DAY 11 – SQL Subqueries & Nested Queries

What is a Subquery?

A subquery is a query written inside another SQL query. It is used when the result of one query is required as input for another query. The inner query executes first, and its result is passed to the outer query.

Basic Syntax

SELECT column_name FROM table_name WHERE column_name operator (SELECT column_name FROM table_name WHERE condition);

Types of Subqueries

- Single-row subquery – returns only one value
- Multiple-row subquery – returns multiple values
- Multiple-column subquery – returns more than one column
- Correlated subquery – depends on the outer query

Single-Row Subquery Examples

Find employees earning more than the average salary: SELECT name, salary FROM employees WHERE salary > (SELECT AVG(salary) FROM employees);

Multiple-Row Subqueries

Used with IN, ANY, ALL operators. IN is used when the subquery returns multiple values.

Correlated Subquery

A correlated subquery executes once for every row processed by the outer query. It is powerful but slower compared to normal subqueries.

Nested Queries

Nested queries contain more than one subquery inside another query. They are commonly used to find nth highest salary.

Interview Key Points

- Subquery always executes first
- Subqueries must be enclosed in parentheses
- JOINs are usually faster than subqueries
- Correlated subqueries depend on outer query values
- Subqueries can be used in SELECT, FROM, and WHERE clauses

Practice Tasks

- Find employees earning more than average salary
- Find employees with maximum salary in each department
- Find the 3rd highest salary using subquery
- Find employees earning more than department average