

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 than 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

```
select *  
from (  
    select * from HomePro.Customers  
    where Age > 20  
    ) subquery  
left join HomePro.Schedules S  
    on subquery.CustomerId = s.CustomerId
```