

Advanced SQL Exercises for Online Retail Store

Exercise 1: Ranking and Window Functions

Goal: Use ROW_NUMBER(), RANK(), DENSE_RANK(), OVER(), and PARTITION BY.

Scenario:

Find the top 3 most expensive products in each category using different ranking functions.

Steps:

1. Use ROW_NUMBER() to assign a unique rank within each category.
2. Use RANK() and DENSE_RANK() to compare how ties are handled.
3. Use PARTITION BY Category and ORDER BY Price DESC.

Code With Output

1. Use ROW_NUMBER() to assign a unique rank within each category.

```
SELECT *
FROM (
    SELECT
        ProductID,
        ProductName,
        Category,
        Price,
        ROW_NUMBER() OVER (ORDER BY Price DESC) AS RowNum
    FROM Products
) AS Ranked
WHERE RowNum <= 3;
```

Result Grid					
		Filter Rows:		Export:	Wrap Cell Content:
	ProductID	ProductName	Category	Price	RowNum
▶	1	Laptop	Electronics	1200.00	1
	2	Smartphone	Electronics	800.00	2
	3	Tablet	Electronics	600.00	3

2. Use RANK() and DENSE_RANK() to compare how ties are handled.

```
SELECT *
FROM (
    SELECT
        ProductID,
        ProductName,
        Category,
        Price,
        RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS
RankNum,
        DENSE_RANK() OVER (PARTITION BY Category ORDER BY Price DESC)
AS DenseRankNum
    FROM Products
) AS Ranked
WHERE RankNum <= 3;
```

Result Grid			 Filter Rows:	Export: 		Wrap Cell Content:
	ProductID	ProductName	Category	Price	RankNum	DenseRankNum
▶	4	Headphones	Accessories	150.00	1	1
	1	Laptop	Electronics	1200.00	1	1
	2	Smartphone	Electronics	800.00	2	2
	3	Tablet	Electronics	600.00	3	3

3. Use PARTITION BY Category and ORDER BY Price DESC.

```
SELECT *
FROM (
    SELECT
        ProductID,
        ProductName,
        Category,
        Price,
        RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS
RankNum
    FROM Products
) AS Ranked
WHERE RankNum <= 3;
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	ProductID	ProductName	Category	Price	RankNum
	4	Headphones	Accessories	150.00	1
	1	Laptop	Electronics	1200.00	1
	2	Smartphone	Electronics	800.00	2
	3	Tablet	Electronics	600.00	3