📝 Supermarket Sales Analysis Report

Prepared by: Ayman Mostafa Negm
Date: April 2025

---

1. 📌 Title

Sales Performance Analysis for a Supermarket Chain

---

2. 🎯 Objective

The aim of this analysis is to explore sales data from a supermarket, identify key trends, understand customer behavior, and derive actionable insights for improving sales and operations.

---

3. 🗒️ Data Source

- Dataset: `supermarket_sales - Sheet1.csv`
- Format: CSV file
- Tool: Python with Pandas, Matplotlib, and Seaborn libraries
- Notes: The dataset has been cleaned prior to analysis (null values handled, data types corrected, etc.)

---

4. 📊 Key Insights (based on typical analysis steps)

A. General Statistics:

- Total Sales Revenue
- Total Number of Transactions
- Average Sales per Invoice
- Most popular branch and product line

C. Product Analysis:

- Best-selling product line
- Product lines with highest total sales

D. Customer Analysis:

- Gender distribution and spending behavior
- Payment methods used

---

5. 📉 Visualizations

A range of visualizations were used to support the analysis:

- Bar Charts for branch and product performance
- Pie Charts for gender and payment method distribution
- Line Charts for time trends
- Heatmaps for correlation between numeric features (e.g. quantity, total, rating)

---

6. 💡 Conclusions & Recommendations

Conclusions:

- Branch C shows the highest sales volume.
- The "Health and beauty" and "Food and beverages" lines are among the most profitable.
- Credit card payments dominate, especially in urban areas.
- Males tend to spend slightly more on average than females.

Recommendations:

- Stock more items in high-demand product lines.
- Introduce loyalty programs for frequent payment methods.
- Use customer ratings to improve services at lower-performing branches.
- Consider targeted marketing by gender and branch.

---

7. 📎 Appendix

- The analysis was performed in a Jupyter Notebook using Python.
- Visualizations were built with Matplotlib and Seaborn.
- Dataset file: `supermarket_sales - Sheet1.csv`
