FUTURE TREND ANALYSIS – A PREDICTIVE ANALYSIS IN MAINFRAMES

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Abstract— Data Analytics can be defined as an area of study that deals with processing and analysing crude data to transfigure it into some useful information. It is very important to perform this conversion as far as strategic and decision making actions are concerned. Mainframe systems, on the other hand is a limitless reservoir of data from different business and domains. They are reliable and secure workhorses that deal with billions of data during one unit of time. The immediate objective of this research paper is to provide a predictive analytics on the data that is available in the IBM Mainframe database, which is DB2 in one of the pioneer online industry, the retail shopping. Here features of data analytics and Mainframe computers are integrated to come up a future trend analysis and providing graphical analytics of the same in CICS.

I. INTRODUCTION

Mainframe systems are ethically used by corporate for handling bulk data processing such as business transactions and enterprise resource planning. Modern mainframes provide high security and recoverabilty of data. It is capable of supporting millions of users with superior performance. Data processed by Mainframes interacted in a limited way with the external world, but not anymore.

Mainframes which is an asset to the corporate world for data handling can now be used beyond its defined parameters. Integrating the predictive analytics with Mainframes increases the potential of Mainframe systems to provide another dimension in which the residential data is used.

Most of the data that is floating in the world today can be mapped to the online web. There is data from multiple sources and available in multiple types. One of the domains which is in fact a close player in the internet traffic is the online retail domain. It is the era of online shopping. Almost all the product realms have entered into the online shopping space. It has become highly popular because it is extremely easy and convenient for the people to purchase the desirable products within the comfort of their homes. According to the studies, it is observed that the online retail industry in the United States was worth $279 billion in 2015.The physical presence of retail stores will be greatly impacted by the continual ascent in the online shopping habit. Even the level of competition between the various online retailers is on the higher notch.

Everyday, one can see new offers, discounts and new products launched in the websites. In a situation like this, it is extremely important for the market users to have the availability information in a dynamic manner. At the same time, it is also necessary that the providers are able to predict and visualize the selling trend based on the periodic interval.

The branch of science called Predictive Analysis warrants the prospects of future events based on the historical data. A lot of information can be extracted from existing data that can be used to determine future patterns.

For the shopping sites, it is important that availability of products be communicated to website visitors early on in the purchasing process. If a product is out of stock, timely information about when it will be available is also important. Otherwise, users should be given the option to be notified once the product becomes available, or the site should recommend related goods that are in stock. Along with this, in case they fail to anticipate as to how much products are to be sold during an entire week or month, it can have a huge negative impact on the business . Overall prediction of total number of products needed to be refilled in the case of end of stock as well as removing the products from stocks those are least sold is important.

II. LITERATURE SURVEY

1. The principal aim of future trend analysis system is to predict the sales happening in a monthly/weekly/yearly basis. This is dependent on the amount of sales that has been recorded in the previous defined durations. This can in-effect help the sellers to understand the drift in sales occurring across multiple products. The analytical prediction is done in graphical and non-graphical views.
2. In this research paper, it is depicted how the sellers will be able to prognosticate the increase or decrease of buying trends of the customer. The seller will be able to interpret the products that are high in demand and will be able to make them available to the customers in a timely manner. He will be able to do the analysis in any periodic duration that he is interested in – weekly, monthly or yearly.

3. In this paper the fact presented is that, Mainframes will continue breathing new life into business as they have done till yet because large corporate will not give up using their mainframes since the erstwhile & former asserted advantages are
4. This paper shows how the GUI implementation brings more effectiveness to the interaction between mainframes and the user. All of these will assist in the much better user interface in Mainframe. The code is given only according to the variation in the number of quote generated.

III. IMPLEMENTATION

Mainframes, along with the predictive analysis of data stored withing can serve a high purpose. In this application, the purposes served are:

1. Calculation of the volatility based on sales
2. Data analysed on weekly or monthly basis
3. Analysis plotted on graphical patterns

Prediction of data and Rendering of Graphs: The details of all the products that are being sold on the retail website is stored in the DB2 database. As and when each product is sold, the sales details of the corresponding products will be updated in the database. The sales data from previous months and weeks will be required to achieve the desired prediction that will help in making the commodities available to the users in a timely manner. Once the prediction is made, a graph is plotted in CICS based on the input. A COBOL-DB2 program is coded to calculate the average of weekly/monthly sales depending on the input from the user. SQL queries are used to obtain the sum and average of all the quantities that have been sold for a particular product. The rise or drop of sales, termed as volatility and its corresponding percentage is calculated Using this volatility and average, the predicted sales for the next week is calculated. A user interface is provided in CICS for the user to enter the required parameters - the product-id for which the prediction needs to be done,which are necessary to plot the graph. When the product-id is entered, the volatility calculation is performed and the variation in sales and the next week/month prediction will be displayed as output to the user interface. Yearly graph plots the average sales variations of previous years whereas Monthly and Weekly graphs plot variations of different months and weeks respectively of a particular year. A dynamic bar graph as per user requirement with the values corresponding to that in the DB is plotted in the CICS screen[3].

IV. RESULTS AND SIMULATION

As of now, the prediction of the sales for a interval of weeks.

When the product Id is entered on the screen, the volatility is calculated based on the average sales during the week. In the message, it will be displayed whether the predicted sales has got an increase or decrease in variation.

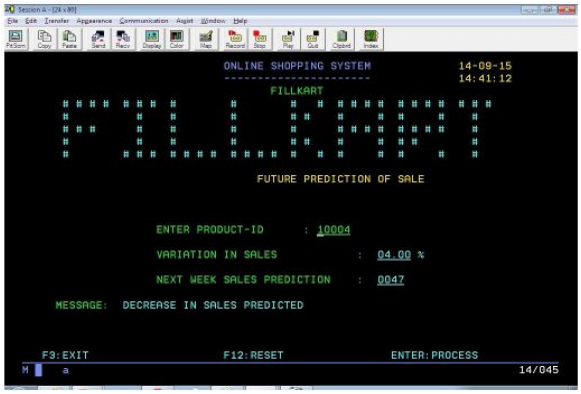

Fig1: Interface for accepting the input from the user.

On pressing the F5 key, the graphical representation of the previous week data is depicted. The screen also contains information like the average sale for the product and the predicted sale for the next week. The graph obtained can be of yearly, quarterly, monthly and weekly depending upon the user's choice[1][2] The x-axis represents the products, where 1 unit represents 20 products. The y-axis is the quantity of the products sold per week. In this scenario, data from the last four weeks have been analyzed. The quantity sold for every week is also depicted. The calculated average sale is displayed on the screen. If the predicted sale is less than the average sale, the predicted sale will be depicted in RED color. Else, it will be displayed in GREEN color.

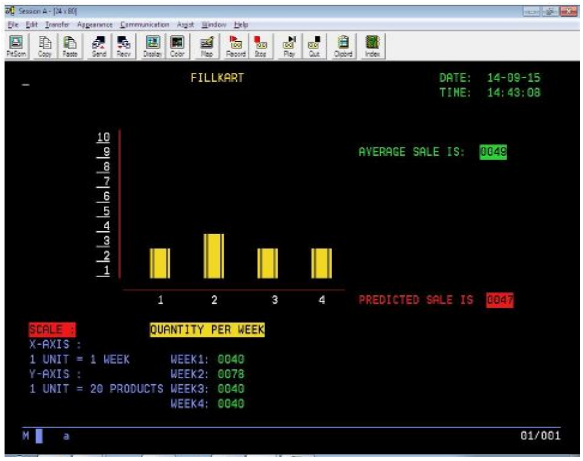

Fig2: Graphical analysis of the quantities sold per week for a particular product

CONCLUSION

Data handling is the key feature of mainframes. To make this data more accessible and user-friendly , we have incorporated graphs. Mainframe, along with prediction analysis will expand the capabilities of just

storage of this huge amount of data. This kind of analysis will also help the various business domains to forecast business decisions based on the previous occurring trends and events. The entire practice will help the domain to stay on a higher edge while serving the customers.

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REFERENCES

[1] Nikita Gupta, Sachin Gupta, Vibha Timande, Pooman Chandak, Mohit Mittal, Shripati Mishra , "IMPLEMENTATION OF LINE GRAPH IN MAINFRAMES FOR BUSINESS ANALYSIS," International Journal for Research and Development in Engineering (IJRDE), Vol.1, pp- 63-69, Issue.3, February-March 2013.

[2] Hariraghavan S.K, Poornima G, Suggula Anup, Chakravarthi, Krupal Mistry, Sneha K , "IMPLEMENTATION OF DASHBOARD IN MAINFRAMES FOR BUSINESS ANALYSIS," Tata Consultancy Services, India International Journal for Research and Development in Engineering (IJRDE), Vol.1: Issue.2, October-November 2012 pp- 18-27.

[3] Rownaque Nazneen, Shivani Jain, Shashanko Aditya, Ravi Prakash Sikariwal, "Effective GUI Implementation in Mainframes – Windows Based," International Journal for Research and Development in Engineering (IJRDE), Vol.1: Issue.1, June-July 2012 pp- 4-11.

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