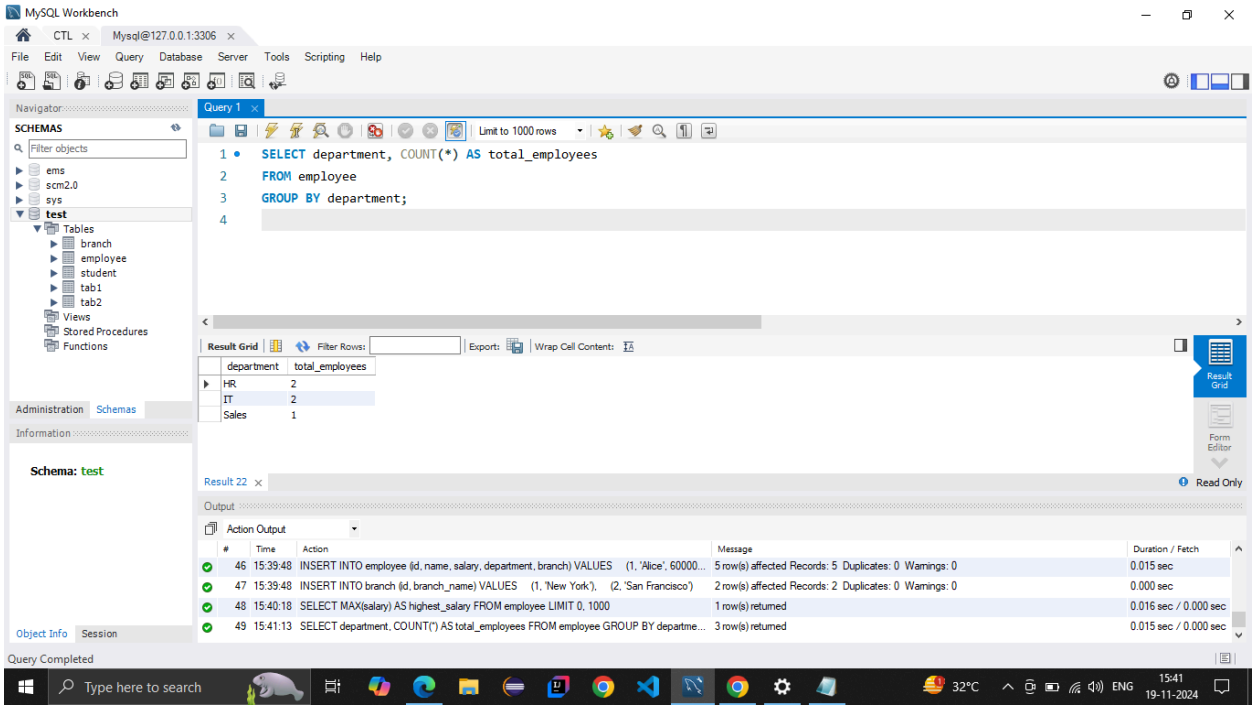


2. COUNT

Definition: The COUNT function calculates the number of rows that match a condition.

Query: Count the total number of employees in each department.

```
SELECT department, COUNT(*) AS total_employees
FROM employee
GROUP BY department;
```



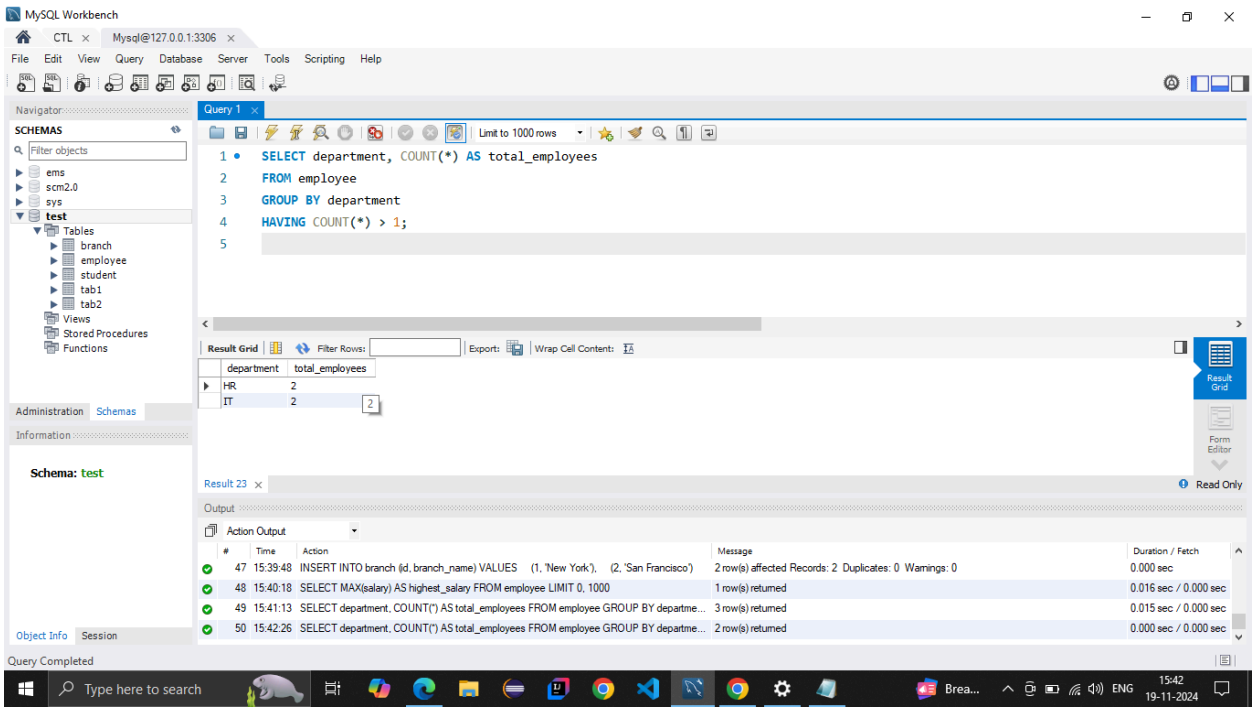
3. HAVING

Definition: The HAVING clause filters groups after aggregation (unlike WHERE, which filters rows).

Query: List departments with more than 5 employees.

```
SELECT department, COUNT(*) AS total_employees
```

```
FROM employee
GROUP BY department
HAVING COUNT(*) > 5;
```

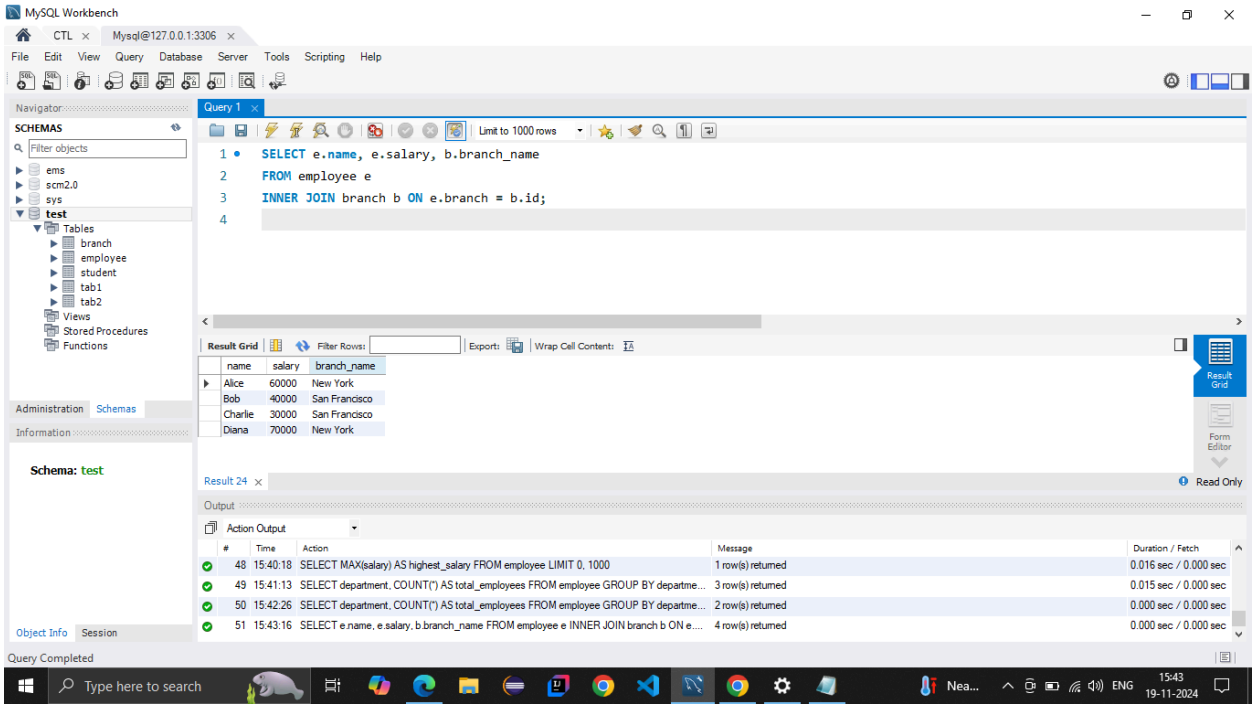


4. INNER JOIN

Definition: Combines rows from two tables where there is a match in the specified columns.

Query: Get employees' salaries along with their branch information from a branch table.

```
SELECT e.name, e.salary, b.branch_name
FROM employee e
INNER JOIN branch b ON e.branch = b.id;
```

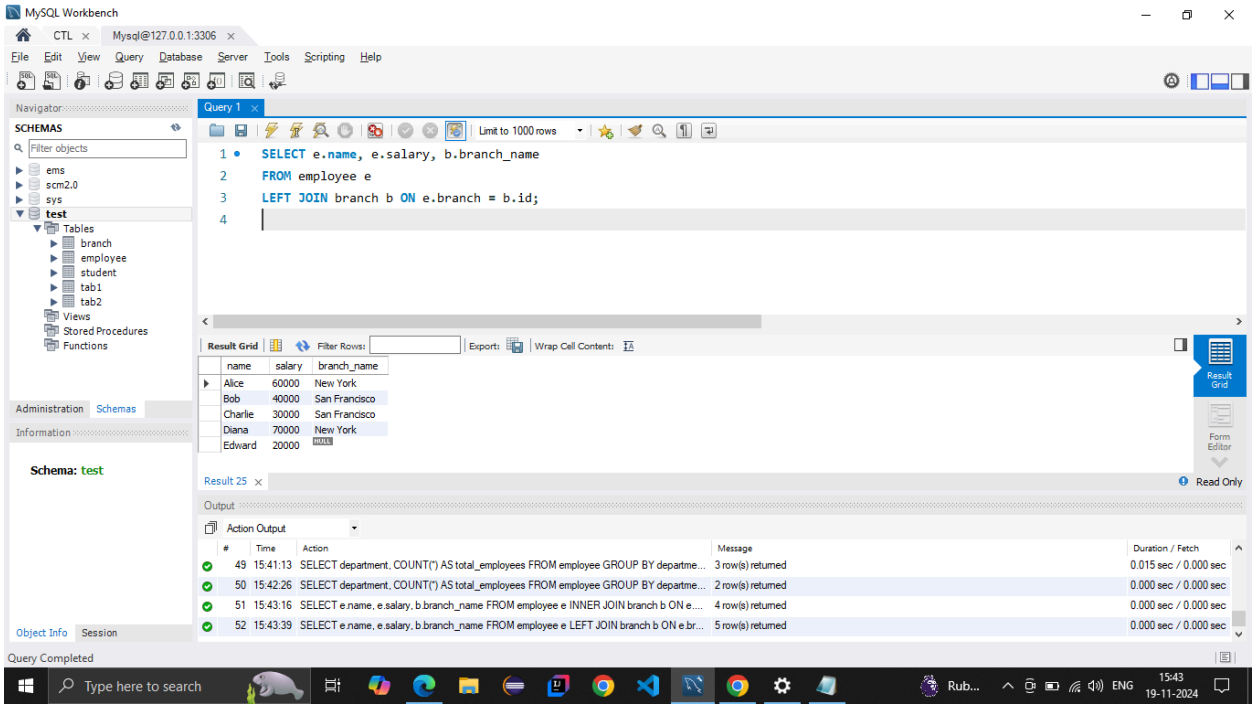


5. LEFT JOIN

Definition: Returns all rows from the left table and the matching rows from the right table. If no match, NULL is returned for the right table's columns.

Query: Get all employees and their branch information, including employees not assigned to any branch.

```
SELECT e.name, e.salary, b.branch_name
FROM employee e
LEFT JOIN branch b ON e.branch = b.id;
```



6. JOIN

Definition: A general term referring to the combination of rows from two or more tables. SQL supports multiple types of joins like `INNER JOIN`, `LEFT JOIN`, `RIGHT JOIN`, etc.

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7. UNION

Definition: Combines the results of two or more `SELECT` queries into a single result set. Duplicate rows are removed unless `UNION ALL` is used.

Query: Combine employees earning above 50,000 with those in the "HR" department.

```
SELECT name, salary, department

FROM employee
```

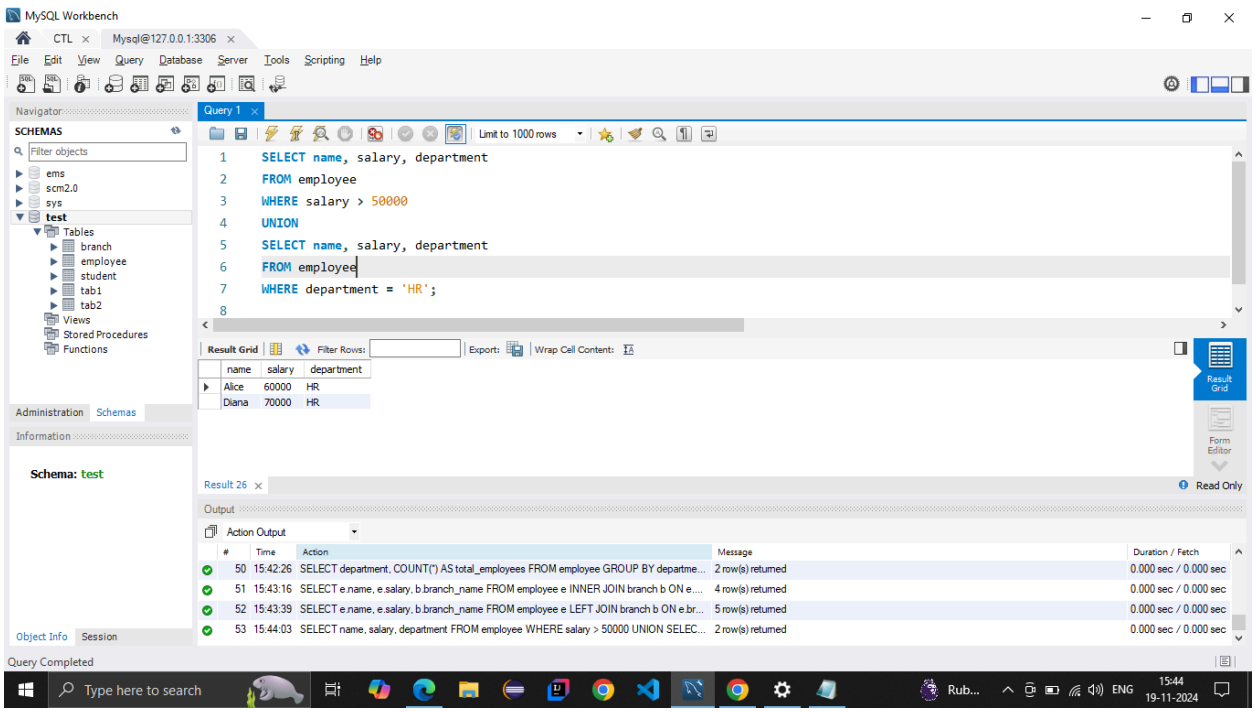
```
WHERE salary > 50000

UNION

SELECT name, salary, department

FROM employee

WHERE department = 'HR';
```



8. CASE

Definition: Provides conditional logic to return different values based on specific conditions.

Query: Categorize employees based on their salary.

```
SELECT
```

```
    name,
    salary,
    CASE
        WHEN salary > 50000 THEN 'High Earner'
        WHEN salary BETWEEN 30000 AND 50000 THEN 'Mid
Earner'
        ELSE 'Low Earner'
    END AS salary_category
FROM employee;
```