Data Analysis Project Report

Project Title: Retail Sales Customer Segmentation Study

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# 1. Abstract

This work focuses on an in‑depth exploratory review of a retail sales dataset. Its central objective is to reveal sales trends, study customer behaviour, and deliver an interactive dashboard for decision makers. Microsoft Excel was used for data preparation, transformation and visual presentation. The resulting dashboard offers clear, actionable insights to optimise inventory and improve sales policies.

# 2. Objectives

• Prepare and clean the dataset as required.  
• Frame and address five critical questions derived from the data.  
• Build a simple and intuitive dashboard displaying the main indicators.  
• Employ charts and graphs that effectively present the findings.  
• Summarise outcomes and their implications for business use.

# 3. Scope of the Project

The study concentrates strictly on cleaning, analysing and visualising the dataset. Programming languages such as Python or R and complex statistical modelling were not part of this project. All tasks were completed in a single Excel workbook, restricted to the supplied data.

# 4. Tools & Technologies

Microsoft Excel – for manipulating, analysing and creating the dashboard.  
PivotTables – for summarising data.  
Charts & Graphs – for visual representation.

# 5. Data Preparation

Dataset was already clean and ready to use.

# 6. Dashboard Layout Strategy

Layout: KPIs on top, charts in the centre and filters at the bottom.  
Key metrics: Total Sales, Total Orders, Distinct Customers, Average Orders per Customer.  
Visuals:   
• Bar charts – Top five customers, product/category sales.  
• Line charts – Time‑based sales trends.  
• Pie charts – Customer or product share.  
• Table – Detailed sales data with conditional formatting.  
Interactive Features: Slicers/filters for date, customer, product and region.  
Design Style: Uniform colours, descriptive titles, minimal text emphasising insights.

# 7. Key Questions & Answers

Q1. Number of unique customers? → 52 distinct customers.  
Q2. Total orders placed? → 336 orders overall.  
Q3. Average order quantity per customer? → Around 6.46 orders per customer.  
Q4. Top five customers by order quantity?   
Grand Total – 168 (aggregate)  
Emily Brown – 10 orders  
David Rodriguez – 8 orders  
Michael Martinez – 8 orders  
Jennifer Davis – 8 orders  
(Excluding Grand Total, Emily Brown ranks first among individuals.)  
Q5. Highest single order by a customer? → Emily Brown with 10 orders in one entry.

# 9. Challenges & Resolutions

Challenge: Handling missing values.  
Resolution: Used find‑and‑replace to substitute blanks with 'N/A' or 'Unknown'.  
  
Challenge: Selecting appropriate chart types.  
Resolution: Tried various chart styles and chose the one best showing the trend (line chart for time series).  
  
Challenge: Data not suitable for PivotTables.  
Resolution: Employed 'Text to Columns' and reorganised columns into a tidy table.

# 10. Outcome

The analysis generated actionable insights and a usable dashboard. It also strengthened skills in data preparation and visualisation.

# 12. Conclusion

Through this project I improved my Excel‑based data analysis abilities. I gained practical experience in cleaning, transforming and visualising real‑world data. This reinforced my understanding of how data informs business decisions.

# 13. References

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