1. **What is Subquery?State different Types of. Subqueries.**
2. **Can we update or delete record using Subquery? Explain with Example.**
3. **What are the limitations of Subquery?**

A subquery is a query nested inside another SQL query. It is used to perform operations that will depend on the results of the outer query. Subqueries are enclosed in parentheses and can return a single value, a list of values, or a table.

**Types of Subqueries**

1. **Single-row Subquery**:
   * Returns only one row with one column.
   * Example:

SELECT first\_name

FROM employee

WHERE salary = (SELECT MAX(salary) FROM employee);

1. **Multi-row Subquery**:
   * Returns multiple rows but only one column.
   * Example:

SELECT first\_name

FROM employee

WHERE dept\_id IN (SELECT id FROM department WHERE location = 'Mumbai');

1. **Multi-column Subquery**:
   * Returns multiple rows and multiple columns.
   * Example:

SELECT first\_name, last\_name

FROM employee

WHERE (dept\_id, salary) IN (SELECT id, MAX(salary) FROM department GROUP BY id);

1. **Correlated Subquery**:
   * Uses values from the outer query to execute.
   * Example:

SELECT first\_name

FROM employee e

WHERE salary > (SELECT AVG(salary) FROM employee WHERE dept\_id = e.dept\_id);

1. **Nested Subquery**:
   * Subqueries inside other subqueries.

**subqueries** can be used in UPDATE or DELETE statements.

UPDATE employee

SET salary = salary \* 1.10

WHERE dept\_id = (SELECT id FROM department WHERE dept\_name = 'IT');

Delete all employees who work in the "Production" department.

DELETE FROM employee

WHERE dept\_id = (SELECT id FROM department WHERE dept\_name = 'Production');

**Limitations**

1. **Performance Issues**:
   * Subqueries can be slower compared to joins for large datasets because they execute separately for each row in the outer query.
2. **Scalability**:
   * Complex nested subqueries can be difficult to debug and maintain.
3. **Limited Functionality**:
   * In some databases, you cannot modify (e.g., update or delete) a table and select from the same table in a subquery.