Analytics Tool for E Commerce Business

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Introduction:

Overview:

Our work is mainly based on creating an Analytical tool for "E commerce business" using the IBM Cognos software available in IBM Cloud. This project is done as a part of the "Hack Challenge 2021" organized by "Smart Internz". To outline our motives and objectives of this project in brief we could say that, this project is done to create an attractive looking dashboard which is efficient to predict the future trends and also provide the user with useful statistics to improve upon one's business and also expand the reach of his product.

Purpose:

The IBM Analytical E commerce Dashboard that has been created by us can be used both by people and the e commerce businessmen to look at various figures about different categories and subcategories of the products. The dashboard achieves the its required output by providing the future forecasts of the products in the future and also provides the user with

statistics such as profit percentage, frequency distribution, number of products sold in a particular region etc. This saves time, an important commodity when it comes to start ups by reducing the amount of time, they do research to know the ins and outs of the business and the industry and would really help them to make advancements in their fields in no time.

Literature Survey

Existing problem

There are several resources right now that are able to provide the statistics required to start an e commerce business from scratch. They provide with valuable data to make a profit in e commerce website. But the existing problem is that the available data in these resources is not that of the recent years but from several years back. This misleads the user into thinking that a particular product is hot and trending in the past whereas it might not be true as times and trends would have changed. So, this could potentially lead to a loss in a business.

Proposed solution

Our project suggests two main things.

1. We are focusing on regular updation of the dataset. This could be done by using a centralized database for all e commerce sales and profits across the globe. We could use this to constantly keep our dashboard live with predictions and forecasts running on real time data and predicting forecasts and giving stats so that the clients can look into the trending products in different markets of the world and can get their products from their preferred markets.

2. The live dashboard can give the upcoming e commerce businesses to improve their sales strategies and their ad campaign of different products by focusing on the regions with lower sales of each product and increase the ad campaigns in those areas by reducing the revenue spent increasing the profits.

Theoretical Analysis

Block Diagram:
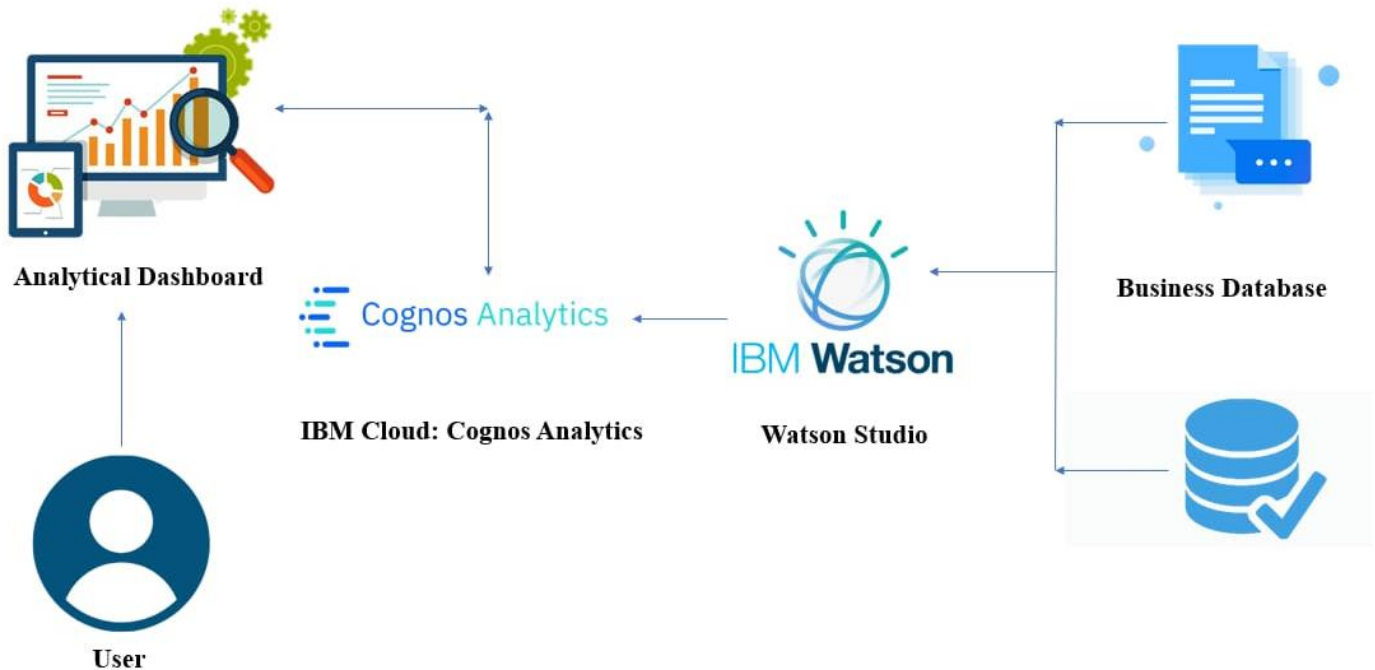
Hardware / Software designing.

1. **IBM Cloud:**

    The IBM Cloud software offers us with different tools to work with. For this project we are using the IBM Cognos Analytics software, a sub package offered by IBM Cloud to process our data and gain useful insights. We used the multi-tabs and multi- query dashboard from Cognos for our analytics tool. This helped us in finding relationships and insights. This software also offers us to predict the future trends in the data which is one of its unique features.
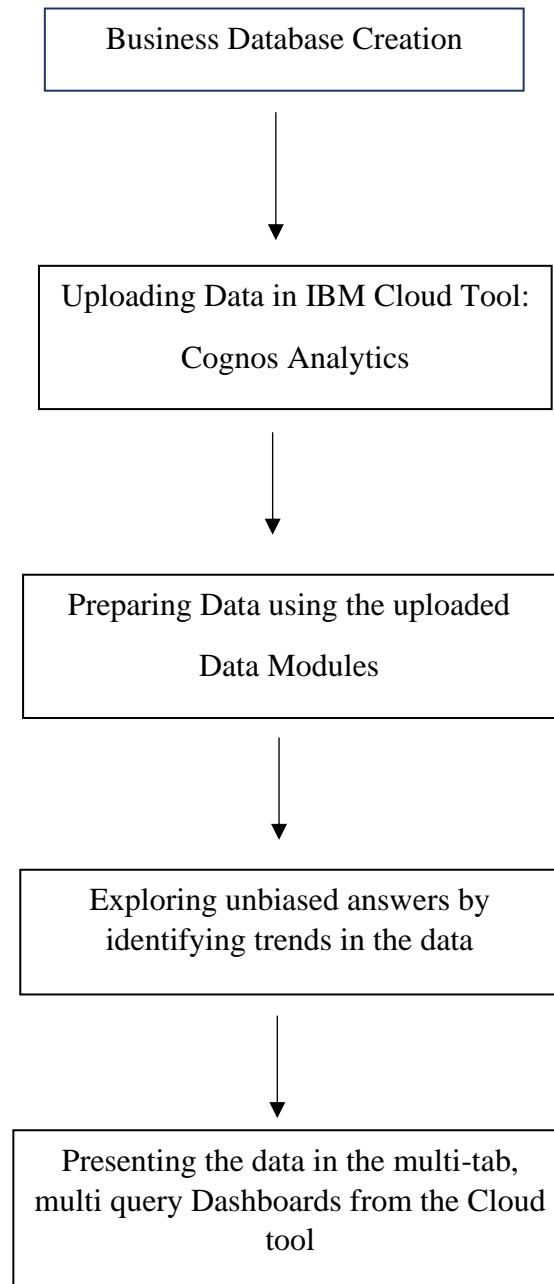
2. **Microsoft Excel:**

We have used the Microsoft Excel to create our own dataset. The different functions and features offered in Excel not only helped us to create an efficient dataset but also helped us to create it with the least amount of time giving us ample time to work on the dashboard.

3. Experimental Investigations

Since we created our own database to improve our efficiency and to gain in-depth knowledge of the working of the IBM Cognos Analytics, we came to know about the market of products in 5 different countries namely China, Japan, Germany, United States of America and the United Kingdom respectively. We have input real time data of different products in each country such as the cost price and trending sales in particular years. While using the Cognos Analytics software we discovered the IBM Cognos forecasting features which uses the past 10 values to predict the future values. Any gaps or holes present in the dataset wouldn't support predicting the future trends. This made us understand how forecasting of data works to clean and prepare our data without any such gaps.

Flowchart:

The below attached flow chart explains the flow of our project.

```
┌─────────────────────────────────────┐
│     Business Database Creation       │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│   Uploading Data in IBM Cloud Tool:  │
│                                      │
│          Cognos Analytics            │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│    Preparing Data using the uploaded │
│                                      │
│            Data Modules              │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│    Exploring unbiased answers by     │
│     identifying trends in the data   │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│  Presenting the data in the multi-tab,│
│ multi query Dashboards from the Cloud │
│                 tool                 │
└─────────────────────────────────────┘
```

Result:

The required objective of creating an "E commerce analytical tool" was successful. The dashboard is functioning as expected and the output screen shots are attached below in this report.
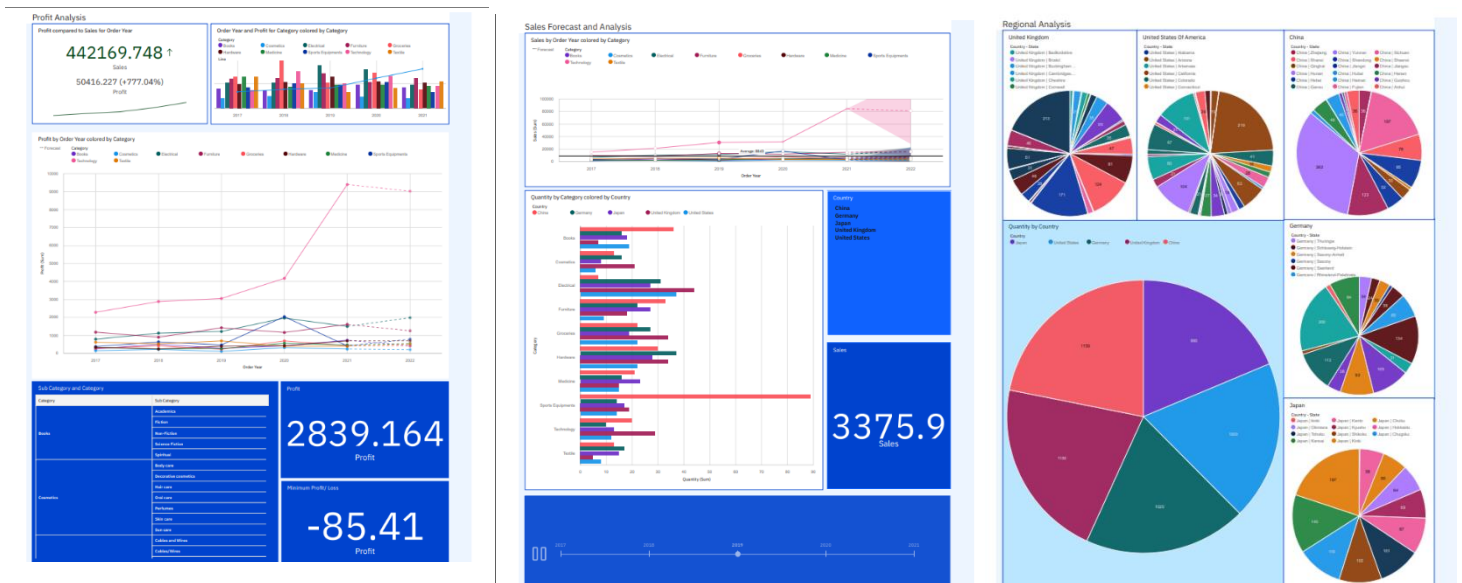
Advantages:

The advantages of this dashboard are that two different classes of people are benefitted. They are people who buy different products and the people who sell these products online. The people who are buying these products, get to know the best deals offered in the market and a wide range of products offered in the market. Whereas for business owners it might help them to open business in different cities and states according to the sales in the region. This also helps e commerce business to expand their empire in cities they have never ever thought about doing business in.

Disadvantages:

The forecasting depends on several parameters therefore the accuracy at some points might be less than expected. Regular updating of data is required to keep the forecasting up

and running because a disrupt of continuous values in the dataset wouldn't allow for the prediction of the forecasts. Long term forecasts and trends are hard to find whereas short term forecasting is having better accuracy levels. Due to readily available of data in the dashboard everybody would start opening e commerce business with better techniques which would increase the competition in the industry and provide with reduced profits.

Applications:

This dashboard can be used by different users to search and identify the different products in the market and purchase them at lower costs. This idea of a live fed dashboard can be used not only in e commerce business but also in several other industries such as food and textile industry as individuals to expand the industry. The dashboard can also be used by statisticians to find the sales in different countries and predict its future economy as the future is leading towards e- marketing.

Conclusions:

We would like to conclude the report by saying that the dashboard created is an effective tool for business and marketing of products. This dashboard provides essential information to start and run a business successfully. This would help business owners and entrepreneurs to make well informed decisions and increase their margin of sale and profits. Therefore, this dashboard when implemented in large scale, not only profit business but also revolutionize the world and take us to heights we have never seen before.

Future Scope:

In this technologically advancing era, nearly everything is connected to the internet- Our smart watches, televisions etc. We keep updating our Instagram and Facebook statuses every day and some people update it every hour. All these data are connected one way or the other. With extended research going on in the fields of Machine Learning and Big Data Analytics all the unorganized data collected from these devices can be used to make meaningful assumptions and insights of the large volumes of data posted in the internet. These data

combined with the technology of our dashboard could even predict the upcoming future trends and not only make profits for businesses but also open paths in the fields of Artificial marketing analysis tools which would use these predicted future and design products to meet the user's needs even before most users recognize the need for such products.

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