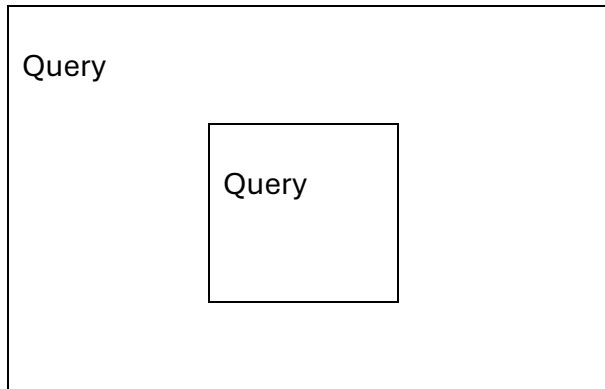


Sub-Queries:

A query within as query



(this is pictorial definition of Sub-Query)

Three Modes of Use:

- 1- Sub-Query in **Where** Statement

The answer set of the “inner” query is used as the predicate in a where clause in the “outer” query.

- 2- Sub-Query in **From** Statement

The answer set to the “inner” query is used as virtual table in From clause.

- 3- Sub-Query in **Select** Statement

The answer set to the “inner” clause is used as the column in Select Statement.

(Sub-Queries must be enclosed within the parenthesis)

Example 1 (predicate in Where Clause with = operator)

Find the highest price product with its productid, name and unitprice

```
select productid, productname, unitprice
from products
where unitprice =
    ( select max(unitprice)
      from products);
```

Example 2 (predicate in a Where clause with “in” operator)

Find the customer id and the orderid of products with more than 100 units sold.

```
select customerid, orderid
from orders
where orderid in (
    select orderid
    from orderdetails
    where quantity > 100) )
order by customerid;
```

(Note that with the “in” keyword the where returns number of values)

Example 3 (expression in the select clause)

List each product’s name and the total of that product’s order

```
select productname, ( select sum(unitprice * quantity)
                      from orderdetails
                      where orderdetails.productid =
                        products.productid ) as “Total”
from products;
```

(Note that the inner query will return only one value (one row, one column))

Example 4 (Sub-Query in the Form statement)

Create a list of all the orders having less than 100 items sold.

```
Select orderid
From (select orderid, sum(quantity)
      From orderdetails
      Group by order id
      Having sum(quantity) < 100) as “Detail Count”;
```

(Note that the inner query of form must have an alias name)

Example 5 (Co- Related Sub-Queries)

Select all the employees where the employees had shipped to the customers in employee's own home city.

```
select O.employeeid, orderid, shipcity, customerid
from orders O
where employeeid in
(select employeeid from employees E
where O.shipcity = E.city);
```

Note: The above example uses temporary alias name for a table

employeeid *from* employee E -- (for example E)

This serves two purposes:

- 1- The employeeid is ambiguous since it appears in both employee table and order table.
- 2- The alias saves typing and make the query more readable.