Q1. Difference between INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN with example

INNER JOIN

SELECT e.emp\_name, d.dept\_name

FROM Employee e

INNER JOIN Department d ON e.dept\_id = d.dept\_id;

LEFT JOIN

SELECT e.emp\_name, d.dept\_name

FROM Employee e

LEFT JOIN Department d ON e.dept\_id = d.dept\_id;

RIGHT JOIN

SELECT e.emp\_name, d.dept\_name

FROM Employee e

RIGHT JOIN Department d ON e.dept\_id = d.dept\_id;

FULL JOIN →

SELECT e.emp\_name, d.dept\_name

FROM Employee e

FULL OUTER JOIN Department d ON e.dept\_id = d.dept\_id;

How to find the second highest salary in a table (2 approaches)

Approach 1

SELECT emp\_name, salary

FROM Employee

ORDER BY salary DESC

LIMIT 1 OFFSET 1;

Approach 2

SELECT emp\_name, salary

FROM Employee

WHERE salary = (

SELECT MAX(salary)

FROM Employee

WHERE salary < (SELECT MAX(salary) FROM Employee)

);

3) Difference between WHERE and HAVING clause

-- WHERE: salary > 30000 वाले employees

SELECT emp\_name, salary

FROM Employee

WHERE salary > 30000;

-- HAVING: केवल वो departments जिनकी avg salary > 40000 है

SELECT dept\_id, AVG(salary) AS avg\_salary

FROM Employee

GROUP BY dept\_id

HAVING AVG(salary) > 40000;

What are Aggregate functions in SQL?

Q4. What are Aggregate functions in SQL?

COUNT() → total records

SUM() → total sum

AVG() → average

MAX() → maximum value

MIN() → minimum value

Example:

SELECT COUNT(\*) AS total\_employees,

AVG(salary) AS avg\_salary,

MAX(salary) AS highest\_salary,

MIN(salary) AS lowest\_salary

FROM Employee;

Q5. Write a query to find duplicate records in a table.

SELECT emp\_name, COUNT(\*)

FROM Employee

GROUP BY emp\_name

HAVING COUNT(\*) > 1;

Q6. Explain Primary Key, Foreign Key, Unique Key differences

Primary Key → Table का unique identifier, NULL नहीं हो सकता।

Foreign Key → एक table का column जो दूसरे table के Primary Key को refer करता है।

Unique Key → Values unique होने चाहिए लेकिन NULL allow कर सकता है (1 बार)।

Q7. Difference between DELETE, TRUNCATE, and DROP

DELETE → Rows delete करता है, condition दे सकते हैं,

TRUNCATE → पूरी table के data delete करता है

DROP → पूरी table structure + data delete करता है।

Q8. Query to find employees who have the same salary as another employee

SELECT emp\_name, salary

FROM Employee

WHERE salary IN (

SELECT salary

FROM Employee

GROUP BY salary

HAVING COUNT(\*) > 1

);

Q9. What is a Subquery? Difference between Correlated and Simple Subquery

Example (Simple Subquery):

SELECT emp\_name

FROM Employee

WHERE salary > (SELECT AVG(salary) FROM Employee);

Example (Correlated Subquery):

SELECT emp\_name

FROM Employee e

WHERE salary > (

SELECT AVG(salary) FROM Employee WHERE dept\_id = e.dept\_id

);

Q10. Difference between UNION and UNION ALL

Example:

-- UNION

SELECT emp\_name FROM Employee WHERE dept\_id = 1

UNION

SELECT emp\_name FROM Employee WHERE dept\_id = 2;

-- UNION ALL

SELECT emp\_name FROM Employee WHERE dept\_id = 1

UNION ALL

SELECT emp\_name FROM Employee WHERE dept\_id = 2;