Analysis Tool For Ecommerce businesses

1. INTRODUCTION

1.1 Overview

The data is being collected from a US superstore, which includes details such as sales, shipping date, product, region, etc. Data is being analyzed using IBM tools. Wherever essential, data handling like filtering, adding an extra column, etc is done. Availing this data analysis, various conclusions are drawn. Some of them are the region that is accountable for maximum orders, profitable products, yearly sales, etc which will be utilized by the business to converge and direct his/her resources accordingly.

1.2 Purpose

The dashboard will help E-Commerce companies to stay competitive in their niche markets. With these important insights, line of work can discover bottlenecks in their selling processes and understand shopping patterns which in turn provide an opportunity to refine strategies. It will surely help them to direct their efforts into streams and over time according to the trends of their sales, it would be revolutionizing for businesses to reach higher levels.

2. <u>LITERATURE SURVEY</u>

2.1 Existing problem Existing approaches or methods to solve this problem

With the increase in consumer demand, the E-commerce space has boomed. This also leads to an increase in fierce competition in today's online marketplace.
This gives rise to many problems like:

- Often customer reviews and demand are not taken into consideration. Only a contact provided, saying customer care support is not able to handle hundreds of queries simultaneously. So this problem must be handled in effect.
  Considering user-friendly experience, AI-based chatbot services have been used as a solution for this.

- There is poor knowledge about which product and up to what extent a product must be publicized to minimize loss.
  Business analysis is the only way to help this out.

- For analysis, one needs to study a huge amount of past data. Some businesses and organizations don't have the resources to methodically collect every piece of useful data that they will need. It is quite impossible to do this manually.
  So in recent years Big Data Analytics is being used to solve this problem. But extracting useful information from this Big Data is also considered challenging.

- Many businesses rely on comparative pricing with competitors and benchmark the value of their own product or service to come up with the best pricing strategy. The issue with this manual approach is that it becomes unmanageable for larger E-Commerce businesses that stock thousands of items.

  The perfect solution is to have each product its strategy considering its utility. This definitely helps to reap the rewards of better customer experiences and bigger profits.

2.2 Proposed solution

In a fast-evolving world, even though sitting at home we are experiencing a cloud revolution in the business sector. When a business is established online, the owners feel overwhelmed with the things they have to manage with the functioning and customer needs. They find it hard to get time to have an analysis of their business online. We propose to use emerging technologies as a solution for existing problems in the E-commerce industry.

In our project, we took a dataset from Kaggle. We used features of Data Exploration and Dashboard present in IBM Cognos. We plotted 13 graphs and 2 cards to provide insight to the user as well as the company. These graphs will help the company to understand their past sales, how much profit/loss they had incurred, which product was best sold, etc. They can also analyze if there is any product that suffered losses. So probably they could discover the reason as well as devise strategies like offering a discount to make up for their losses. Also, we have done forecasting which would provide them with foresight for upcoming trends and manage their resources and labor accordingly. Yearly sales for various states would

help them to channelize their online marketing in the right direction and region.

Also, they can use this analysis as a feed for intelligent recommender to recommend new products for online shoppers based on their personal buying patterns, the company's best-sold product, and other data insights. In a nutshell, it will help them to make their business more aligned with customer needs.

3. THEORETICAL ANALYSIS

3.1 Block diagram
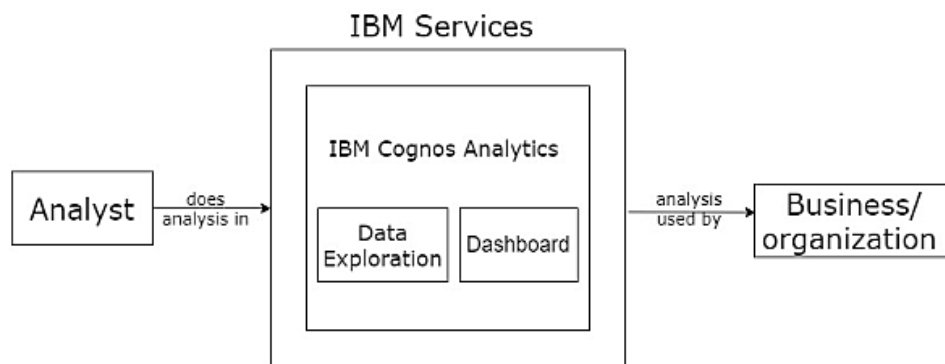
3.2 Hardware and Software requirements of the project

There is no hardware requirement as such.

Considering software requirements, we used:

Dataset: The data is collected from a US superstore available on Kaggle.

IBM Cognos Analytics: To integrate analysis and dashboards.

Here, we used data exploration for manipulating data, forecasting and used a dashboard to monitor and envision the graphs and trends.

4. EXPERIMENTAL INVESTIGATIONS

Doing business and getting satisfied by sales/profit only is not sufficient.Thorough analysis of each and everything is of utmost importance when it comes to E-Commerce. Execution of a Business and monitoring the different revenue channels is crucial to maintain financial sheets and as well as have a good hand on our business.We observed the organizations who do not opt for continuous analysis undergo decline in their later stages. This happens due to various reasons. Some of them are marketing wrong product on large scale, imbalanced stock, inadequate knowledge while deciding further strategies. On the other hand, the one who opts for analysis beforehand not only maximize their current business but also predict their forthcoming and gear themselves accordingly.

We also found out that this analysis could be effectively used to attract the mob. Customers are exceptionally important because they drive revenues; without them, businesses cannot continue to exist. User- friendly UI for website increases customer' s stay time on website and he/she tends to browse through wide range of catalog for their shopping.

Also, customer reviews help other customers to understand the business and their products. They tend to patternize their shopping accordingly. Also, having AI based chatbots (to handle customer queries) and recommender systems. This increase user interaction and gives boost to E-Commerce industries.

Apart from all these technical things, we understood the importance of time, meeting deadlines and consistent working.

In essence, improvement in spheres of marketing, analyzing past sales, content especially, customer service contribute major in our experimental investigation.

5. __FLOWCHART__
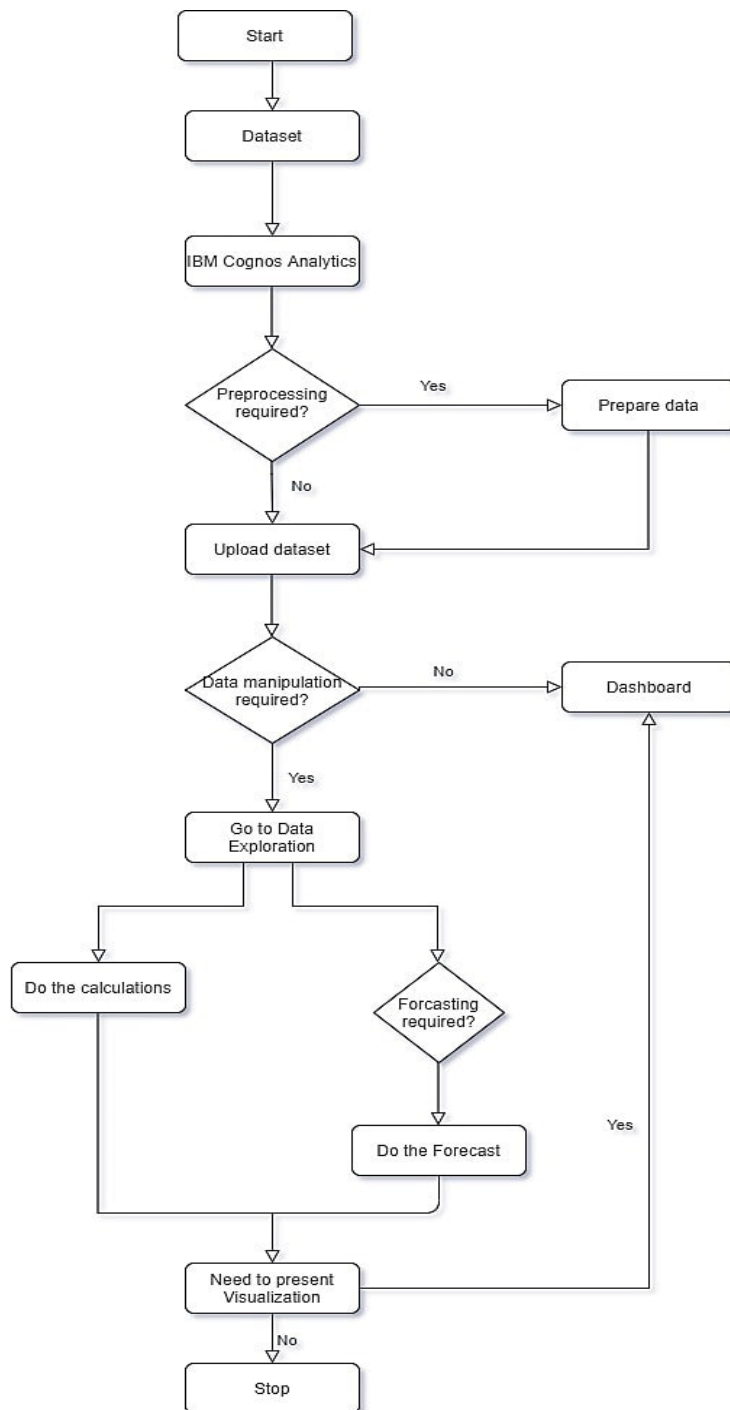
6. RESULT

Dashboardlink:

The graphs are designed in a way to provide the users with not only the order count but also the financial summaries in respect to individual products and regions. The analysis will also give insights regarding the growing market size of their services. Using Forecasting, we have provided the user with future sales so he/she can adapt to the market. With numbers, they can also analyize the quality of services they have been providing like shipping facilities.

7. ADVANTAGES & DISADVANTAGES

- *Advantages of the proposed solution* :
  a.Helps in product-specific analysis.
  b.Helps in building recommender system based on customer's past shopping trends
  c.Helps in online marketing
  d.Revolutionize businesses to reach higher levels.

- *Disadvantages of the proposed solution* :
  a.Analysis has been done on the basis of past data assuming that the collected   dataset is authentic and accurate.
  b.If the forecasting turns out to be wrong then there is a risk of overstocking.

8. APPLICATIONS

The E-Commerce industry sells a diverse product line of grocery items and merchandise products. Various areas where our solution could be applied are

- Retail and Wholesale.
- Online Marketing
- Finance.
- Manufacturing.
- Online Booking.
- Online Publishing.
- Electronic markets

9. CONCLUSION

Thus, we have successfully completed our project using IBM Services. Our entire work and findings will help organizations to better analyze their business.They, then can accordingly converge and direct their resources. This will definitely be fruitful to overcome their previous mistakes, manage their present line of work and plan future.

10. FUTURE SCOPE

There are a substantial amount of things we are planning to add in the future. Many more visualizations can be created which will help analysts and ultimately the whole business to gain momentum. Reports can be created.

We plan to add a user-friendly UI that will enable end-users to interact with the current dashboard. A chatbot facility can be added to handle customer queries. Intelligent product recommendations can be given based on previous analysis of sales by product.

Further, it can be integrated with the backend to build an E-Commerce website. This website can be then deployed using appropriate tools and made available for the end-user.

11 BIBLIOGRAPHY:

https://www.kaggle.com/juhi1994/superstore

https://www.ibm.com/docs/en/cognos-analytics/11.1.0?topic=stories-get-started-dashboards

https://www.ibm.com/in-en/products/cognos-analytics

https://www.analyticsvidhya.com/blog/2015/08/role-analytics-e-commerce-industry/

https://powersync.biz/blog/types-of-data-analysis-used-in-ecommerce-to-get-key-business-insights