

# 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.

CODE:-

```
ROW_NUMBER() OVER (PARTITION BY Category ORDER BY Price DESC)
```

OUTPUT:-

(12 rows affected)			
ProductID	ProductName	Price	RowNum
5	Refrigerator	45000.00	1
6	Washing Machine	35000.00	2
7	Microwave	15000.00	3
8	Blender	5000.00	4
10	Encyclopedia	2500.00	1
11	Textbook	2500.00	2
9	Novel	500.00	3
12	Comics	300.00	4
1	Laptop	85000.00	1
2	Smartphone	55000.00	2
3	Tablet	55000.00	3
4	Headphones	3000.00	4

2. Use RANK() and DENSE\_RANK() to compare how ties are handled.

CODE:-

```
RANK() OVER (PARTITION BY Category ORDER BY Price DESC)
```

OUTPUT:-

(12 rows affected)

ProductID	ProductName	Price	PriceRank
5	Refrigerator	45000.00	1
6	Washing Machine	35000.00	2
7	Microwave	15000.00	3
8	Blender	5000.00	4
10	Encyclopedia	2500.00	1
11	Textbook	2500.00	1
9	Novel	500.00	3
12	Comics	300.00	4
1	Laptop	85000.00	1
2	Smartphone	55000.00	2
3	Tablet	55000.00	2
4	Headphones	3000.00	4

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

CODE:-

DENSE\_RANK() OVER (PARTITION BY Category ORDER BY Price DESC)

OUTPUT:-

(12 rows affected)

ProductID	ProductName	Price	PriceRank
5	Refrigerator	45000.00	1
6	Washing Machine	35000.00	2
7	Microwave	15000.00	3
8	Blender	5000.00	4
10	Encyclopedia	2500.00	1
11	Textbook	2500.00	1
9	Novel	500.00	3
12	Comics	300.00	4
1	Laptop	85000.00	1
2	Smartphone	55000.00	2
3	Tablet	55000.00	2
4	Headphones	3000.00	4

4. top 3 most expensive products in each category

CODE:-

```
WITH RankedProducts AS (  
    SELECT *,  
        ROW_NUMBER() OVER (PARTITION BY Category ORDER BY Price  
DESC) AS RowNum  
    FROM Products  
)  
SELECT *  
FROM RankedProducts  
WHERE RowNum <= 3;  
OUTPUT:-
```

(12 rows affected)

ProductID	ProductName	Price	RowNum
5	Refrigerator	45000.00	1
6	Washing Machine	35000.00	2
7	Microwave	15000.00	3
10	Encyclopedia	2500.00	1
11	Textbook	2500.00	2
9	Novel	500.00	3
1	Laptop	85000.00	1
2	Smartphone	55000.00	2
3	Tablet	55000.00	3

(9 rows affected)