



SQL | Subquery

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In SQL a Subquery can be simply defined as a query within another query. In other words we can say that a Subquery is a query that is embedded in WHERE clause of another SQL query. Important rules for Subqueries:

- You can place the Subquery in a number of SQL clauses: [WHERE](#) clause, [HAVING](#) clause, FROM clause. Subqueries can be used with SELECT, UPDATE, INSERT, DELETE statements along with expression operator. It could be equality operator or comparison operator such as =, >, <, <= and Like operator.
- A subquery is a query within another query. The outer query is called as **main query** and inner query is called as **subquery**.
- The subquery generally executes first when the subquery doesn't have any **co-relation** with the **main query**, when there is a co-relation the parser takes the decision **on the fly** on which query to execute on **precedence** and uses the output of the subquery accordingly.
- Subquery must be enclosed in parentheses.
- Subqueries are on the right side of the comparison operator.
- [ORDER BY](#) command **cannot** be used in a Subquery. [GROUPBY](#) command can be used to perform same function as ORDER BY command.
- Use single-row operators with singlerow Subqueries. Use multiple-row operators with multiple-row Subqueries.

Syntax: There is not any general syntax for Subqueries. However, Subqueries are seen to be used most frequently with SELECT statement as shown below:

```
SELECT column_name
FROM table_name
WHERE column_name expression operator
      ( SELECT COLUMN_NAME from TABLE_NAME WHERE ... );
```

Sample Table:

DATABASE

AD

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
Ram	101	Chennai	9988775566
Raj	102	Coimbatore	8877665544
Sasi	103	Madurai	7766553344
Ravi	104	Salem	8989898989
Sumathi	105	Kanchipuram	8989856868

STUDENT

NAME	ROLL_NO	SECTION
Ravi	104	A
Sumathi	105	B
Raj	102	A

Sample Queries

:

- To display NAME, LOCATION, PHONE_NUMBER of the students from DATABASE table whose section is A

```
Select NAME, LOCATION, PHONE_NUMBER from DATABASE
WHERE ROLL_NO IN
(SELECT ROLL_NO from STUDENT where SECTION='A');
```

- Explanation :** First subquery executes “ SELECT ROLL_NO from STUDENT where SECTION='A' ” returns ROLL_NO from STUDENT table whose SECTION is 'A'. Then outer-query executes it and return the NAME, LOCATION, PHONE_NUMBER from the DATABASE table of the student whose ROLL_NO is returned from inner subquery. Output:

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
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Ravi	104	Salem	8989898989
Raj	102	Coimbatore	8877665544

- Insert Query Example:

Table1: Student1

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
Ram	101	chennai	9988773344
Raju	102	coimbatore	9090909090
Ravi	103	salem	8989898989

Table2: Student2

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
Raj	111	chennai	8787878787
Sai	112	mumbai	6565656565
Sri	113	coimbatore	7878787878

- To insert Student2 into Student1 table:

```
INSERT INTO Student1 SELECT * FROM Student2;
```

- Output:

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
Ram	101	chennai	9988773344
Raju	102	coimbatore	9090909090
Ravi	103	salem	8989898989
Raj	111	chennai	8787878787
Sai	112	mumbai	6565656565
Sri	113	coimbatore	7878787878

- To delete students from Student2 table whose rollno is same as that in Student1 table and having location as chennai

```
DELETE FROM Student2
WHERE ROLL_NO IN ( SELECT ROLL_NO
                   FROM Student1
                   WHERE LOCATION = 'chennai');
```

- Output:

1 row delete successfully.

- Display Student2 table:

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
Sai	112	mumbai	6565656565
Sri	113	coimbatore	7878787878

- To update name of the students to geeks in Student2 table whose location is same as Raju,Ravi in Student1 table

```
UPDATE Student2
SET NAME='geeks'
WHERE LOCATION IN ( SELECT LOCATION
                   FROM Student1
                   WHERE NAME IN ('Raju','Ravi'));
```

- Output:

1 row updated successfully.

- Display Student2 table:

NAME	ROLL_NO	LOCATION	PHONE_NUMBER
Sai	112	mumbai	6565656565
geeks	113	coimbatore	7878787878

This article is contributed by **RanjaniRavi**. If you like GeeksforGeeks and would like to contribute, you can also write an article using [write.geeksforgeeks.org](https://www.geeksforgeeks.org/write-geeksforgeeks.org) or mail your article to review-team@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks. Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.