What is subqueries in oracle

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SubQueries in Oracle

(1) A Subquery or Nested query is a query within another SQL query and embedded within the WHERE clause. A subquery is a query within a query

(2) A subquery is used to return data that will be used in the main query as a condition to further restrict the data to be retrieved.

(3) Subqueries answer the queries that have multiple parts. The parent query answers a part and the sub query answers other part

(4)Subqueries can be used with the SELECT, [INSERT](https://techgoeasy.com/oracle-insert-table/), [UPDATE](https://techgoeasy.com/update-statement-in-oracle/), and [DELETE statements](https://techgoeasy.com/delete-from-table-statement/) along with the operators like =, <, >, >=, <=, IN, BETWEEN etc.

(5)Using subqueries in a FROM clause is known as an **inline**[**view**](https://techgoeasy.com/oracle-views/).

(6) Using subqueries in the WHERE clause is called a **nested subquery**. Up to 255 nested queries are allowed.

Some Guidelines for Oracle SubQueries

(1) We need to put sub queries in parenthesis always

(2) We need to place subqueries on the right side of the comparison operator

(3) Use single row operator with single row subqueries and multiple row operator with multiple row subqueries

**General Syntax**

SELECT col1, col2

FROM   table1

WHERE  col1  OPERATOR

(SELECT col1

FROM table2

[WHERE])

Single Row Subquery

It returns only one row of results and uses a single row operator (most common is the equal operator (=)).  The other operators are  > ,< ,>=  ,=<

Single row subqueries can select data from the same table or from another table

SELECT ENAME FROM EMP WHERE SAL =(SELECT MIN(SAL) FROM EMP);SELECT ENAME FROM EMP WHERE DEPTNO = (SELECT DEPTNO FROM DEPT WHERE DNAME = 'RESEARCH');

Multiple Row Subquery

It returns several rows of results from the subquery, uses the IN operator. In the previous query, if there was more than one research  department, the query would have failed. Example of returning more than one row in the subquery

The other operator which are used is any and all

SELECT ENAME, DEPTNO FROM EMP

WHERE DEPTNO **IN** (SELECT DEPTNO FROM DEPT WHERE DNAME LIKE 'R%');

Correlated Subquery

A correlated subquery is a subquery that relies on columns from the parent query. A correlated subquery is evaluated for each row processed by the parent query. The parent statement can be a SELECT, UPDATE or DELETE.

SELECT ENAME,SAL FROM EMP E1

WHERE SAL = (SELECT MAX(SAL)

FROM EMP E2 WHERE E1.DEPTNO = E2.DEPTNO);

Based on the same data of emp and dept ,here is the result

Scalar Subqueries

It returns exactly one value from one row, used most often in the VALUES clause of an [INSERT statement](https://techgoeasy.com/oracle-insert-table/), in and [ORDER BY](https://techgoeasy.com/oracle-sql-order-by-and-distinct-clause/) or WHERE clause and in a SELECT clause:

SELECT ENAME,

DEPTNO, (SELECT MAX(SAL)

FROM EMP E2

WHERE E2.DEPTNO = E1.DEPTNO) HIGH\_SAL

FROM EMP E1

WHERE ENAME LIKE 'B%';

The sub query executes once for each execution of the master query. A single-row subquery can only be used with single-row operators

Multiple-Column Subqueries

The query can have  more than one column in the SELECT clause of a subquery or in UPDATE statements

SELECT CITY,CITY\_CODE,CITY\_DESCRIPTION

FROM LOCATIONS

WHERE (LOCATION\_ID, COUNTRY\_ID)

IN (SELECT LOCATION\_ID, COUNTRY\_ID

FROM LOCATIONS

WHERE STATE\_PROVINCE = 'NEWYORK');

Subqueries in other DML Statements

Subqueries can be used in UPDATE, DELETE and INSERT statements

**Update Statement**

UPDATE EMP

SET SALARY = (SELECT SALARY FROM EMP

WHERE EMPLOYEE\_ID = 112408)

WHERE EMPLOYEE\_ID = 193711;

**Insert Statement**

INSERT INTO DEPT (DEPT\_ID, DEPT\_NAME)

VALUES ((SELECT MAX(DEPT\_ID)

FROM DEPT), 'NEW DEPT');

**Delete Statement**

DELETE FROM CUSTOMERS

WHERE AGE IN (SELECT AGE FROM CUST\_BACK

WHERE AGE > 40 );