E-COMMERCE SALES ANALYSIS

By: Shahana Anjum

Intern at Oeson Learning

Mentor: Aritri Debnath

Profile:
Shahana Anjum

Data Analyst Intern at Oeson Learning

Bachelor's degree in Computer Engineering

Skills:

- SQL
- Python
- Data visualisation
- Tableau
- Problem solving

Content

- Introduction
- Dataset Description
- Data Analysis and Insights
  - Month wise Sales and Profit
  - Month and Region Wise Profit
  - Average Sales of each Product
  - Regional Average Profit by Product Category
  - Highest and Lowest Performing Products
- Conclusion

INTRODUCTION

- Project overview:
  - Analysing and visualising the E-commerce sales data to support business requirement.
  - Analysing sales trends and patterns for various products across different regions.
- Scope of analysis
  - Analysing and uncovering insights for different products sold and profit in different regions.
  - Analysing top 3 highest performing and bottom 3 lowest performing products.
  - Evaluating the sales and profit margin month wise.
  - Performing statistical analysis and generating the results in the form of charts or grsphs.
- Tools
  - Advanced Excel

Data Description

- Data Abstract:
  - The size of the file is 13 Mb and dataset has 51,291 records and 21 columns.
  - It covers E-commerce sales transaction, product details and order details in different regions covering for January- December 2015.

- Key Performance Indicator:
  - Order ID, Customer ID, Product Category, Region, Profit, Sales

- Data Cleaning:
  - Checking and removing duplicate values and null values
  - Formatting the cells to ensure consistency
  - Applying the icon set rule to show high and low sales.

Statistical Analysis

Statistics	Sales	Profit
Mean	$ 156.4	$ 72.7
Median	$ 159.0	$ 67.0
Mode	$ 228.0	$ 17.0
Min	$ 33.0	$ 0.5
Max	$ 250.0	$ 167.5
Standard deviation	$ 65.8	$ 49.1
Variance	$ 4,327.2	$ 2,410.7
Correlation	0.999	

► Statistical analysis shows the mean, median, mode, min, max, standard deviation, variance and correlation for the sales and profit.

► The correlation between sales and profit is 0.99. a very strong positive correlation, means profit will increase with increase in sales.

Data Analysis and Insights

Month wise Sales and Profit
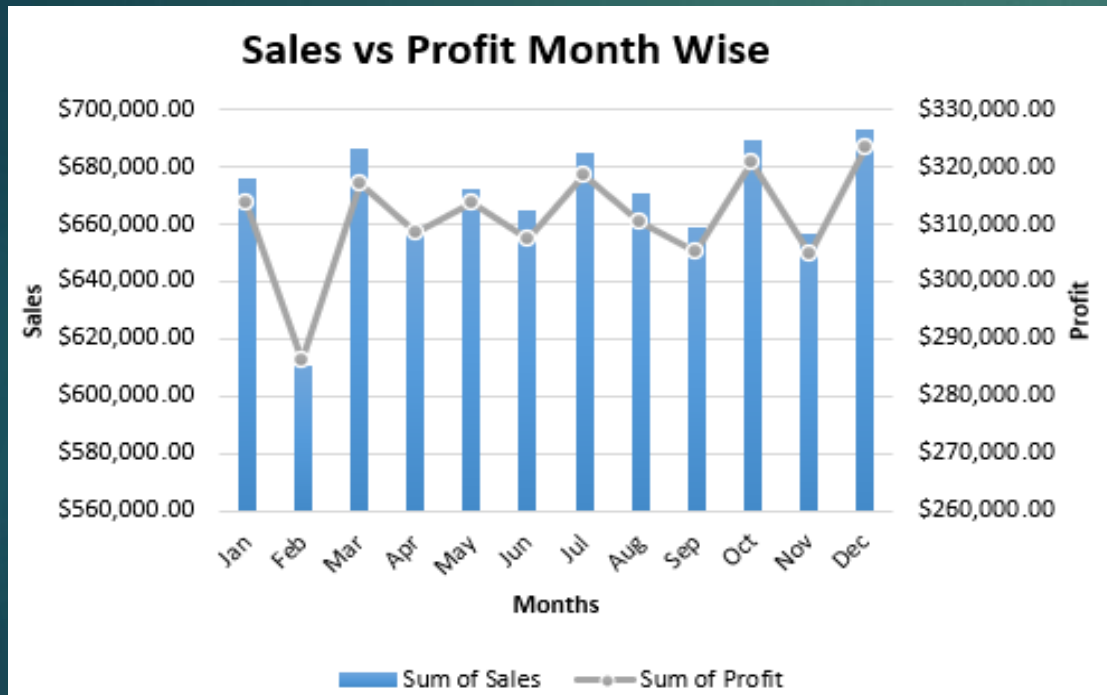
- Insight:
  - The highest sale are in Jan, Mar, Jul, Oct and Dec.
  - The lowest sales in the month of Feb, and follows in Apr, Sept and Nov.
  - The profit is high when the sales are increased.
- Recommendations
  - Running discounts, which will attract customers which can increase the sales.
  - Target the one-time buyer customers and give suggestion or give multibuy discounts.

Data Analysis and Insights
Month and Region Wise Profit
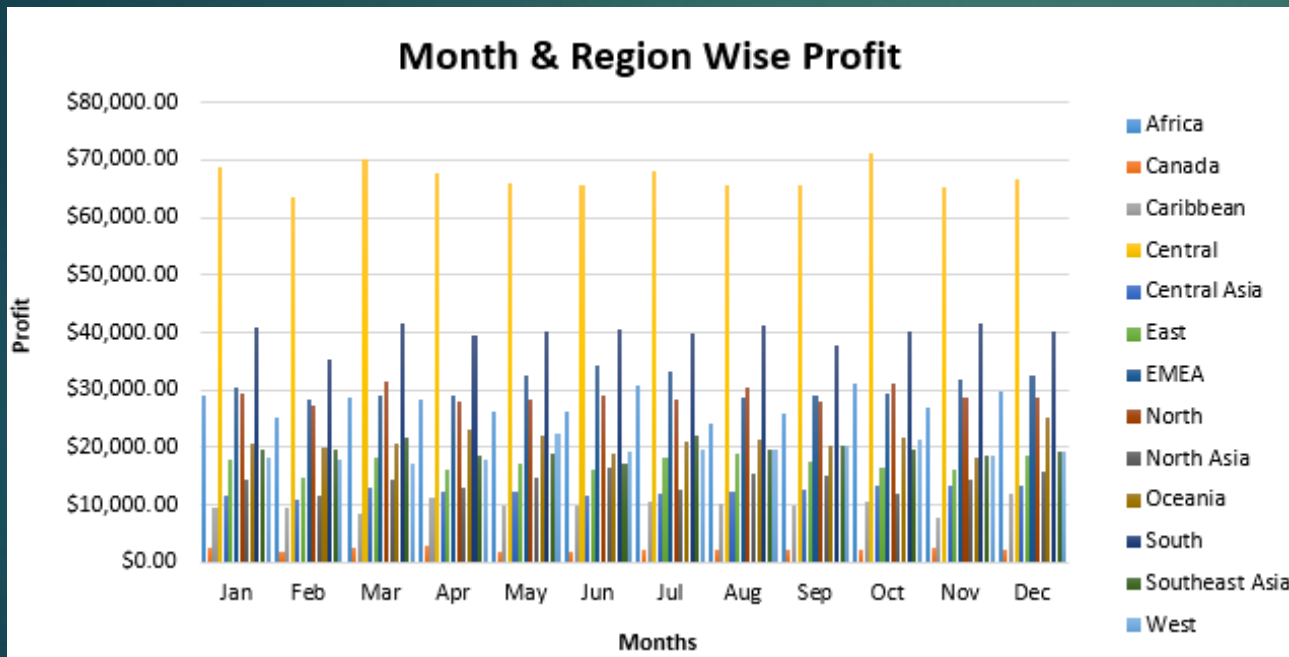
- Insight:
  - The insight shows that the Central region has highest profit of around $70k.
  - The Canada region has lowest profit less than $5k.
  - Rest of region generates profit between $10k-$40k.
- Recommendations
  - Target the low profit region and improve the infrastructure developments.
  - Improve the shipping infrastructure, increase the warehouses and increase the manpower.

Data Analysis and Insights

Product vs Average Sales

Product vs Average Sales
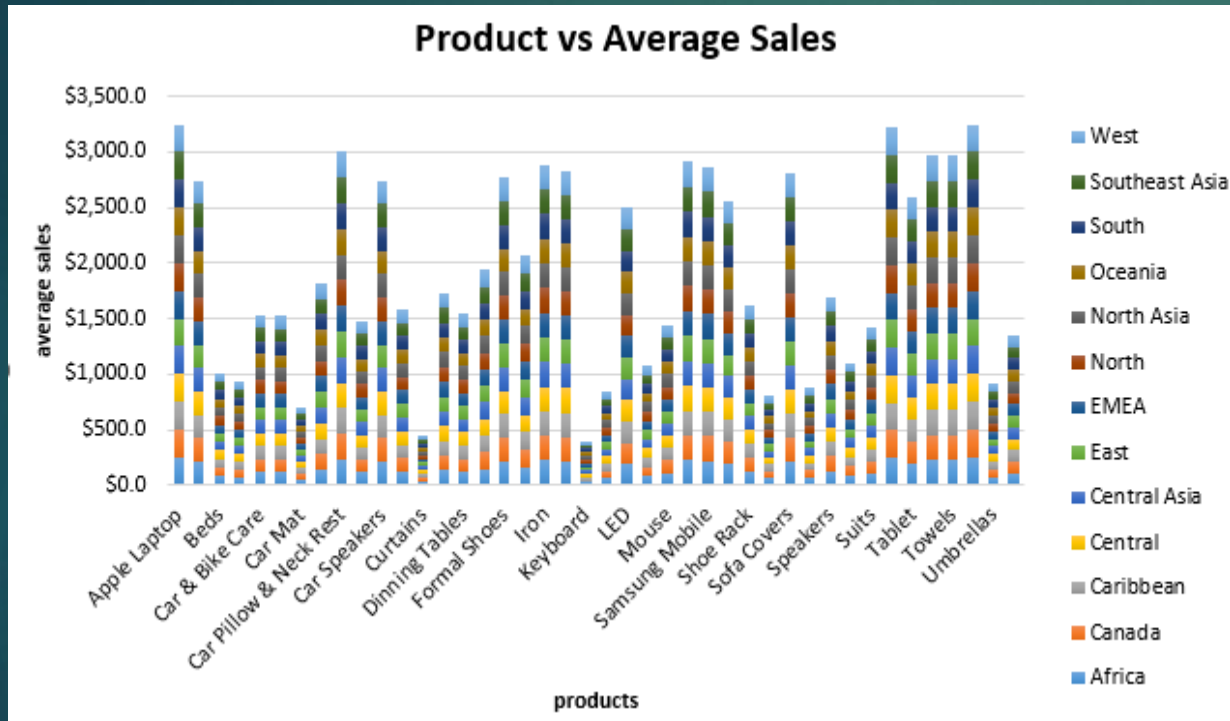
▶ Insight:
  ▶ The highest selling products are Apple laptop, T-shirt and Tyre. The average sale is above $3k.
  ▶ The lowest selling products are keyboard and curtains. The average sale is below $0.5k.

▶ Recommendations
  ▶ Running discounts on low selling products.
  ▶ Improving the warehouses and availability of products in the low sale region can improve the product sale.

Data Analysis and Insights
Regional Average Profit by Product Category


Regional Average Profit by Product Category
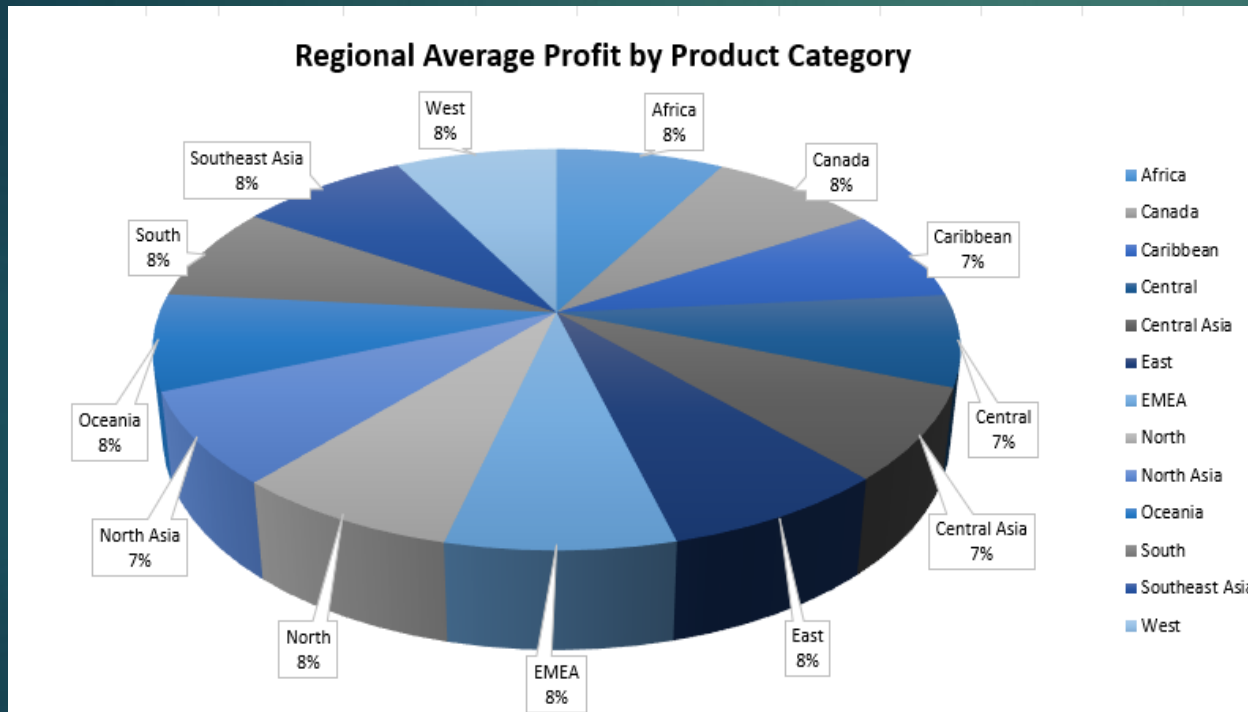
- Insight:
  - Most regions have similar average profits, with many at 8%.
  - Only a few regions (Caribbean, Central, North Asia, and Central Asia) are slightly lower at 7%.
- Recommendations
  - Consider localized marketing strategies to boost product adoption.
  - Adjust pricing, promotions, or product mix to better suit these markets in lower profit area.

Data Analysis and Insights

Highest and Lowest Performing Products
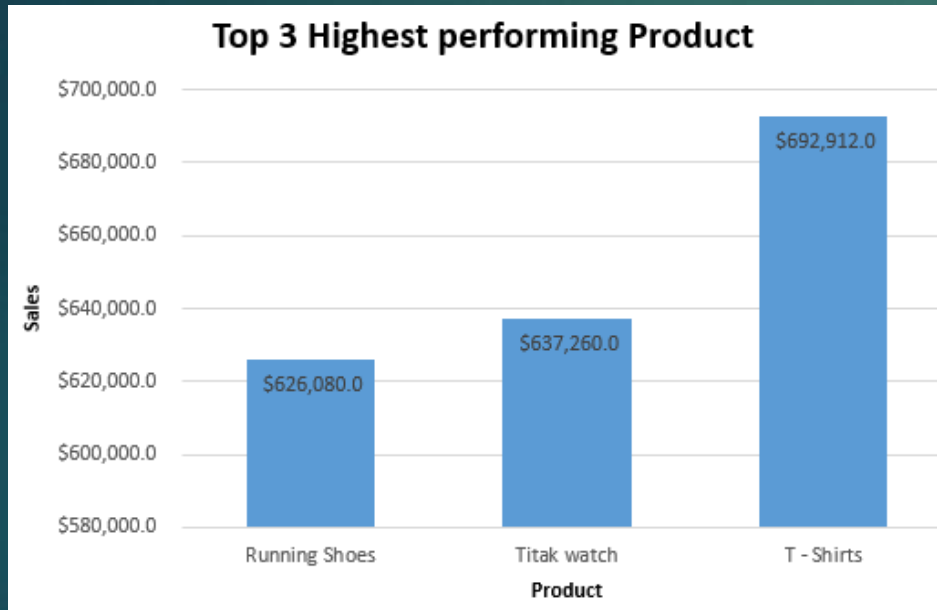
▶ The insight shows that the highest performing products are T-Shirt, Titak Watch and Running Shoes. These products generating sales of over $600k.
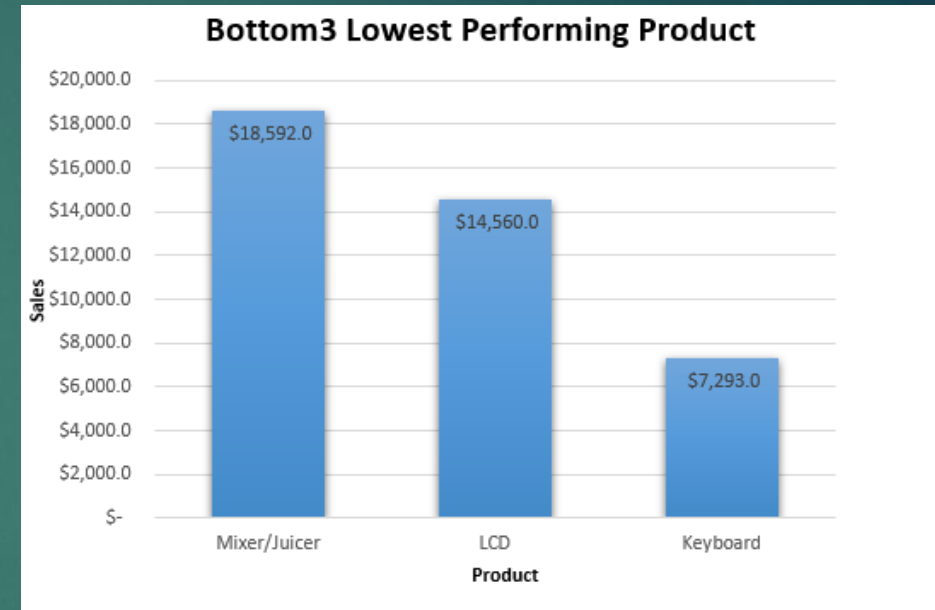
▶ The insight shows that the lowest performing products are Keyboard, LCD and Mixer/Juicer. These products generating sales of below $19k.

Dashboard
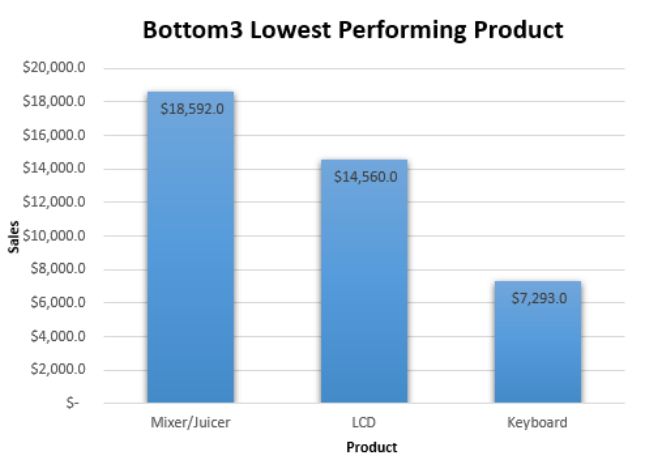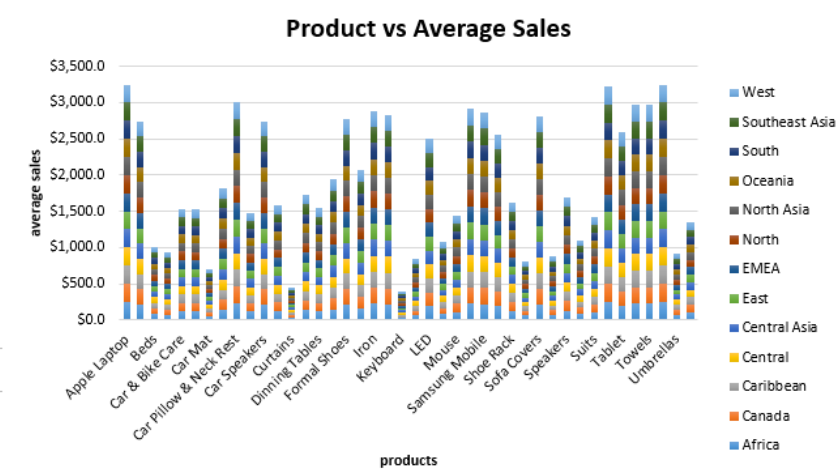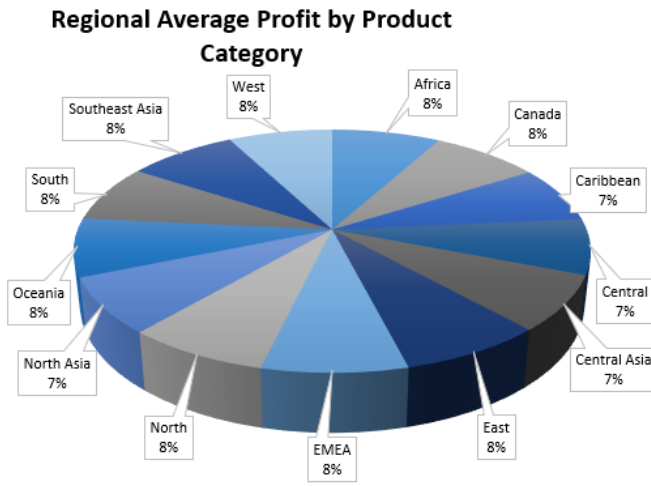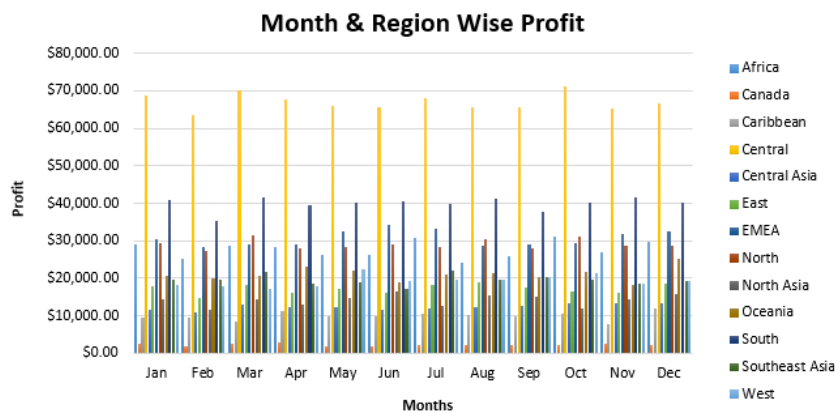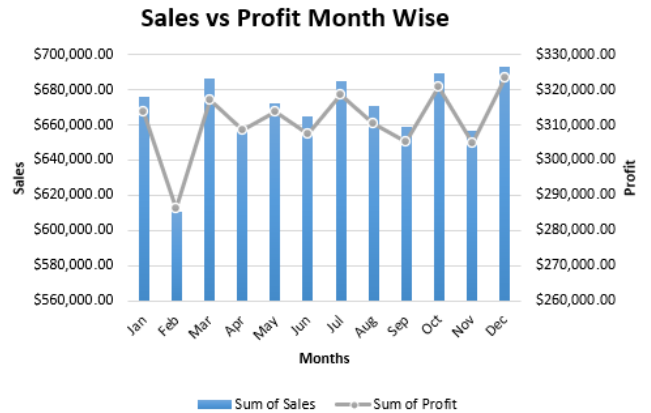
Conclusion

- E-commerce sales analysis has been carried out. The trends and pattern were analysed using statistical analysis, graphs and charts.

- This shows that:

  - Highest selling products are T-shirt, Tiktak and running shoes, whereas the lowest selling products are Keyboard, Mixer/Juicer and LCD.

  - The sells were highest in the months of Jan, Dec and lowest in Feb. recommended to improves the manpower, infrastructures and running discounts will improve the sales and profit.

  - The sales and profit are strongly correlated

  - The central region has highest sales and profit whereas Canada has lowest sales. By improving manpower, developing the infrastructures can increase the sales in low profit region.

Thank you

Shahana Anjum

Sha.anjum57@outlook.com

www.linkedin.com/in/shahana-anjum-b61497169