# Exercise 1 – Ranking and Window Functions

## Objective:

To retrieve the top 3 most expensive products in each category using SQL window functions such as ROW\_NUMBER(), RANK(), and DENSE\_RANK().

## Function Explanation:

- ROW\_NUMBER(): Assigns a unique row number to each row within a partition, even if values are tied.  
- RANK(): Assigns the same rank to tied values, but skips the next rank(s).  
- DENSE\_RANK(): Assigns the same rank to tied values without skipping subsequent ranks.  
- PARTITION BY: Separates data by category so that ranks restart within each group.  
- ORDER BY: Determines the sorting order for ranking.

## Use Case Implementation:

Products were partitioned by Category and ordered by Price descending. All three functions were used to observe how they handle ranking when there are ties in price. A second query using ROW\_NUMBER() was used to extract the top 3 products in each category.

## Conclusion:

ROW\_NUMBER is best for selecting a specific number of top results per group. RANK and DENSE\_RANK help understand how ties affect result positioning. For business use cases like leaderboards or top-selling products, choosing the right ranking function depends on how you want to handle ties.