Sales Performance Analysis and Executive Dashboard Report

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Dataset: Superstore Sales (2015–2018)
Tools Used: Databricks (SQL, Python), Power BI

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1. Project Objective

The main goal of this project was to understand the overall sales performance of a retail superstore between 2015 and 2018. I wanted to explore the trends, patterns, and key business drivers using a mix of SQL analytics (in Databricks) and interactive dashboards (in Power BI).

My focus was to answer important business questions such as:

- How have sales changed over time?
- Which customer segments and regions are the most profitable?
- Are there seasonal or monthly sales patterns?
- Which product categories or sub-categories perform best?

2. Data Cleaning & Exploration (Databricks)

I started the analysis in **Databricks**, where I cleaned and transformed the dataset using SQL and Python. Some key steps included:

- Removing nulls and duplicates.
- Converting Order_Date into Year-Month format for time-based analysis.
- Creating clean views like df_cleaned and output tables such as sql_df to store processed results.

Using SQL queries inside the notebook, I answered several exploratory questions like:

“What are the total sales by month and segment?”

```sql
SELECT
  date_format(to_date(Order_Date, 'yyyy-MM-dd'), 'yyyy-MM') AS Month,
  Segment,
  ROUND(SUM(Sales), 2) AS Total_Sales
FROM sales_data
GROUP BY Month, Segment
ORDER BY Month, Segment
```

From this, I was able to create time-series views of each segment's performance across months and years, and detect peaks (e.g., high Q4 sales) and drops.

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3. Executive Summary Dashboard (Power BI)

Once the data was cleaned, I exported the results into **Power BI Desktop** to design a two-page, interactive dashboard.

Page 1: Executive Sales Summary

This page provides a top-level overview of overall performance from 2015–2018. It includes:

- **Total Sales**: €2.26M
- **Total Orders**: 4,922
- **Average Sales per Order**: €459.48
- **Sales by Segment**: Consumer (€1.15M) outperformed Corporate and Home Office.
- **Sales by Region**: The West and East regions drove the most revenue.
- **Sales Trend by Year**: Strong year-over-year growth, especially after 2016.

These insights help us understand "where the money is coming from" and how business grew during the four years.

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4. Market Performance Overview (Power BI)

The second page dives deeper into product and operational performance.

Key Highlights:

- **Sales by Sub-Category**: Phones (€0.33M) and Chairs (€0.32M) were the top-selling sub-categories.

- **Sales by Category**: Technology led with €827.46K in revenue.
- **Sales by Ship Mode**: Standard and Second Class were the most common modes.
- **Monthly Sales Trend by Segment**: Each customer segment had spikes in different months — useful for planning seasonal promotions.
- **Segment & Category Cross Table**: Helped identify which segments preferred which categories (e.g., Consumers spent more on Technology).

This page supports tactical decisions like stock optimization, marketing focus, and segment-specific offers.

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5. Insights & Recommendations

From my analysis, I drew a few clear insights:

- **Consumers drive revenue**. They account for over half of all sales.
- **Phones, Chairs, and Technology** are strong revenue leaders. These should be prioritized for upselling and inventory.
- **Sales peak in Q4**, especially in November and December. Promotional efforts should be concentrated here.
- **The West and East** are high-performing regions, suggesting they are mature markets or better served.

Recommendations:

- Increase stock for top sub-categories in peak months.
- Tailor marketing by segment — especially targeting consumers with tech-based products.
- Expand operations or marketing efforts in the West and East.

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6. Conclusion

This project helped me combine data exploration in Databricks with interactive visualization in Power BI to answer real business questions. It strengthened my ability to:

- Clean and manipulate data using SQL and Python
- Transform raw data into decision-making insights
- Create professional, interactive dashboards

- Think like a business analyst and make data-driven recommendations

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