

Sales Data- Analytics Project- (Python-SQL)

ANALYZING TOP REVENUE PRODUCTS, SALES GROWTH, AND REGIONAL
INSIGHTS

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Top 10 Highest Revenue Generating Products

Objective: Identify products generating the most revenue.

SQL Query: `SELECT TOP 10 product_id, SUM(sale_price) AS sales FROM df_orders GROUP BY product_id ORDER BY sales DESC;`

Insight Summary: The products with the highest revenue indicate demand and popularity.

Top 5 Highest Selling Products by Region

Objective: Identify best-selling products across regions.

SQL Query:

```
WITH cte AS (SELECT region, product_id, SUM(sale_price) AS sales  
FROM df_orders GROUP BY region, product_id)
```

```
SELECT * FROM (SELECT *, ROW_NUMBER() OVER(PARTITION BY region  
ORDER BY sales DESC) AS rn FROM cte) A WHERE rn <= 5;
```

Insight Summary: Highlights the most popular products in each region.

Month-over-Month Sales Comparison for 2022 and 2023

Objective: Compare monthly sales growth for 2022 and 2023.

SQL Query:

```
WITH cte AS (SELECT YEAR(order_date) AS order_year, MONTH(order_date)
AS order_month, SUM(sale_price) AS sales
FROM df_orders GROUP BY YEAR(order_date), MONTH(order_date))
SELECT order_month, SUM(CASE WHEN order_year = 2022 THEN sales ELSE
0 END) AS sales_2022, SUM(CASE WHEN order_year = 2023 THEN sales
ELSE 0 END) AS sales_2023
FROM cte GROUP BY order_month ORDER BY order_month;
```

Insight Summary: Observe growth patterns between years.

Highest Sales Month per Category

Objective: Identify the highest sales month for each category.

SQL Query:

```
WITH cte AS (SELECT category, FORMAT(order_date, 'yyyyMM') AS  
order_year_month, SUM(sale_price) AS sales
```

```
FROM df_orders GROUP BY category, FORMAT(order_date, 'yyyyMM'))
```

```
SELECT * FROM (SELECT *, ROW_NUMBER() OVER(PARTITION BY  
category ORDER BY sales DESC) AS rn FROM cte) a WHERE rn = 1;
```

Insight Summary: Shows when categories achieve peak sales.

Sub-category with Highest Growth by Profit (2023 vs. 2022)

Objective: Determine which sub-category saw the most profit growth from 2022 to 2023.

SQL Query:

```
WITH cte AS (SELECT sub_category, YEAR(order_date) AS order_year, SUM(sale_price) AS sales FROM df_orders
```

```
GROUP BY sub_category, YEAR(order_date)),
```

```
cte2 AS (SELECT sub_category, SUM(CASE WHEN order_year = 2022 THEN sales ELSE 0 END) AS sales_2022,
```

```
SUM(CASE WHEN order_year = 2023 THEN sales ELSE 0 END) AS sales_2023 FROM cte GROUP BY sub_category)
```

```
SELECT TOP 1 *, (sales_2023 - sales_2022) AS growth FROM cte2 ORDER BY growth DESC;
```

Insight Summary: Identifies high-growth sub-categories.

Conclusion

Key Insights:

- The most revenue-generating products reveal customer preferences.
- Top products by region show demand variation.
- Month-over-month sales analysis highlights seasonal growth.

Next Steps:

- Use insights to enhance stock management and target promotions.