

Session-5

Using Sub-queries

Subquery

- A subquery answers multiple-part questions.
- For example, to determine who works in Taylor's department, you can first use a subquery to determine the department in which Taylor works.
- You can then answer the original question with the parent SELECT statement.
- A subquery in the FROM clause of a SELECT statement is also called an inline view.
- A subquery in the WHERE clause of a SELECT statement is also called a nested subquery.

Subquery

- The subquery(inner query) executes once before the main query(outer query).
- The result of the subquery is used by the main query.
- You can place the subquery in a number of sql clauses:
 - WHERE clause
 - HAVING clause
 - FROM clause
- Enclose subqueries in parentheses.
- Place subqueries on the right side of the comparison condition.
- Use single-row operators with single-row subqueries, use multiple-row operators with multiple-row subqueries.

Subquery Types

- Single-row-subqueries: Queries that return only one row from the inner SELECT statement.
- Multiple-row-subqueries: Queries that return more than one row from the inner SELECT statement.
- Display the employees whose job_id is the same as 141:
 - Below one is single-row subquery.

```
SELECT last_name, job_id
FROM employees
WHERE job_id = (SELECT job_id
                FROM employees
                WHERE employee_id = 141);
```

Single-row Subquery

- Display the employees whose job_id is the same as 141 and whose salary is greater than that of 143.

```
SELECT last_name, job_id
FROM employees
WHERE job_id = (SELECT job_id
                FROM employees
                WHERE employee_id = 141)
AND salary > (SELECT salary
              FROM employees
              WHERE employee_id = 143);
```

Group functions in subquery

```
SELECT last_name, job_id, salary
FROM employees
WHERE salary = (SELECT min(salary) FROM employees);
```

```
SELECT last_name, job_id, salary
FROM employees
GROUP BY department_id
HAVING MIN(salary) > ( SELECT min(salary)
                       FROM employees
                       WHERE department_id = 50 );
```

Multiple row subquery

- Find the employees who earn the same salary as the minimum salary of the department.

```
SELECT last_name, job_id, salary
FROM employees
WHERE salary IN ( SELECT MIN(salary)
                  FROM employees
                  GROUP BY department_id );
```

Multiple row subquery

```
SELECT employee_id, last_name, job_id, salary
FROM employees
WHERE salary < ANY ( SELECT salary
                      FROM employees
                      WHERE job_id = 'IT_PROG')
AND job_id <> 'IT_PROG';
```

```
SELECT employee_id, last_name, job_id, salary
FROM employees
WHERE salary < ALL (SELECT salary FROM employees
                    WHERE job_id = 'IT_PROG')
AND job_id <> 'IT_PROG';
```


Multiple row subquery

- < ANY means less than the maximum
- > ANY means more than the minimum
- = ANY equivalent to IN
- > ALL means more than the maximum
- < ALL means less than the minimum
- The NOT operator can be used with ANY, ALL and IN operator.

Session-5

END