Exercise 1: Ranking and Window Function

-----> **ORIGINAL TABLE:-**

```
CREATE TABLE Products (
   ProductID INT PRIMARY KEY,
   ProductName VARCHAR(100),
   Category VARCHAR(50),
   Price DECIMAL(10, 2)
);

INSERT INTO Products (ProductID, ProductName, Category, Price) VALUES
(1, 'Laptop', 'Electronics', 1200.00),
(2, 'Smartphone', 'Electronics', 800.00),
(3, 'Tablet', 'Electronics', 600.00),
(4, 'Headphones', 'Accessories', 150.00);
(5, 'Mobile Guard', 'Protection', 140.00),
(6, 'Mobile Cover', 'Protection', 200.00);
```

ProductID	ProductName	Category	Price
1	Laptop	Electronics	1200.00
2	Smartphone	Electronics	800.00
3	Tablet	Electronics	600.00
4	Headphones	Accessories	150.00
5	Mobile Guard	Protection	140.00
6	Mobile Cover	Protection	200.00
NULL	NULL	NULL	NULL

Find the top 3 most expensive products in each category using different ranking function-

> Using ROW_NUMBER()

```
SELECT
    ProductName,
    Category,
    Price,
    ROW_NUMBER() OVER(PARTITION BY Category ORDER BY Price DESC) as
RowNum
FROM
```

```
Products;
```

ProductName	Category	Price	RowNum
▶ Headphones	Accessories	150.00	1
Laptop	Electronics	1200.00	1
Smartphone	Electronics	800.00	2
Tablet	Electronics	600.00	3
Mobile Cover	Protection	200.00	1
Mobile Guard	Protection	140.00	2

2. Using RANK() and DENSE_RANK()-

```
SELECT
    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;
```

ProductName	Category	Price	RankNum	DenseRankNum
Headphones	Accessories	150.00	1	1
Laptop	Electronics	1200.00	1	1
Smartphone	Electronics	800.00	2	2
Tablet	Electronics	600.00	3	3
Mobile Cover	Protection	200.00	1	1
Mobile Guard	Protection	140.00	2	2

3> Use PARTITION BY Category and ORDER BY Price DESC -

```
WITH ProductRanks AS (
   SELECT
      ProductName,
      Category,
      Price,
      DENSE_RANK() OVER(PARTITION BY Category ORDER BY Price DESC) as DenseRankNum
   FROM
      Products
)
SELECT
   ProductName,
   Category,
   Price,
   DenseRankNum
FROM
   ProductRanks
WHERE   DenseRankNum <= 3;
```

ProductName	Category	Price	RankNum	DenseRankNum
Headphones	Accessories	150.00	1	1
Laptop	Electronics	1200.00	1	1
Smartphone	Electronics	800.00	2	2
Tablet	Electronics	600.00	3	3
Mobile Cover	Protection	200.00	1	1
Mobile Guard	Protection	140.00	2	2