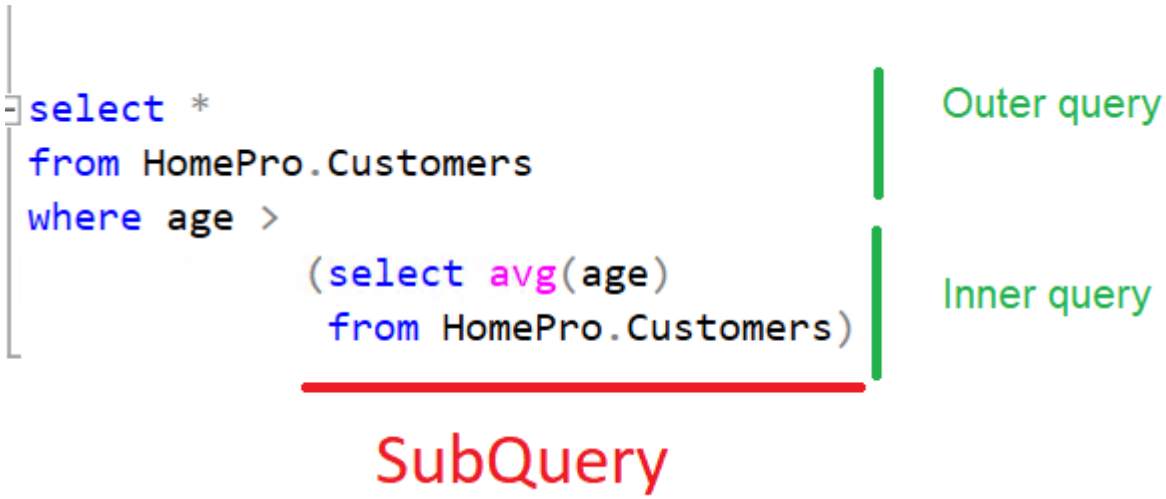
# Subqueries
# or
# Nested queries

# Subqueries


select *
from HomePro.Customers
where age >
(select avg(age)
from HomePro.Customers)
Outer query
Inner query
SubQuery

# Type subqueries by returns

| | |
|---|---|
| **Single-valued** | • Query return  a single value |
| **Multivalued** | • Query returns multiple values as a single column |
| **Table-valued** | • Query returns a row set with multiple columns |

# Scalar value subquery

Problem: Get customers that is older that average customer age

```
select * from HomePro.Customers
where age >

 (select avg(age) from HomePro.Customers)
```

Problem: Get customers that have quote less than average quote

```
select * from HomePro.Customers C
  join HomePro.Quotes q
    on c.CustomerId = q.CustomerId
where q.Estimation <

 (select avg(Estimation) from HomePro.Quotes)
```

# Multivalued subqueries

Problem: Get customers that have scheduled work

```
select * from HomePro.Customers
where CustomerId in

 (select CustomerId from HomePro.Schedules)
```

Problem: Get customers that do NOT HAVE scheduled work

```
select * from HomePro.Customers
where CustomerId not in

 (select CustomerId from HomePro.Schedules)
```

# Table valued subqueries

1. Find all combination of Schedules with Quotes
2. Use the subquery result in  outer query

```
select * from(

select
      s.CustomerId, s.JobType,
      Q.Description as QuoteDescription, q.Estimation

from HomePro.Schedules S
      join HomePro.Quotes q on s.CustomerId = q.CustomerId

) as subquery
```

# Table valued subqueries (Example 1)

1. Find all combination of Schedules with Quotes
2. Use the subquery result joining with Customers

```
select *
From HomePro.Customers C
join (
    select s.CustomerId, s.JobType,
       Q.Description as QuoteDescription, q.Estimation
    from HomePro.Schedules S
      join HomePro.Quotes q on s.CustomerId = q.CustomerId
  ) as subquery

on c.CustomerId = subquery.customerId
```

# Table valued subqueries (Example 2)

1. Find Customers that older than 20
2. Use the subquery result to show Customers with Schedules using left join

```
select *
from (

   select * from HomePro.Customers
    where Age > 20

   ) subquery

left join HomePro.Schedules S
   on subquery.CustomerId = s.CustomerId
```