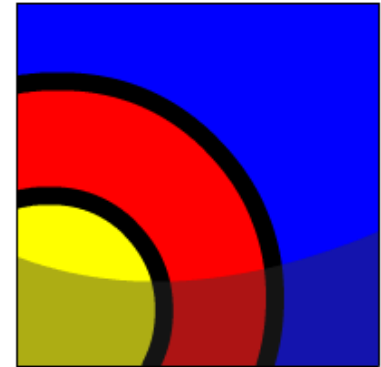


Subqueries

What Will I Learn?

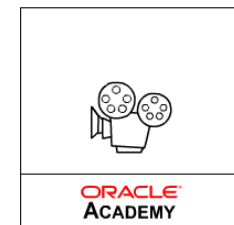
In this lesson, you will learn to:

- Define and explain the purpose of subqueries for retrieving data
- Construct and execute a single-row subquery in the WHERE clause
- Distinguish between single-row and multiple-row subqueries



Why Learn It?

Has a friend asked you to go to a movie, but before you could answer "yes" or "no," you first had to check with your parents? Has someone asked you the answer to a math problem, but before you can give the answer, you had to do the problem yourself?



Asking parents, or doing the math problem, are examples of subqueries.

In SQL, subqueries enable us to find the information we need so we can get the information we want.



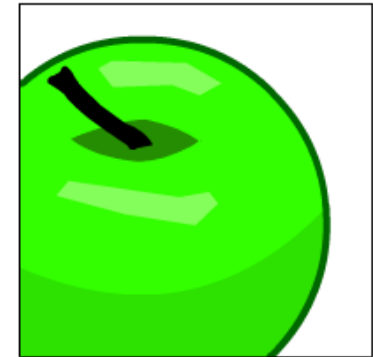
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Tell Me / Show Me

Throughout this course, you have written queries to extract data from a database. What if you wanted to write a query only to find out you didn't have all the information you needed to construct it?

You can solve this problem by combining two queries, placing one query inside the other query. The inner query is called the "subquery." The subquery executes to find the information you don't know. The outer query uses that information to find out what you need to know.

Being able to combine two queries into one can be very useful when you need to select rows from a table with a condition that depends on the data in the table itself.





Tell Me / Show Me

A subquery is a **SELECT** statement that is embedded in a clause of another **SELECT** statement. A subquery executes once before the main query. The result of the subquery is used by the main or outer query.

Subqueries can be placed in a number of SQL clauses, including the **WHERE** clause, the **HAVING** clause, and the **FROM** clause.

The subquery syntax is:

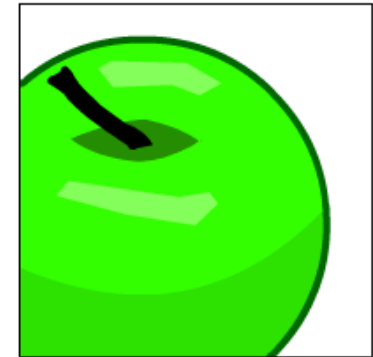
```
SELECT select_list  
FROM table  
WHERE expression operator  
(SELECT select_list  
FROM table);
```

The **SELECT** statement in parentheses is the inner query or 'subquery'.

Tell Me / Show Me

Guidelines for using subqueries are:

- The subquery is enclosed in parentheses.
- The subquery is placed on the right side of the comparison condition.
- The outer and inner queries can get data from different tables.
- Only one ORDER BY clause can be used for a SELECT statement; and, if used, it must be the last clause in the outer query. A subquery cannot have its own ORDER BY clause.
- The only limit on the number of subqueries is the buffer size the query uses.

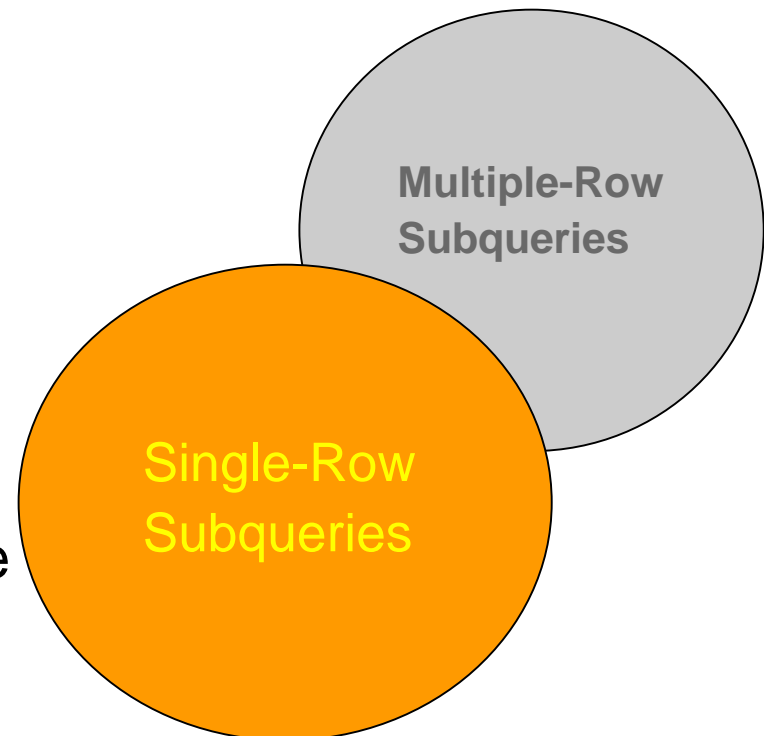


Tell Me / Show Me

There are two types of subqueries:

- **Single-row subqueries** that use single-row operators (>, =, >=, < <>, <=) and return only one row from the inner query

- **Multiple-row subqueries** that use multiple-row operators (IN, ANY, ALL) and return more than one row from the inner query





Tell Me / Show Me

What if you wanted to find out the names of the Global Fast Foods staff members that were born after Monique Tuttle? What is the first thing you need to know? When was Monique born? Once you know her birth date, then you can select those staff members whose birth dates are after hers.

```
SELECT staff_id, first_name, last_name, birth_date
FROM f_staffs
WHERE birth_date >=
  (SELECT birth_date
   FROM f_staffs
   WHERE last_name = 'Tuttle');
```

STAFF_ID	FIRST_NAME	LAST_NAME	BIRTH_DATE
1000	Roger	Morgan	17-JUN-87
1189	Nancy	Vickers	21-SEP-89
1007	Monique	Tuttle	13-JAN-87
1354	Alex	Hunter	03-JAN-90
1423	Kathryn	Bassman	08-AUG-91



Tell Me / Show Me

If a subquery returns a null value or no rows, the outer query takes the results of the subquery (null) and uses this result in its WHERE clause.

The outer query will then return no rows, because comparing a value with null always yields a null.

Who works in the same department as Grant?
Grant's department_id is null.

The outer query does not even return Grant's row, because comparing a null with a null yields a null.

```
SELECT last_name  
FROM employees  
WHERE department_id =  
      (SELECT department_id  
       FROM employees  
       WHERE last_name = 'Grant');
```

No data found.

Tell Me / Show Me

Terminology

Key terms used in this lesson include:

Inner query

Multiple- row subquery

Outer subquery

Single row subquery

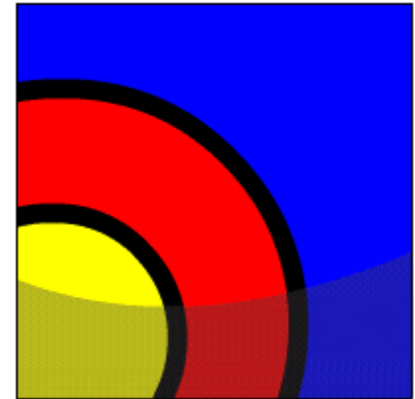
Subquery



Summary

In this lesson you have learned to:

- Define and explain the purpose of subqueries for retrieving data
- Construct and execute a single-row subquery in the WHERE clause
- Distinguish between single-row and multiple-row subqueries



Summary

Practice Guide

The link for the lesson practice guide can be found in the course outline.

