
SQL Exercises on Sales Database

Overview

In this exercise, you will explore a database related to sales, which contains various entities like products, orders, customers, suppliers, and employees. Through a series of SQL exercises, you'll derive insights related to sales performance, customer behavior, and supply management.

Exercise 1: Analyzing Product Sales

Objective

Understand which products are the best sellers and in which quantity they are being sold.

Query

```
SELECT
    p.ProductName,
    SUM(od.Quantity) AS TotalSoldQuantity
FROM
    OrderDetails od
JOIN
    Products p ON od.ProductID = p.ProductID
GROUP BY
    p.ProductName
ORDER BY
    TotalSoldQuantity DESC
LIMIT
    10;
```

Expected Outcome

A list of the top 10 best-selling products and the quantity in which they were sold.

Exercise 2: Customer Purchasing Analysis

Objective

Identify the customers who are spending the most.

Query

SELECT

```
c.CustomerID,  
c.CompanyName,  
SUM(od.UnitPrice * od.Quantity) AS TotalSpent
```

FROM

```
Customers c
```

JOIN

```
Orders o ON c.CustomerID = o.CustomerID
```

JOIN

```
OrderDetails od ON o.OrderID = od.OrderID
```

GROUP BY

```
c.CustomerID, c.CompanyName
```

ORDER BY

```
TotalSpent DESC
```

LIMIT

```
5;
```

Expected Outcome

A list of the top 5 customers who have spent the most, including their total spending.

Exercise 3: Supplier Analysis

Objective

Identify which suppliers have the most products in the store and which of them are supplied the most.

Query

SELECT

```
s.SupplierID,  
s.CompanyName,  
COUNT(DISTINCT p.ProductID) AS NumberOfProducts,  
SUM(od.Quantity) AS TotalUnitsSupplied
```

FROM

```
Suppliers s
```

JOIN

```
Products p ON s.SupplierID = p.SupplierID
JOIN
OrderDetails od ON p.ProductID = od.ProductID
GROUP BY
s.SupplierID, s.CompanyName
ORDER BY
NumberOfProducts DESC, TotalUnitsSupplied DESC
LIMIT
5;
```

Expected Outcome

A list of the top 5 suppliers based on the number of distinct products they supply and the total units supplied.

Exercise 4: Monthly Sales Analysis

Objective

Understand the monthly sales trends.

Query

```
SELECT
EXTRACT(YEAR FROM o.OrderDate) AS Year,
EXTRACT(MONTH FROM o.OrderDate) AS Month,
SUM(od.UnitPrice * od.Quantity) AS MonthlySales
FROM
Orders o
JOIN
OrderDetails od ON o.OrderID = od.OrderID
GROUP BY
Year, Month
ORDER BY
Year, Month;
```

Expected Outcome

Monthly sales amounts, which can be utilized to analyze the sales trend over time.

Exercise 5: Employee Sales Performance

Objective

Evaluate the sales performance of employees.

Query

```
SELECT
    e.EmployeeID,
    CONCAT(e.FirstName, ' ', e.LastName) AS EmployeeName,
    COUNT(DISTINCT o.OrderID) AS NumberOfOrders,
    SUM(od.Quantity) AS TotalUnitsSold
FROM
    Employees e
JOIN
    Orders o ON e.EmployeeID = o.EmployeeID
JOIN
    OrderDetails od ON o.OrderID = od.OrderID
GROUP BY
    e.EmployeeID, e.FirstName, e.LastName
ORDER BY
    TotalUnitsSold DESC
LIMIT
    5;
```

Expected Outcome

Identify the top 5 employees who have sold the most units.

Note

- Ensure that the field names and table names used in the SQL queries match with the actual schema in BigQuery.
- Validate the queries with the actual data to ensure they execute correctly and provide the expected insights.

Submission

Submit the SQL queries along with the derived insights and observations from the expected outcomes.

Happy Querying!