



# *E-Commerce Sales Analysis*

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# Profile

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# *Introduction*



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## **Project Objective:**

To analyze the E-Commerce Sales Dataset to provide actionable insights into increasing profitability and decreasing losses, to improve customer satisfaction through understanding trends within data.

## **Scope of Analysis:**

- Evaluating sales performance throughout the year and different regions for product categories and products.
- Finding the top and bottom performers in the product categories and thus products.
- Evaluating profits in different regions throughout the year.
- Performing statistical analysis to find the mean, median, mode and many other functions.



# *Dataset Summary*

The Dataset contains data regarding the sales and profit for different products and product categories in different regions.

- File Size = 5.6 MB
- Dataset contains 51290 Rows and 21 Columns
- Timeframe for Dataset is one year starting from 01 January 2015 to 31 December 2015
- Contains Sales Data for the following Regions: Africa, Canada, Caribbean, Central, Central Asia, East, EMEA, North, North Asia, Oceania, South, Southeast Asia and the West.
- Key Columns Include: Order ID, Order Date, Ship Date, Aging, Ship Mode, Product Category, Product, Sales, Quantity, Discount, Profit, Shipping Cost, Order Priority, Customer ID, Customer Name, Segment, City, State, Country, Region and Months.



# Sales and Profit per Month

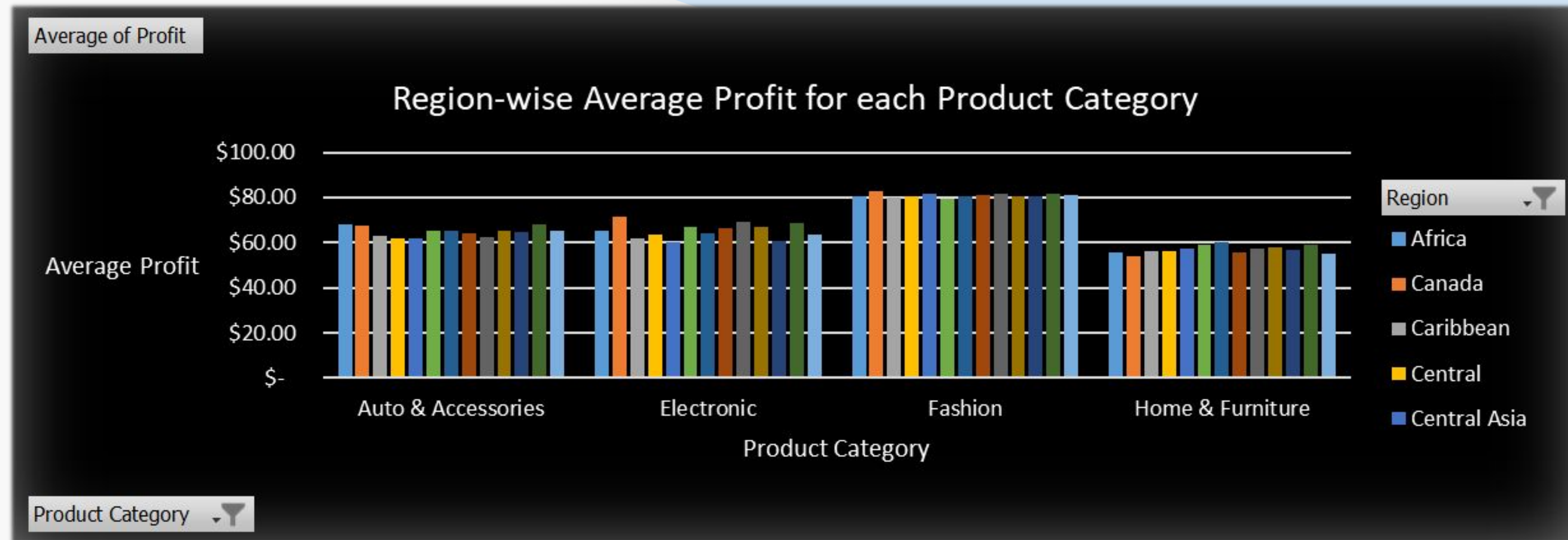


- The total sales made for the year 2015 was \$ 8,023,381.00 and total profit was \$ 3,729,902.95
- February recorded the lowest total sales and total profits at \$ 610,240.00 and \$ 286,102.62 respectively while December recorded the highest total sales and total profits at \$ 693,073.00 and \$ 323,401.92 respectively.
- As per the combo chart depicting total sales and total profits per month, fluctuations are seen throughout the year.



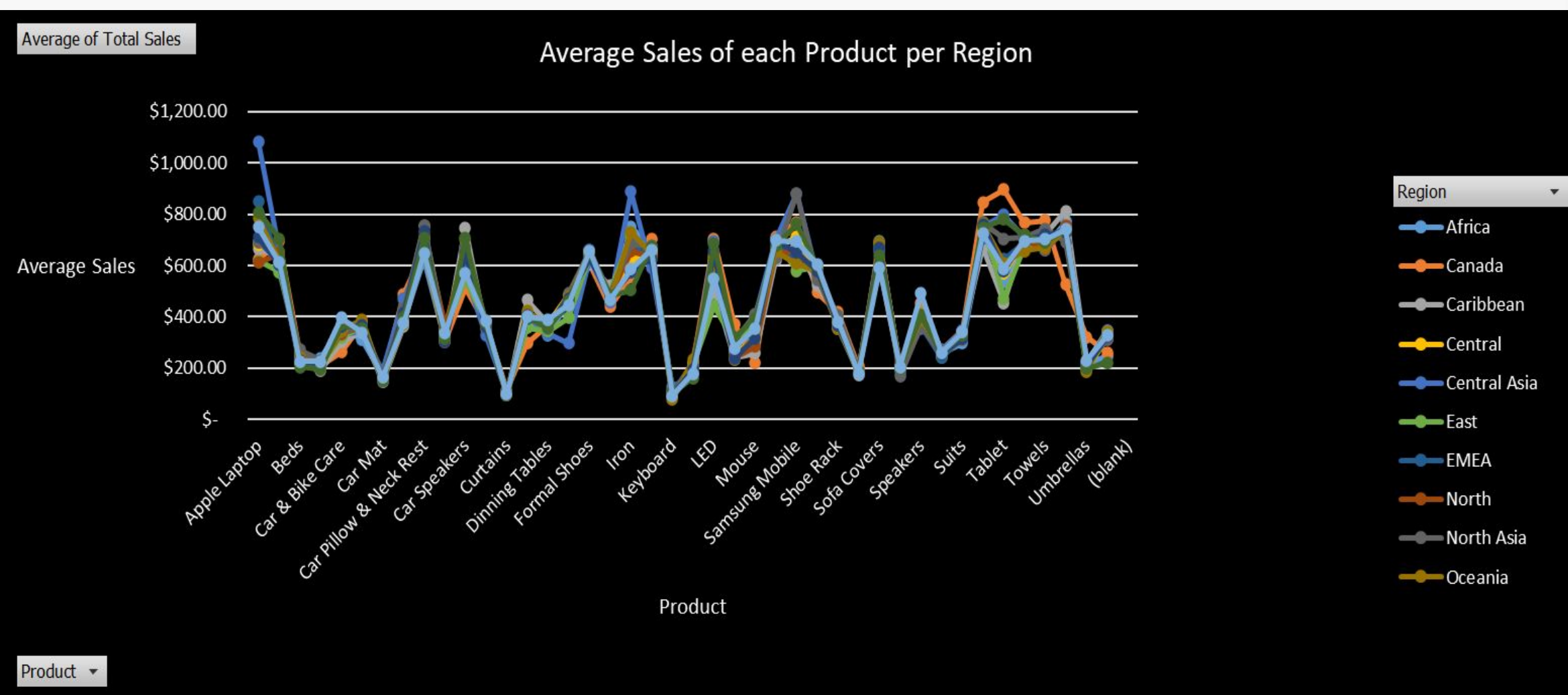


# Average Profit for Product Categories per Region



- Canada has the highest average profit for the product category in Fashion at \$ 82.67 and lowest average profit for Home and Furniture at \$ 54.18.
- As per the bar chart above, Fashion has the highest average profits for all regions while Home and Furniture is the product category with the lowest average profits for all regions.
- Average profits across product categories like Fashion and Home & Furniture remain relatively stable across all regions. However, we observe more fluctuations in profits for Auto & Accessories, and even greater fluctuations for Electronics across the regions.

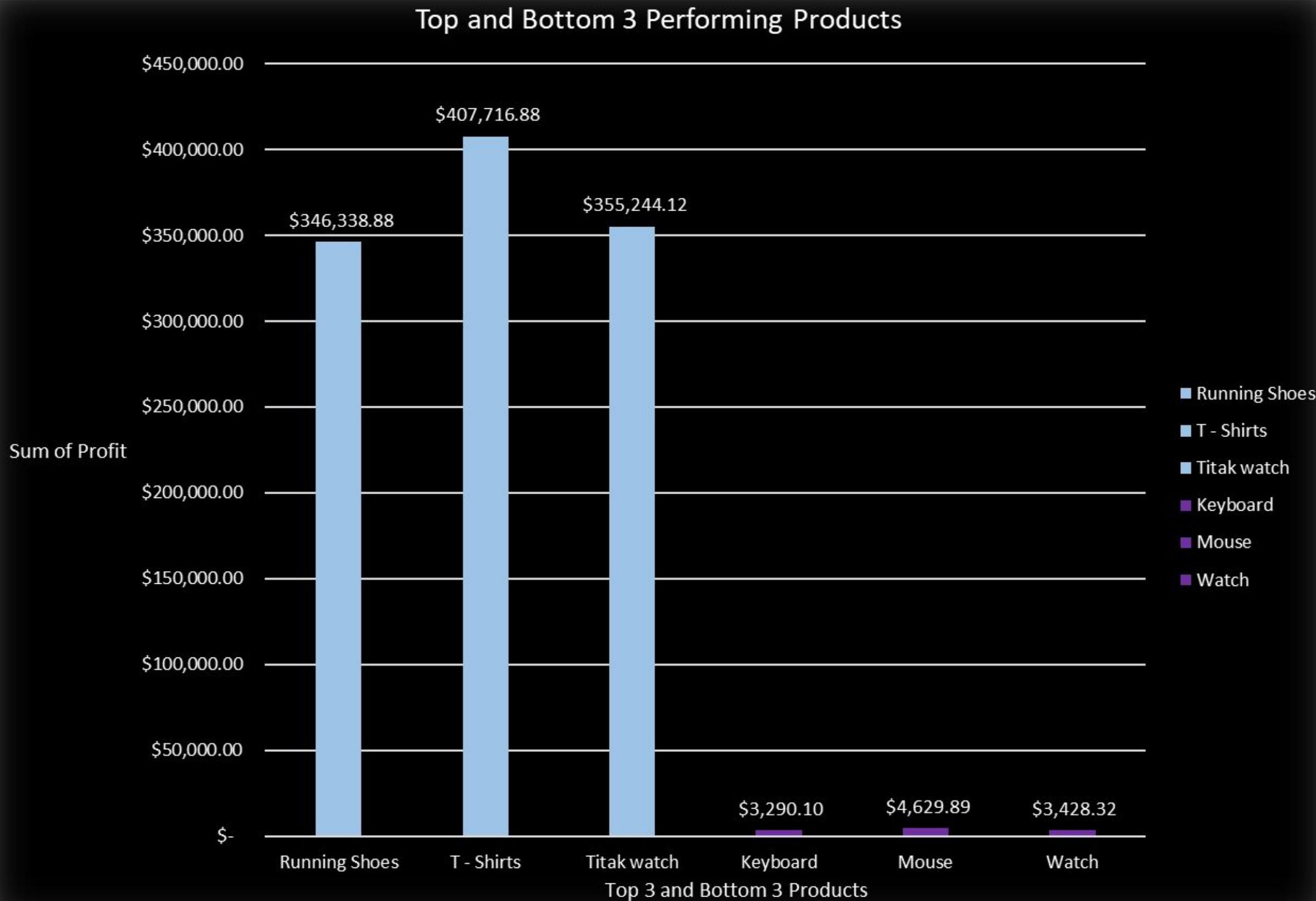
# Average Sales of Products per Region



- The average sales of each product fluctuates significantly in different regions.
- Keyboards in Oceania have the lowest average sales at \$ 78.83, while Apple Laptops have the highest average sales at \$ 1083.33 in Central Asia.
- Total Average Sales for all products per Region varies from \$ 454.69 in the Caribbean to \$ 488.35 in the Southeast Region.

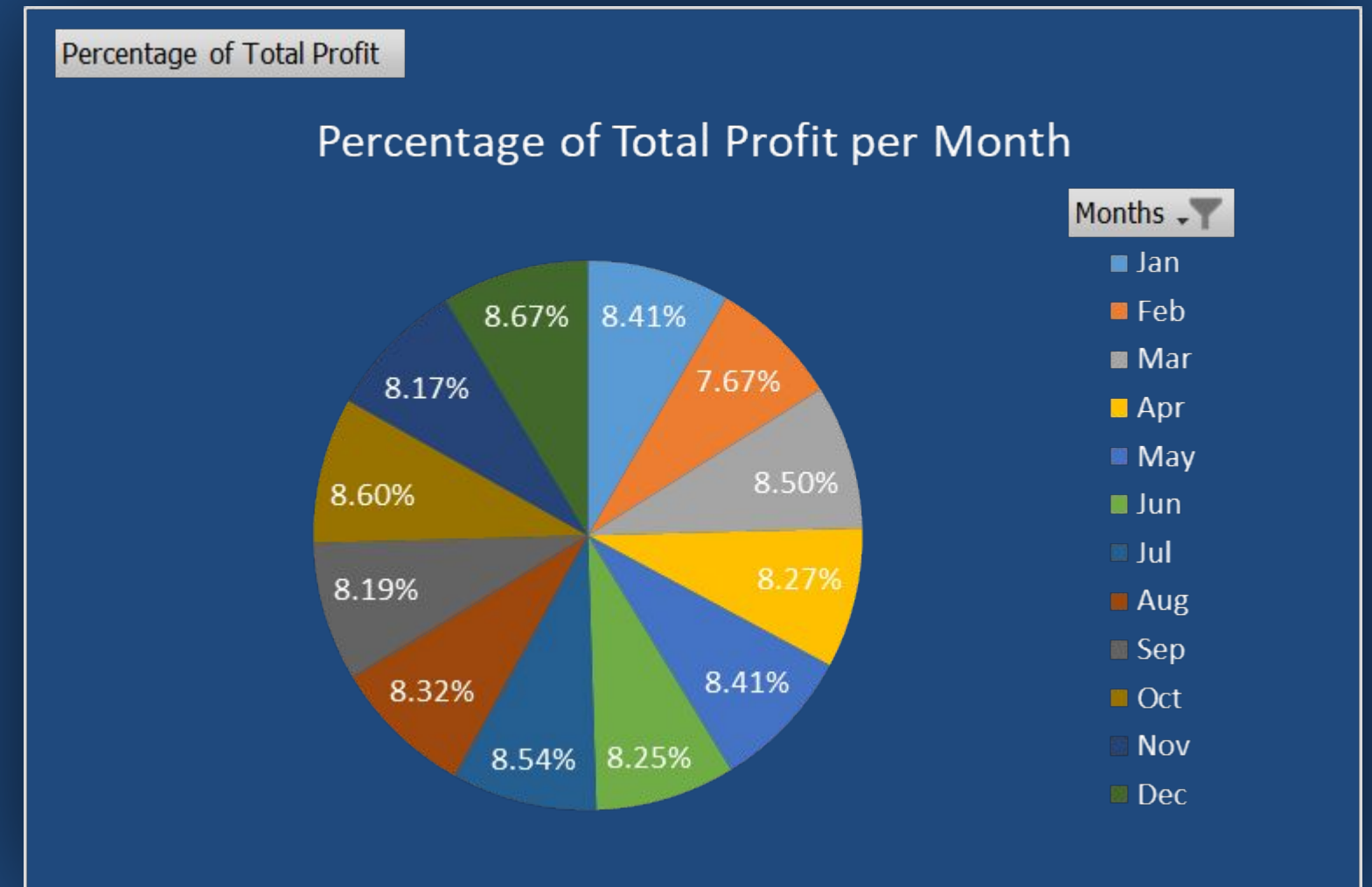
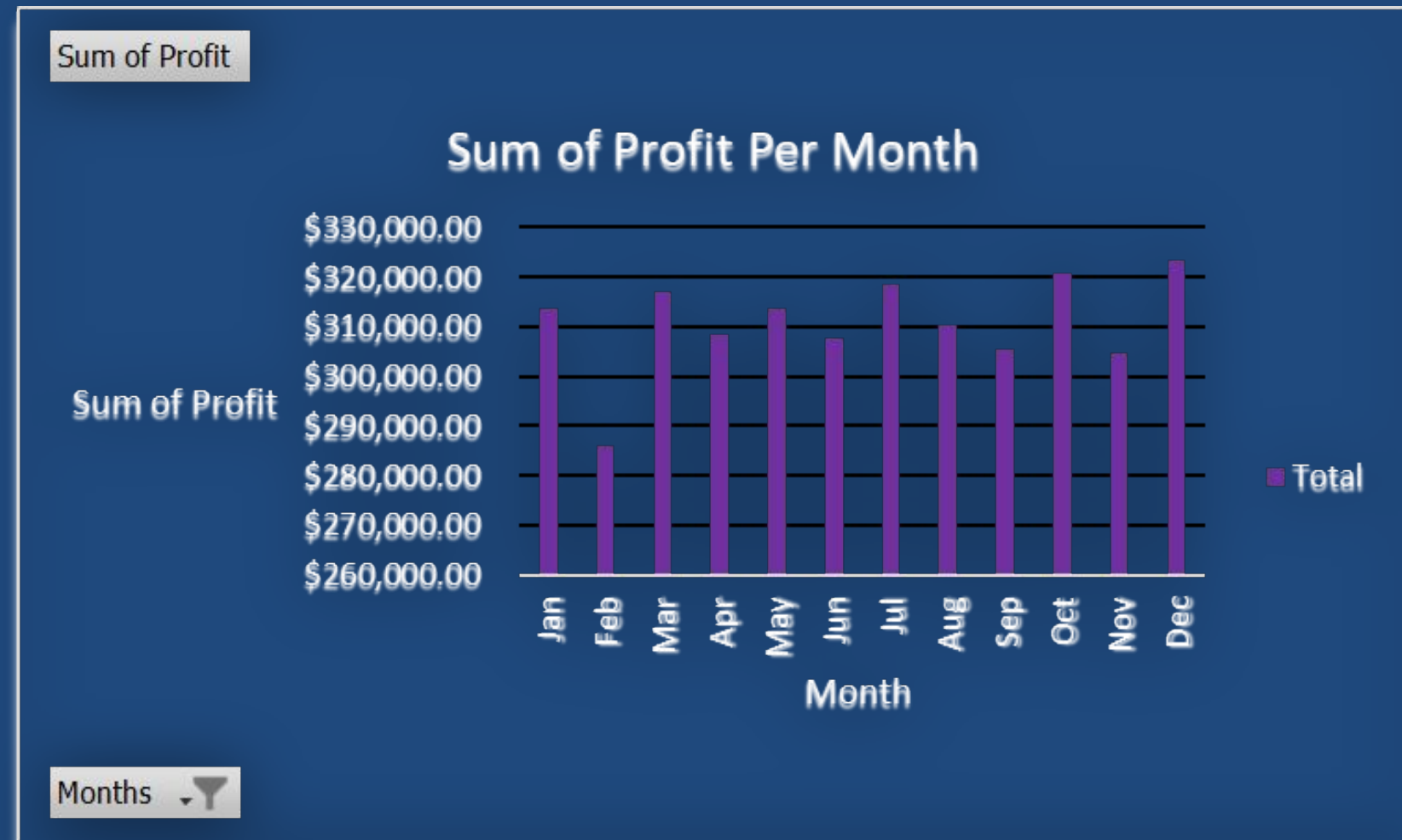


# Top and Bottom Performing Products



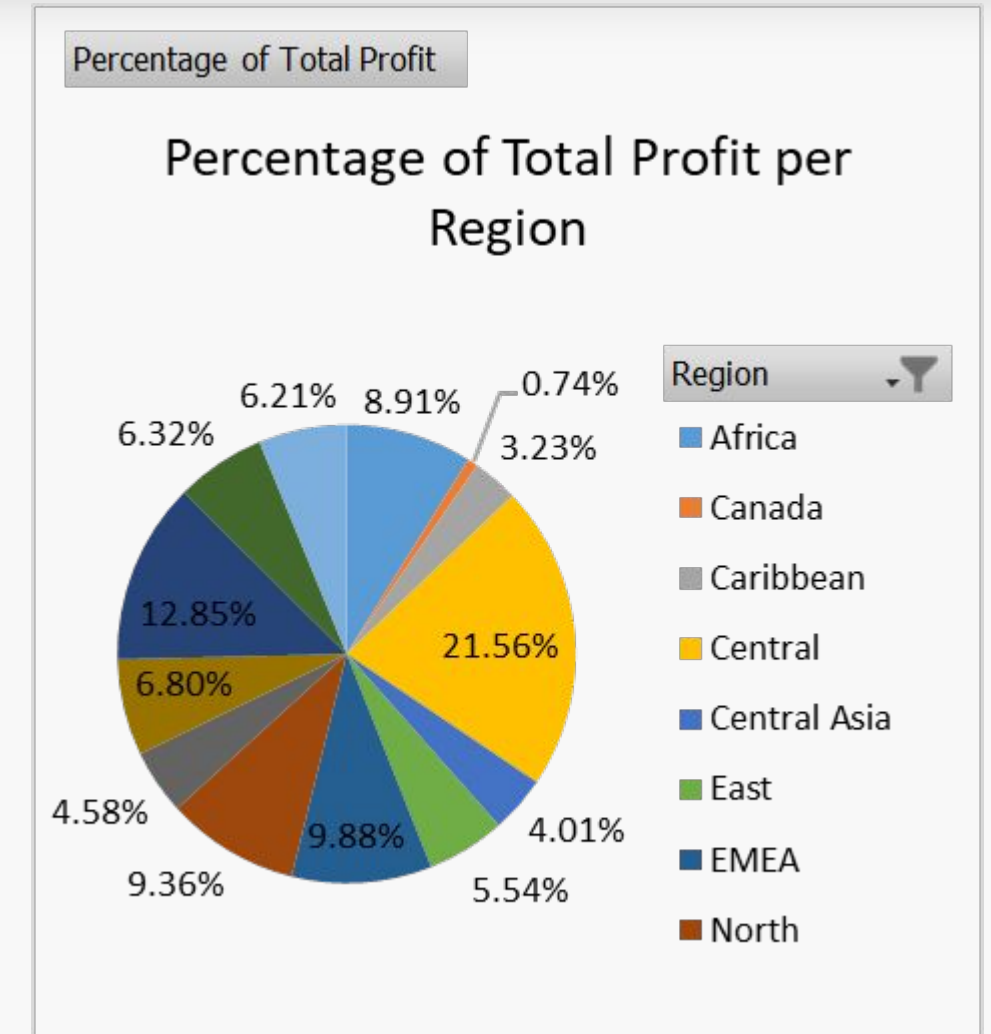
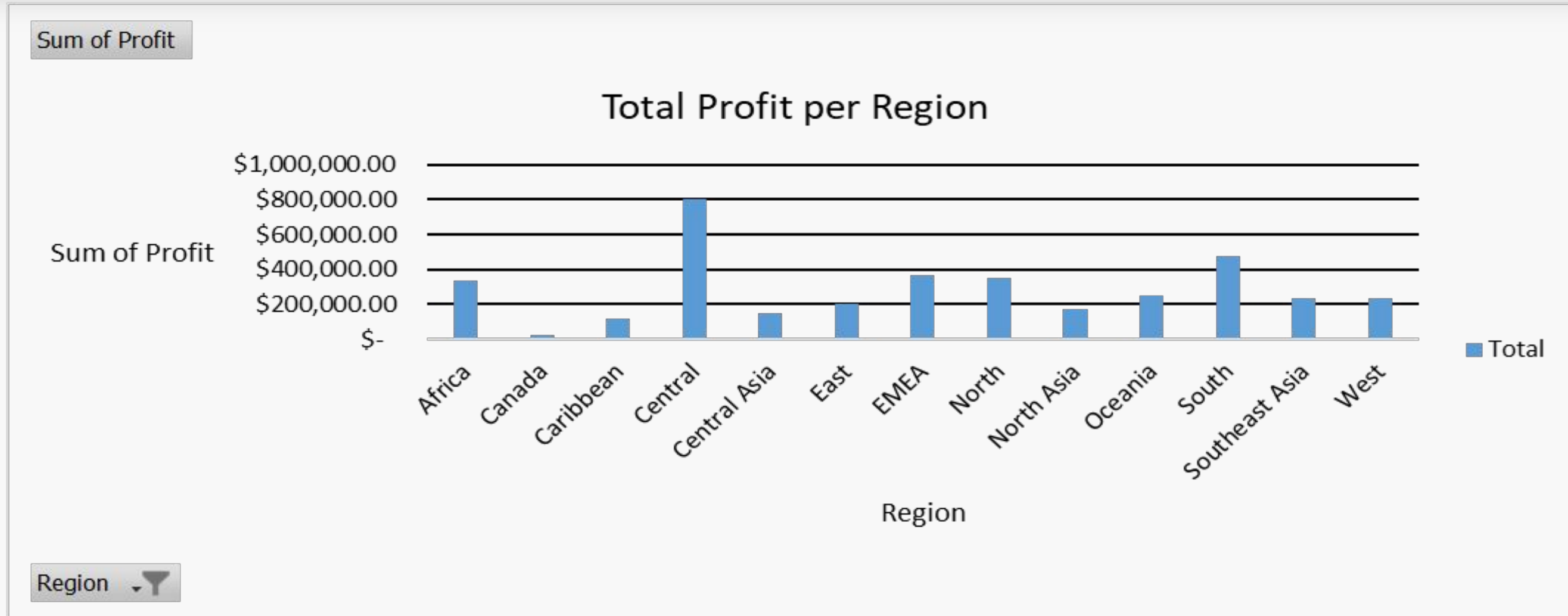
- T-Shirts are the best performing products, bringing in a total of \$ 407,716.88 in profits, followed by Tiktak watches and Running Shoes.
- Keyboards perform the lowest in terms of total profits, followed by watches and lastly, Mouses.

# Profit per Month



- The month of December has the highest total profits while February has the lowest.
- February amounts to 7.67% of total profits in the year, while December amounts to 8.67% of the total profits.

# Profit per Region



- The Central Region earns the highest total profits at \$ 804,172.61 while Canada earns the lowest total profits at \$ 27,782.31
- Canada amounts to 0.74% of the Total Profits earned worldwide while the Central Region earns 21.56 % of the total profits.
- The total profits earned fluctuates throughout the Regions.



# Statistical Analysis

Statistical Function	Sales	Profit
Mean	\$ 156.43	\$ 72.72
Median	\$ 159.00	\$ 67.00
Mode	\$ 228.00	\$ 17.00
Maximum	\$ 250.00	\$ 167.50
Minimum	\$ 33.00	\$ 0.51
Standard Deviation	65.78137371	49.0993276
Range	\$ 217.00	\$ 166.99
Correlation	0.921502133	

- The mean value for sales is \$ 156.43, median is \$159.00 and the mode (the most commonly occurring value) is \$228.00.
- The mean value for profit is \$ 72.72, median is \$67.00 and the mode (the most commonly occurring value) is \$17.00.
- The range for sales is \$ 217.00, with a maximum of \$250.00 and minimum of \$33.00.
- Profit has a maximum value of \$ 167.50 and minimum of \$ 0.51, thus a range of \$ 166.99.
- The standard deviation is relatively high for both sales and profits, indicating higher dispersion of values.
- The correlation between sales and profit is 0.9215, thus when sales is high profit is likely to be high as well.



# E Commerce Sales Dashboard

Total Sales :  
\$ 8,023,381.00

Total Profit :  
\$ 3729902.95

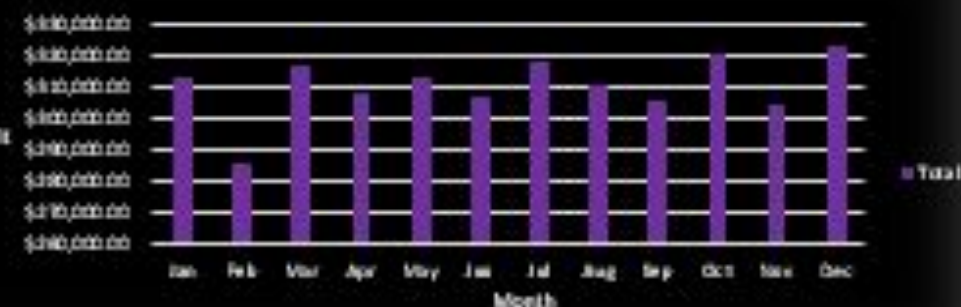
Most Profitable Month :  
December

Least Profitable Month :  
February

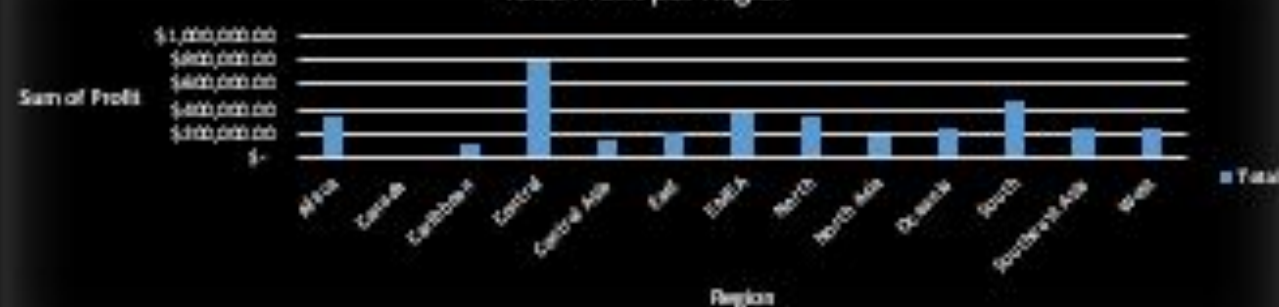
Maximum Profit :  
\$ 167.50

Minimum Profit :  
\$ 0.51

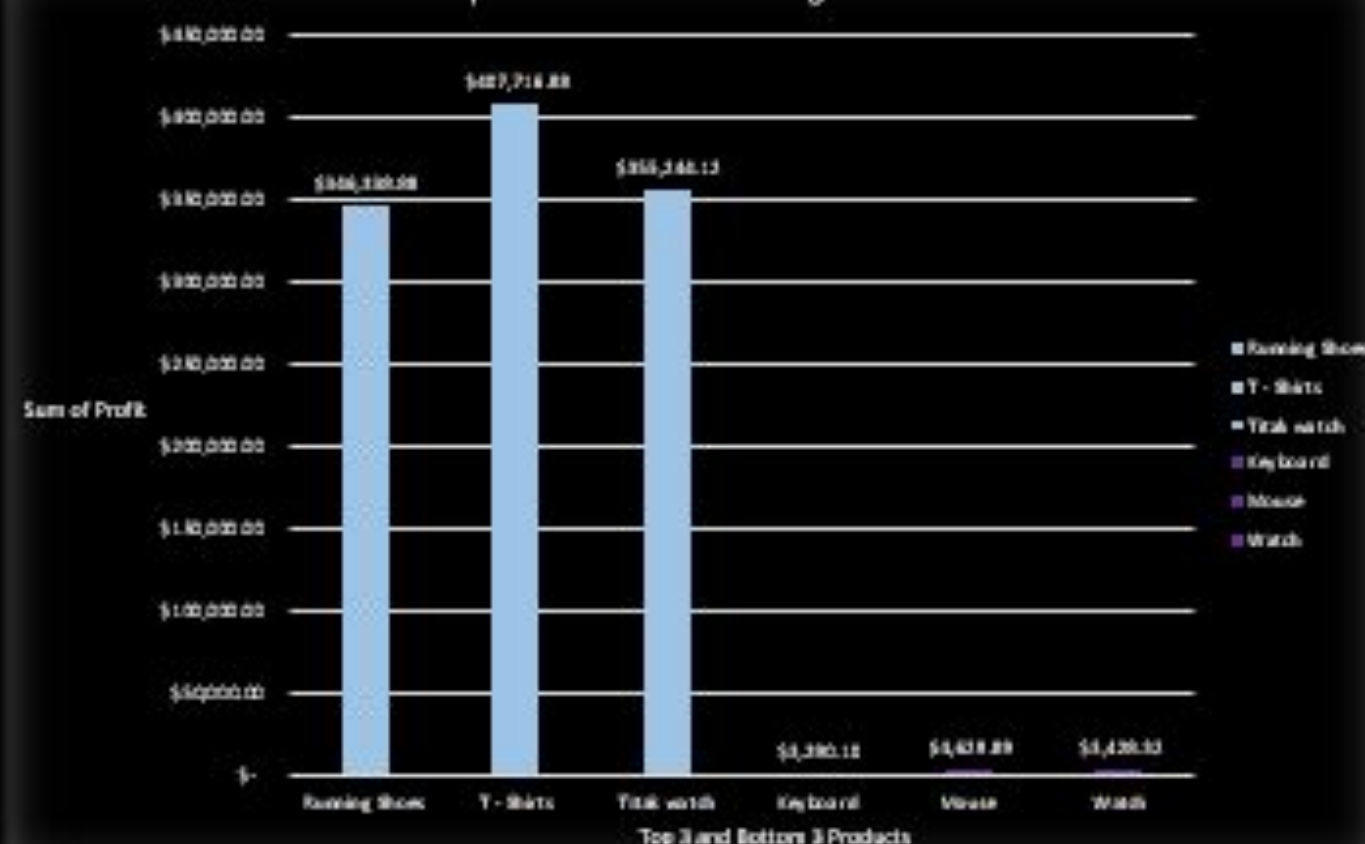
Sum of Profit Per Month



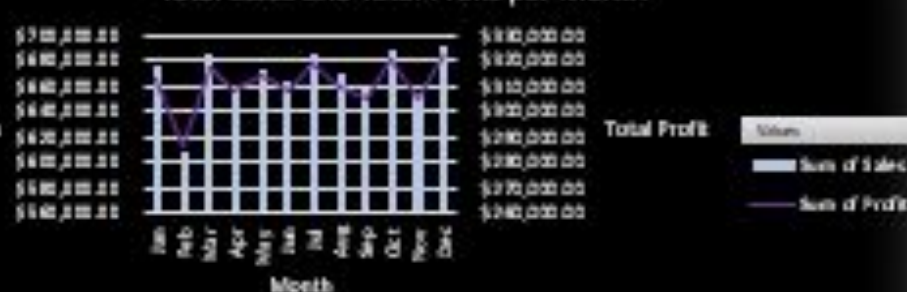
Total Profit per Region



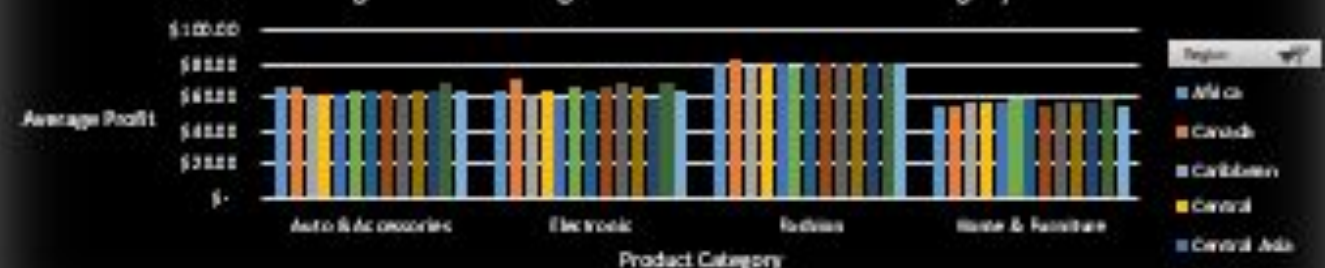
Top and Bottom 3 Performing Products



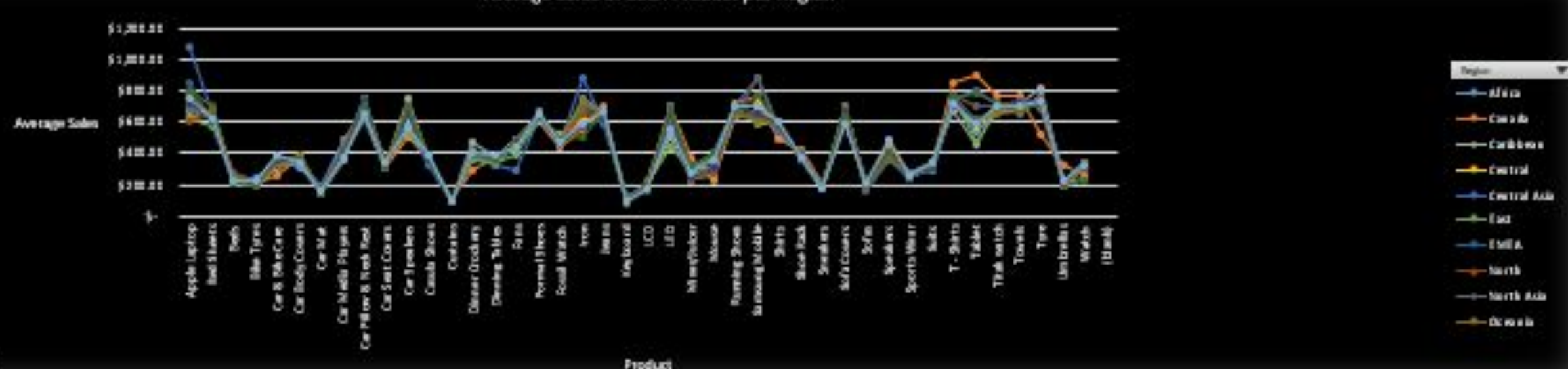
Total Sales and Total Profit per Month



Region-wise Average Profit for each Product Category



Average Sales of each Product per Region



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Correlation	0.921502133	

# Conclusion



The following presentation provides a thorough analysis of the E-Commerce Sales Data, with insights into the business performance showcasing what products and regions contribute to highest profits while also highlighting segments for improvement.

1. December is the month with the most sales and profits while February is the least.
2. Canada earns the least total profits while the Central region earns the most total profits when compared to the worldwide business.
3. Fashion as a product category performs the best though all regions while Home and Furniture performs the worst.
4. Apple Laptops as a product have the highest average sales in Asia, while Keyboards have the lowest in Oceania.
5. T-shirts, Tiktak watches and running shoes are the three best performing products with the highest total profits while, Keyboards, watches and mouses perform the worst.
6. The standard deviation is high for both sales and profits, indicating that values vary greatly.
7. The correlation between sales and profit is high and positively related at 0.9215, thus as sales increases, profit increases.







*Thank you*

