SUBQUERIES

- A subquery is a SQL query nested inside a larger query.
- A subquery may occur in:
  - - A SELECT clause
  - - A FROM clause
  - - A WHERE clause
- In MySQL subquery can be nested inside a SELECT, INSERT, UPDATE, DELETE statement or inside another subquery.
- A subquery is usually added within the WHERE Clause of another SQL SELECT statement.
- You can use the comparison operators, such as >, <, or =. The comparison operator can also be a multiple-row operator, such as IN.
- A subquery can be treated as an inner query, which is a SQL query placed as a part of another query called as outer query.
- The inner query executes first before its parent query so that the results of the inner query can be passed to the outer query.

BASIC CHARACTERISTICS SUBQUERIES

- A subquery is a query (SELECT statement) inside a query.
- A subquery is normally expressed inside parentheses.
- The first query in the SQL statement is known as the outer query.
- The query inside the SQL statement is known as the inner query.
- The inner query is executed first.
- The output of an inner query is used as the input for the outer query.
- The entire SQL statement is sometimes referred to as a nested query

TYPES OF SUBQUERIES

- Single row subquery : Returns zero or one row.
- Multiple row subquery : Returns one or more rows.
- Multiple column subqueries : Returns one or more columns.
- Correlated subqueries : Reference one or more columns in the outer SQL statement. The subquery is known as a correlated subquery because the subquery is related to the outer SQL statement.
- Nested subqueries : Subqueries are placed within another subquery.
  - **WHERE SUBQUERIES**
  - **IN SUBQUERIES**
  - **HAVING SUBQUERIES**

WHERE SUBQUERIES

- The most common type of subquery uses an inner SELECT subquery on the right side of a WHERE comparison expression.
- the subquery will be found in the WHERE clause. These subqueries are also called nested subqueries.
- Example:

SELECT P_CODE, P_PRICE FROM PRODUCT

WHERE P_PRICE >= **(SELECT AVG(P_PRICE) FROM PRODUCT)**;

- Note that this type of query, when used in a >, <, =, >=,or <= conditional expression, requires a subquery that returns only one single value (one column, one row).
- The value generated by the subquery must be of a “comparable” data type; if the attribute to the left of the comparison symbol is a character type, the subquery must return a character string.

IN SUBQUERIES

- If a subquery returns more than one value, you can use other operators such as IN or NOT IN operator.
- When you want to compare a single attribute to a list of values, you use the IN operator.

Example:

```
–-SELECT  customerName FROM     customers
WHERE     customerNumber NOT IN (SELECT DISTINCT
 customerNumber FROM orders);

    --SELECT customername FROM customers
    WHERE custid IN ( SELECT  custid FROM  SUPPLIERS);
```