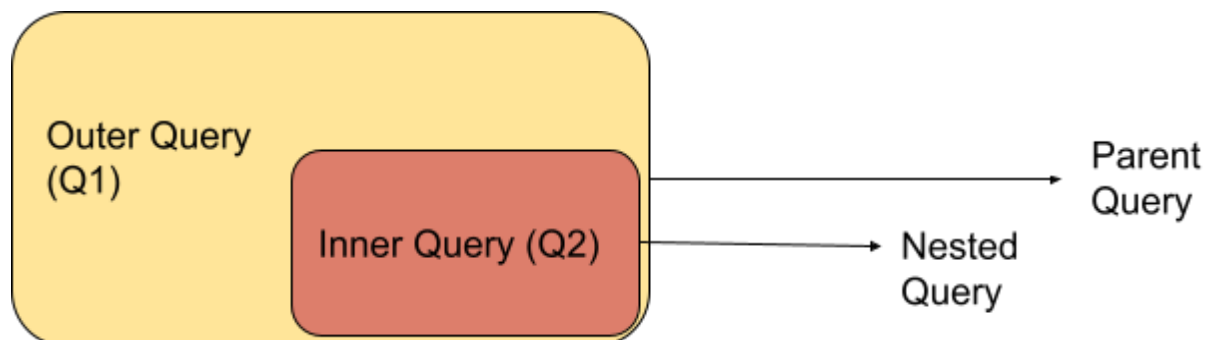


Subqueries

- **Definition**

- Subqueries is a way of using queries within a particular query. It is accomplished using the parenthesis.
- The inner query is always executed first, followed by the execution of the outer query. Inner query results in a single value or set of values as an output.
- Let us say we have a query Q2 and its data will be used by query Q1, then we can say that Q2 will be the Inner query of Main query Q1. Also, this query Q2 is called sub-query.



- **Types of Subqueries**

In this lecture, we will be understanding these kinds of sub-queries. Sub-queries exist mainly in three clauses -

1. Inside a WHERE clause

General form

```
SELECT column_list (s)
FROM T_name
WHERE column_name OPERATOR
(
    SELECT column_list (s)
    FROM T_name
);
```

Let us understand this using an example:

Table **Ninja**:

Ninja_ID	Ninja_Name	Score
1	Ojasv	80
2	Pratyush	100
3	Harsh	0
4	Akshit	-10
5	Sachin	85

Table 1

```
SELECT *
FROM Ninja
WHERE Ninja_ID
IN
(
    SELECT Ninja_ID
    FROM Ninja
    WHERE Score > 0
);
```

Output:

Ninja_ID	Ninja_Name	Score
1	Ojasv	80
2	Pratyush	100
5	Sachin	85

Table 2

Example 2:

General form

SELECT *column_name(s)*

FROM *table_name*

WHERE EXISTS

(

SELECT *column_name*

FROM *table_name*

WHERE *condition*

);

Let us consider an example: Table **Ninja**:

Ninja_ID	Ninja_Name	Course	Score
1	Ojasv	SQL	80
2	Pratyush	OS	100
3	Harsh	OS	0
4	Akshit	SQL	-10
5	Sachin	CN	85

Table 3

Query:

```
SELECT
Ninja_Name FROM
Ninja WHERE
EXISTS
(
    SELECT Course
    FROM Offering
    WHERE Pass_Score>80
);
```

Note:- EXIST is used to check the existence of records in the subquery.

Output:

Ninja_Name
Ojasv
Akshit

Table 4

2. Inside a FROM clause

FROM clause can be used to specify a particular sub-query. Then the result returned by the subquery (Inner query) is used by the outside query.

General form

```
SELECT column_list(s)
```

```
FROM T_name,
```

```
(
    SELECT column_list(s)
    FROM T2_name
    GROUP BY column_list(s)
)
```

```
WHERE condition;
```

Let us understand this using an example:

Table **Ninja**:

Ninja_ID	Ninja_Name	Course	Score
1	Ojasv	SQL	80
2	Pratyush	OS	100
3	Harsh	OS	0
4	Akshit	SQL	-10
5	Sachin	CN	85

Table 5

Table **Offering**:

Course	Pass_Score
SQL	90
OS	30
CN	60

Table 6

Question: Find the students whose Score is greater than average pass score of all the courses.

Solution:

```
SELECT Ninja.Ninja_ID, Ninja.Ninja_Name, Ninja.Course, Ninja.Score  
FROM
```

```
(  
    SELECT avg(Pass_Score) AS averageScore  
    FROM Offering
```

```
) as Scorers, Ninja
```

```
WHERE Ninja.Score > Scorers.averageScore;
```

Output Table:

Ninja_ID	Ninja_Name	Score
1	Ojasv	80
2	Pratyush	100
5	Sachin	85

Table 7**3. Inside a SELECT Clause -**

SELECT clause can also have a subquery that will work as a column expression inside it.

General form -**SELECT****(****SELECT column_list(s)****FROM T_name****WHERE condition****), columnList(s)****FROM T2_name****WHERE condition;**

Let us understand this using an example -

Table **Ninja**:

Ninja_ID	Ninja_Name	Course	Score
1	Ojasv	SQL	80
2	Pratyush	OS	100
3	Harsh	OS	0
4	Akshit	SQL	-10
5	Sachin	CN	85

Table 8

Query

SELECT

(

SELECT *

FROM Ninja

WHERE Course = 'OS' or 'SQL'

)

FROM Ninja

WHERE Score > 0;

Output:

Ninja_ID	Ninja_Name	Cours e	Score
1	Ojasv	SQL	80
2	Pratyush	OS	100

Table 9

These are the types of Subqueries with examples.