

Subqueries - II

Subquery

1. SELECT
2. FROM
3. WHERE
4. JOINS
5. HAVING

Subqueries in FROM Clause

List top 10 products by its Total Revenue.

```
SELECT
    s.ProductKey,
    ROUND(SUM(s.OrderQuantity * p.ProductPrice),0) AS TotalRevenue
FROM `sales-2017` s
JOIN Products p
ON p.ProductKey = s.ProductKey
GROUP BY s.ProductKey;
```

ProductKey	TotalRevenue
214	42618
215	36134
220	38758
223	20694
226	11969
229	11680
232	11440
235	9998
352	513712
354	466069
356	505426
358	514324
360	504078
362	465145
371	137438

```
-- List top 10 products by its Total Revenue.
SELECT
    p.ProductKey,
    p.ProductName,
    sub.TotalRevenue
FROM Products p ,
(
    SELECT
        s.ProductKey,
        ROUND(SUM(s.OrderQuantity * p.ProductPrice),0) AS TotalRevenue
    FROM `sales-2017` s
    JOIN Products p
    ON p.ProductKey = s.ProductKey
    GROUP BY s.ProductKey
) sub
WHERE p.ProductKey = sub.ProductKey
ORDER BY sub.TotalRevenue DESC
LIMIT 10;
```

ProductKey	ProductName	TotalRevenue
358	Mountain-200 Black, 38	514324
352	Mountain-200 Silver, 38	513712
356	Mountain-200 Silver, 46	505426
360	Mountain-200 Black, 42	504078
354	Mountain-200 Silver, 42	466069
362	Mountain-200 Black, 46	465145
573	Touring-1000 Blue, 46	281320
561	Touring-1000 Yellow, 46	264632
580	Road-350-W Yellow, 40	261952
581	Road-350-W Yellow, 42	258550

Subquery IN WHERE CLAUSE

Find the products that are returned more than 50 times.

ProductName	ModelName	ProductPrice
Sport-100 Helmet, Red	Sport-100	34.99
Sport-100 Helmet, Black	Sport-100	33.6442
Sport-100 Helmet, Blue	Sport-100	33.6442
Water Bottle - 30 oz.	Water Bottle	4.99
Mountain Bottle Cage	Mountain Bottle Cage	9.99
Road Bottle Cage	Road Bottle Cage	8.99
Patch Kit/8 Patches	Patch kit	2.29
Fender Set - Mountain	Fender Set - Mountain	21.98
Mountain Tire Tube	Mountain Tire Tube	4.99
Road Tire Tube	Road Tire Tube	3.99

WHERE Sum(ReturnQty) > 50

ProductName	ModelName	ProductPrice	TotalReturns
Water Bottle - 30 oz.	Water Bottle	4.99	155
Road Bottle Cage	Road Bottle Cage	8.99	56
Mountain Tire Tube	Mountain Tire Tube	4.99	93
Mountain Bottle Cage	Mountain Bottle Cage	9.99	77
Patch Kit/8 Patches	Patch kit	2.29	95
Sport-100 Helmet, Black	Sport-100	33.6442	52
Fender Set - Mountain	Fender Set - Mountain	21.98	54
Sport-100 Helmet, Blue	Sport-100	33.6442	66
Road Tire Tube	Road Tire Tube	3.99	67
Sport-100 Helmet, Red	Sport-100	34.99	70

```
SELECT
    ProductName,
    ModelName,
    ProductPrice
FROM Products p
WHERE (
    SELECT
        SUM(ReturnQuantity)
    FROM Returns r
    WHERE r.ProductKey = p.ProductKey
) > 50;
```

```
SELECT
    ProductName,
    ModelName,
    ProductPrice,
    SUM(ReturnQuantity) AS TotalReturns
FROM Products p
JOIN returns r
ON p.ProductKey = r.ProductKey
GROUP BY 1,2,3
HAVING TotalReturns > 50;
```

Find the products whose productPrice > avgPrice within the subcategory

```
SELECT
    ProductName,
    ModelName,
    ProductPrice
FROM Products p
WHERE ProductPrice > (
    SELECT
        AVG(ProductPrice)
    FROM Products p2
    WHERE p.ProductSubcategoryKey = p2.ProductSubcategoryKey
);
```

ProductName	ModelName	ProductPrice
Sport-100 Helmet, Red	Sport-100	34.99
Mountain Bike Socks, M	Mountain Bike Socks	9.5
Mountain Bike Socks, L	Mountain Bike Socks	9.5
HL Road Frame - Red, 62	HL Road Frame	1263.4598
HL Road Frame - Red, 44	HL Road Frame	1263.4598
HL Road Frame - Red, 48	HL Road Frame	1263.4598
HL Road Frame - Red, 52	HL Road Frame	1263.4598
HL Road Frame - Red, 56	HL Road Frame	1263.4598
HL Mountain Frame - Silver, 42	HL Mountain Frame	1204.3248
HL Mountain Frame - Silver, 44	HL Mountain Frame	1364.5
HL Mountain Frame - Silver, 48	HL Mountain Frame	1364.5
HL Mountain Frame - Silver, 46	HL Mountain Frame	1204.3248
HL Mountain Frame - Black, 42	HL Mountain Frame	1191.1739
HL Mountain Frame - Black, 44	HL Mountain Frame	1349.6
HL Mountain Frame - Black, 48	HL Mountain Frame	1349.6
HL Mountain Frame - Black, 46	HL Mountain Frame	1191.1739
HL Mountain Frame - Black, 38	HL Mountain Frame	1191.1739
HL Mountain Frame - Silver, 38	HL Mountain Frame	1204.3248

ProductSubcategoryKey	AvgPrice
31	34
23	9
19	9
21	51
14	672
12	644
2	1530
1	1637
10	184
11	87
4	69
17	221
22	64
35	125
34	25
36	22
33	31
24	75
18	90

Subqueries in Having Clause

Find the products which are returned more than average return Qty.

Table A

ProductName
With
TotalReturns

>

subquery

ProductName
With
AVGReturns
FROM TableA

```
SELECT
  p.ProductName,
  SUM(r.ReturnQuantity) AS total_return_quantity
FROM Products p
JOIN returns r
ON r.ProductKey = p.ProductKey
GROUP BY 1;
```

ProductName	total_return_quantity
Road-150 Red, 48	8
Road-150 Red, 62	4
Mountain-100 Silver, 44	2
Road-150 Red, 44	7
Road-150 Red, 56	5
Mountain-100 Black, 44	2
Road-650 Black, 48	1
Mountain-100 Black, 48	2
Road-650 Red, 44	3
Mountain-100 Black, 42	1
Road-650 Red, 62	3

124 row(s) returned

AVG() -> 25

```
SELECT
  AVG(total_return_quantity)
FROM (
  SELECT
    SUM(ReturnQuantity) AS total_return_quantity
  FROM returns
  GROUP BY ProductKey
) sub;
```

AVG(total_return_quantity)
14.0827

```
-- Find the products which are returned more than average return Qty.
SELECT
    p.ProductName,
    SUM(r.ReturnQuantity) AS total_return_quantity
FROM Products p
JOIN returns r
ON r.ProductKey = p.ProductKey
GROUP BY 1
HAVING SUM(r.ReturnQuantity) >
(
    SELECT
        AVG(total_return_quantity)
    FROM (
        SELECT
            SUM(ReturnQuantity) AS total_return_quantity
        FROM returns
        GROUP BY ProductKey
    ) sub
);
```

ProductName	total_return_quantity
Mountain-200 Silver, 42	15
Mountain-200 Silver, 38	17
Mountain-200 Black, 42	21
Mountain-200 Black, 46	18
Water Bottle - 30 oz.	155
Road Bottle Cage	56
Mountain Tire Tube	93
Mountain-200 Black, 38	15
Mountain Bottle Cage	77
Patch Kit/8 Patches	95
Hydration Pack - 70 oz.	25

34 row(s) returned

Subqueries in JOIN Clause

Find the regions with their return quantity using subquery in Join Clause

```
SELECT
    t.Region,
    sub.total_return_quantity
FROM territories t
JOIN (
    SELECT
        r.TerritoryKey,
        SUM(r.ReturnQuantity) AS total_return_quantity
    FROM returns r
    GROUP BY r.TerritoryKey -- 1 as an index
) sub
ON t.SalesTerritoryKey = sub.TerritoryKey
ORDER BY sub.total_return_quantity DESC;
```

Region	total_return_quantity
Australia	404
Southwest	362
Northwest	270
Canada	238
United Kingdom	204
France	186
Germany	163
Southeast	1

```
WITH TotalReturnQtyTable AS (
    SELECT
        r.TerritoryKey,
        SUM(r.ReturnQuantity) AS total_return_quantity
    FROM returns r
    GROUP BY r.TerritoryKey
)
SELECT
    Region,
    total_return_quantity
FROM territories t
JOIN TotalReturnQtyTable r
ON t.SalesTerritoryKey = r.TerritoryKey
ORDER BY total_return_quantity DESC;
```