Introduction:

The e-commerce industry sells a diverse product line of grocery items and merchandise products, such as food, pharmaceuticals, apparel, games and toys, hobby items, furniture, and appliances. The analysis of such an industry is of great importance as it gives insights into the sales and profits of various products. In this analysis, we are going to review a US Superstore dataset and visualize many aspects of the e-commerce business such as finding regions that account for most orders, trends in profits and sales, products types and sub-types, losses and revenue etc. to gain better insights in the business. This analysis will be helpful for business leaders to make optimum decision to boost their business.

Dataset:

The dataset we are using in this analysis contains data on various sales operation of a US superstore. The dataset has 9994 observations on 21 different variables. Each row in the dataset represents an order completed by Superstore. There are no missing values found in the dataset. This makes this data an ideal candidate to understand functioning of an e-commerce business.

Tools:

IBM Watson Studio, IBM Cognos Analytics

Objective:

Our objective is to build an interactive dashboard using IBM Cognos Analytics that can quickly represent various insights about our e-commerce business and help us take measures to grow the venture. We are going to use powerful visualization features of IBM Cognos Analytics for this purpose.

Results:

1. **Finding Regions that account for greater number of orders:**

   Using IBM Cognos Analytics, we found that the total sale of the store is 2.3 million dollars. The profit made by store is 286 thousand dollars. The total quantity sold is 37,873. We represented Orders by Regions and found that the west region account for the most order (3203 orders). Followed by east region which accounts for total 2848 orders. While central region accounts for 2323 and south region accounts for 1620 orders.

2. **Frequency distribution of quantity ordered:**

   Using IBM Cognos Analytics, we built a frequency distribution of quantity ordered. The visualizations showed that the highest frequency for orders is 3 followed by 2. This distribution helps us to identify the most common number of quantities ordered in an

order.

3. **Percentage Sales by different product categories:**

   Using a pie charts and bar plot, we represented percentage sales by different categories and their subcategories. We found that the technology category accounts for most sales, around 36.4 percentage of total sale. Pie chart helps us in breaking down further and look for subcategories that account for most sale.

4. **Profitable products and their sub-products:**

   Similar to previous analysis, we used pie charts to show profitable products and their sub-products. Charts showed that the most profitable product category is ‘technology’ while least profitable product category is ‘furniture’. Again, pie charts helped us in identifying profits for various sub-categories of products.

5. **Products that incurred losses:**

   Using a table, we focus on products that incurred losses to Superstore. The Bar plot showed that the losses occurred in two sub-categories: bookcases and supplies. The table helped us to identify individual products that incurred losses.

6. **Product type that was greater times:**

   We used a table to specify total quantities ordered under each sub-category and the bar plot showed that the Binders accounts for the most orders and was ordered 1523 times.

7. **Yearly Sales for various states:**

   We used a stacked bar chart to represent sales for various states differentiated by years. The most sales incurred in California, followed by New York. Different colors represent different years. This stacked chart is beneficial to look at yearly sales for any state quickly.

8. **Forecasting future sales:**

   Using a linear trend line, we represented the trend in sales with respect to the shipping date. IBM Cognos Analytics has a powerful feature ‘forecast’ which helps us to forecast future trends in various parameter. We used this feature to forecast future sales by shipping date.

9. **Trend in Profits/Sales overtime:**

Similar to the last analysis, we used linear trends to capture trends in Profits/Sales over years, months and quarters. Trends showed that over the years, the store's profits and sales have gone up. Also, trends in months and quarters show similar results.

Conclusion:

IBM Cognos Analytics is a powerful tool to make interactive dashboards and reports to present insights to various aspects of our data quickly. We used this tool to analyze the business of a US Superstore to gain insights about an e-commerce business. We built various visualizations to understand the functioning of the businesses. This dashboard can help identify various aspects of the shopping pattern and suggestive measures to boost the profits and sales of e-commerce business.