SQL Server: Ranking and Window Functions

# Overview

This document demonstrates how to use SQL Server's ranking and window functions such as ROW\_NUMBER(), RANK(), and DENSE\_RANK() to find the top 3 most expensive products in each category.

# Requirements

- Microsoft SQL Server installed (Express or Developer Edition).  
- SQL Server Management Studio (SSMS).  
- A GitHub account (for uploading the project).  
- Basic familiarity with SQL.

# SQL Scripts

## 1. Use Existing Database

USE ProductDB;  
GO

## 2. Drop Table If Exists

DROP TABLE IF EXISTS Products;

## 3. Create Products Table

CREATE TABLE Products (  
 ProductID INT,  
 ProductName VARCHAR(100),  
 Category VARCHAR(100),  
 Price INT  
);  
GO

## 4. Insert Sample Data

INSERT INTO Products VALUES  
(1, 'TV', 'Electronics', 50000),  
(2, 'Laptop', 'Electronics', 80000),  
(3, 'Phone', 'Electronics', 40000),  
(4, 'Rice', 'Grocery', 2000),  
(5, 'Oil', 'Grocery', 3000),  
(6, 'Bread', 'Grocery', 100),  
(7, 'Headphones', 'Electronics', 50000),  
(8, 'Charger', 'Electronics', 40000);  
GO

## 5. Use ROW\_NUMBER()

SELECT   
 ProductID,  
 ProductName,  
 Category,  
 Price,  
 ROW\_NUMBER() OVER (PARTITION BY Category ORDER BY Price DESC) AS RowNum  
FROM Products;

## 6. Use RANK() and DENSE\_RANK()

SELECT   
 ProductID,  
 ProductName,  
 Category,  
 Price,  
 RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS RankVal,  
 DENSE\_RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS DenseRankVal  
FROM Products;

## 7. Select Top 3 Products Per Category

WITH RankedProducts AS (  
 SELECT   
 \*,  
 ROW\_NUMBER() OVER (PARTITION BY Category ORDER BY Price DESC) AS RowNum  
 FROM Products  
)  
SELECT \*  
FROM RankedProducts  
WHERE RowNum <= 3;



