

BIG DATA AND CLOUD COMPUTING
Final Group Project Assignment
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Executive Summary

This report consolidates the key findings from a series of data analyses focused on customer purchasing behaviours, sales performance, and market trends. The insights are derived from queries addressing revenue by category, refund rates, order volumes, customer segmentation, and geographical sales distribution. The report aims to provide strategic actions that can enhance the company's decision-making and operational efficiency.

Key Findings

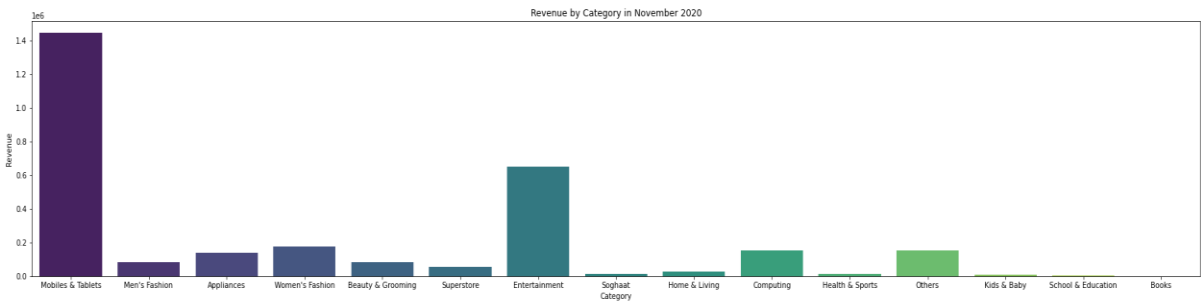
Revenue Analysis (Query 1):

'Mobiles & Tablets' category dominated revenue in November 2020, suggesting high consumer demand likely linked to holiday sales events.

Significant revenue in 'Entertainment' may be attributed to holiday season releases or promotions.

Fashion categories displayed substantial revenue, with a notable higher spending in women's fashion.

Lower revenue categories included 'Kids & Baby' and 'Books', potentially due to seasonal demand or digital alternatives.

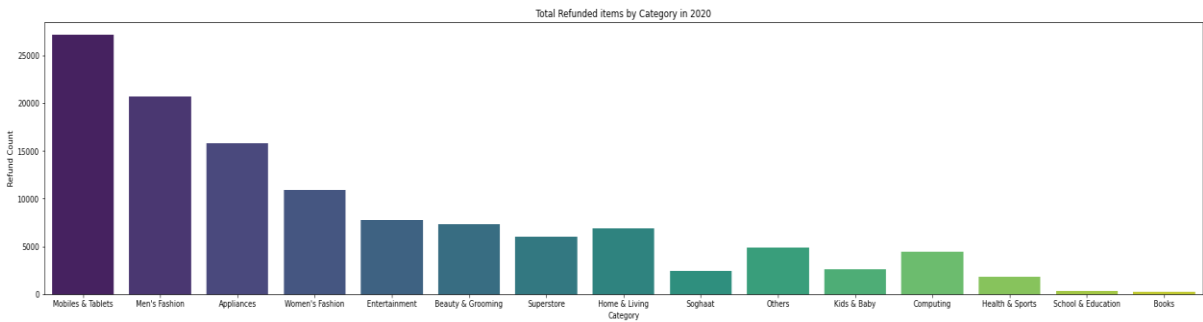


Refunds Analysis (Query 2):

'Mobiles & Tablets' experienced the highest number of refunds, indicating potential quality issues or high return rates for tech products.

Fashion categories witnessed significant refunds, possibly due to sizing issues in online purchases.

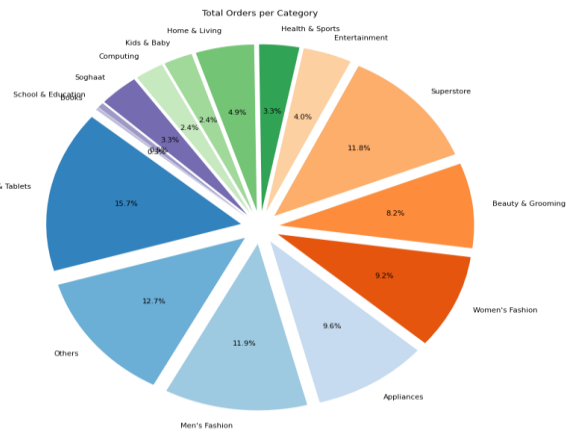
The 'Appliances' category had considerable refunds, which is a concern due to the logistical costs involved in returns.



Order Volume Analysis (Query 3):

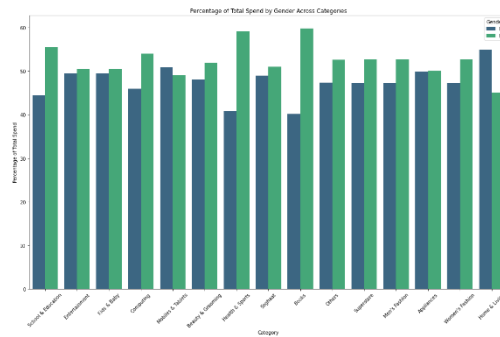
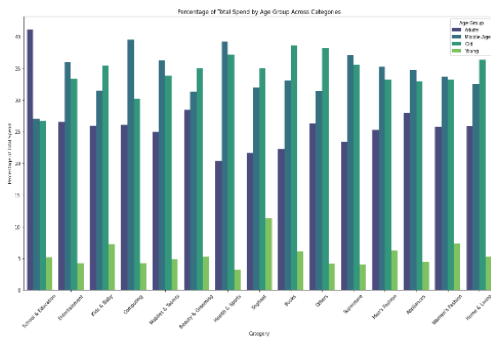
'Mobiles & Tablets' led in order volumes, followed by 'Men's Fashion', indicating these as core drivers of business volume.

'Others' represented a significant order share, highlighting the need for a more granular product categorization.



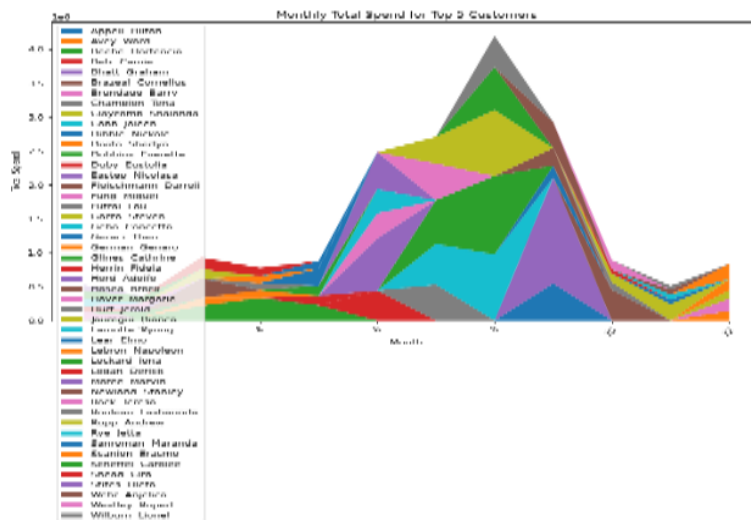
Customer Segmentation (Queries 4 & 5):

Adults and Middle-Aged groups were the largest contributors to spending across most categories. The 'Young' demographic showed the least spending power across all categories. Spending on 'School & Education' was significant among the older demographic. Gender spend analysis revealed near parity in 'Mobiles & Tablets' and a female lead in 'Home & Living'.



Top Customers Analysis (Query 6):

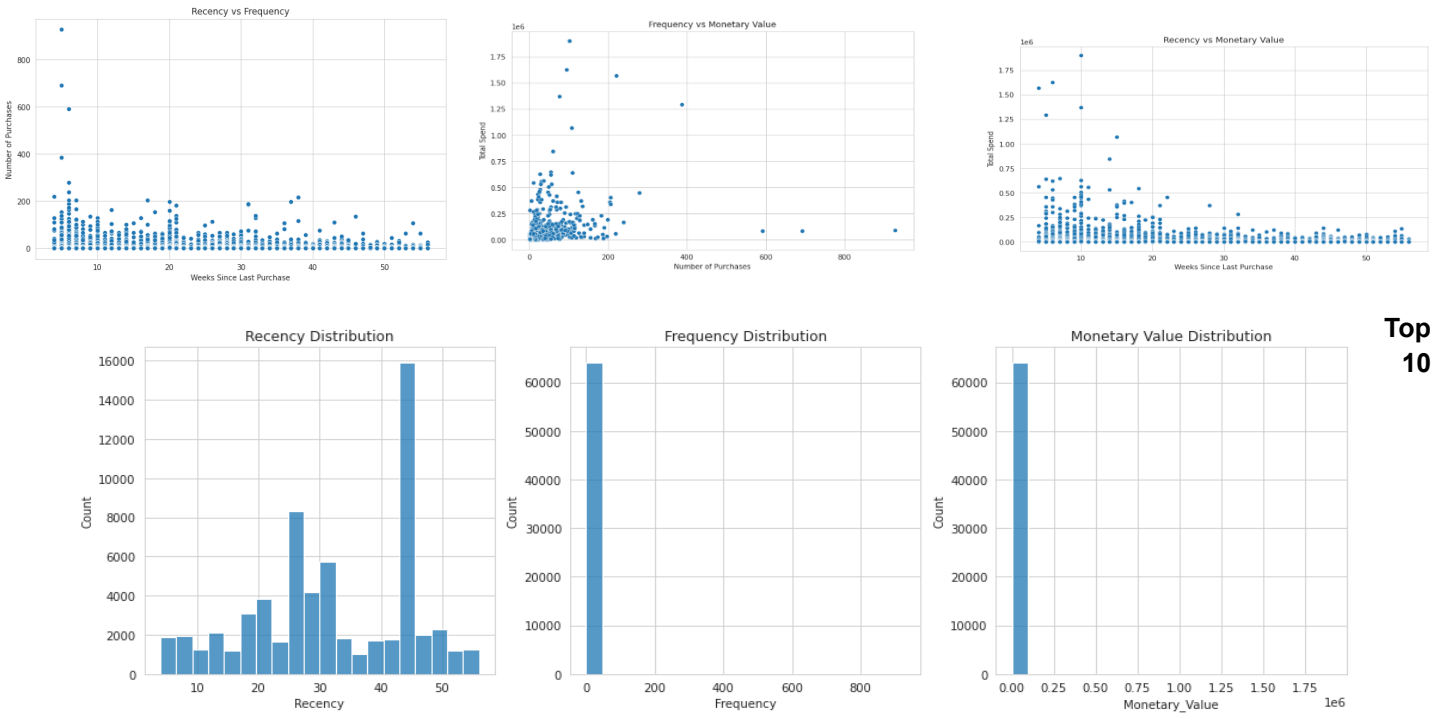
Identified top customers displayed peaks in spending, suggesting potential loyalty or large, infrequent purchases. Gender distribution among top spenders was mixed, indicating diverse customer profiles.



RFM Analysis (Query 7):

A substantial number of customers made recent purchases, with a right-skewed frequency and monetary value distribution.

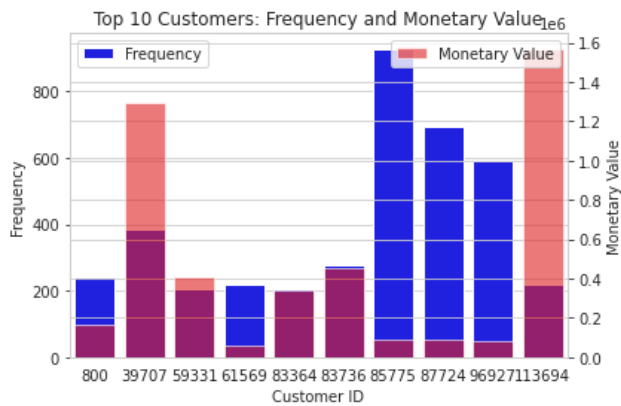
The relationship between recency, frequency, and monetary value was not strongly correlated, highlighting diverse customer engagement levels.



Top
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Customers (Query 8):

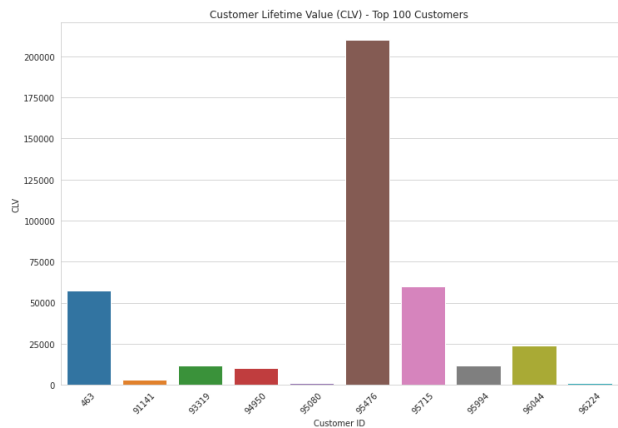
Identified customers with high frequency but lower spend, and vice versa, suggesting different purchasing patterns. One customer showed a significantly higher monetary value, emphasizing the importance of VIP customer management.



Additional Insights:

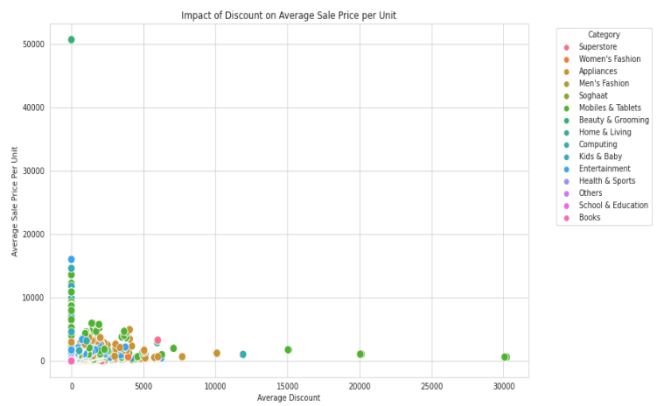
Customer Lifetime Value (Query 9):

A wide range of CLV was observed, with a significant concentration of value in a single customer. High-value customers were identified for targeted retention strategies.



Discount Impact Analysis (Query 10):

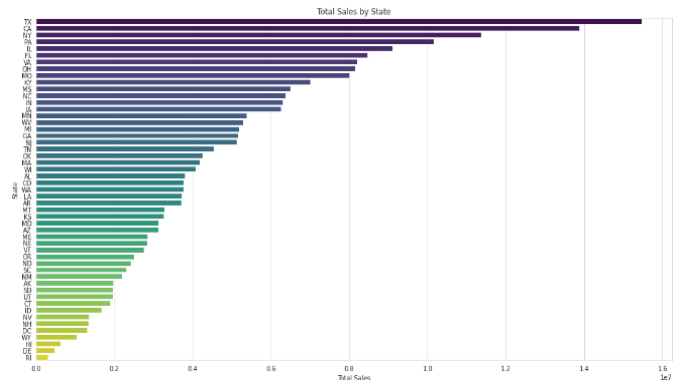
No clear relationship was observed between average discount and sale price per unit, indicating varied discounting strategies. High discounts were noted on a few items, which could be promotional strategies to drive traffic or clear stock.



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Geographical Sales Analysis (Query 11):

Texas and California showed the highest total sales, pointing to larger customer bases and higher spending power. Top-performing states offered insights into market penetration opportunities and expansion potentials.



Lessons Learned

Data-Driven Decision Making: Leveraging data analytics is crucial for understanding customer behaviours and optimizing business strategies.

Strategic Marketing: Customized marketing strategies based on demographics and purchasing patterns can enhance customer engagement.

Inventory Management: Understanding sales trends aids in efficient inventory management and product offering adjustments.

Customer Value: Maintaining relationships with high-value customers is vital for sustained business growth.

Market Adaptability: Adapting to geographical trends and regional preferences is key to market expansion and penetration.