Certification Program in
Business Analytics & Optimisation
From IIT DELHI

Story Based Case Study – 1

TOPIC: Big Data Analysis for E-Commerce Platform (Walmart)

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BACKGROUND

Big Data Analysis enables E-commerce platforms to better study the data and analyze the hidden trends, associations, secrets which might otherwise, be neglected by the decision makers. This case study will focus on how Walmart, a leading retailer has monetized the advantage of Big Data, thereby understanding the factors (such as temperature and fuel price) which were affecting the sales in their retail stores at different geographical locations.

Big Data analysis helps the E-commerce giants in connecting to the target audience by offering specific products thereby increasing the customer retention. By analysis the traffic behavior like time duration the user is spending on the site, category of products which are in demand, and number of clicks, one can optimize on the type of promotions, product ranges required for scaling the business. At the same time, lack of skills in analyzing the data can prove to be catastrophic for the organization. Therefore, information management is of utmost importance. Decision makers should be clear, which data should be analyzed and which should be treated as noisy data (i.e. having extra irrelevant information).

OBJECTIVE OF CASE STUDY

With the help of this case study, one can understand how Walmart optimized operations in various retail stores, thereby increasing profits and sales. Big Data helped Walmart in forecasting sales for the coming weeks so that inventory Optimisation can be done. Walmart case study has been considered as their operations are universal and problems faced by them are similar that is to manage their data in a way to generate useful insights in gauging the market potential at the right time. Big Data helps in providing valuable insights to the reasons for sudden spike in demand of a product and factors affecting it. Otherwise, retailers might be caught off-guard and there might not be enough stock in their stores.

METHODOLOGY

By making use of Big Data sales data from various stores was analyzed. Machine learning library was used with a simple regression model to predict future sales. Regression model helps in correlating the trends. Multiple regression can also be used to get more accurate predictions by increasing the number of input parameters.

ANALYSIS

1. Walmart's sales data was analyzed to gain valuable and analytical insights in determining customer behavior at a desired time in a particular store at different geographical locations. Also, it should be noted that the factors that work for one store might be irrelevant for the other. Therefore, clarity should be developed regarding all the relevant factors.
2. Fuel prices, temperature and holiday were taken as input variables.
3. It was observed that impact of the input variables on the sales is as follows:
    a. More sales occurred, when fuel prices are low.
    b. More sales occurred, when temperature is at reasonable scale which is neither too cold nor too hot.

CONCLUSION

In E-commerce sector, there is huge inflow of data, which need to be processed, analyzed and managed. This data will be a deciding factor for the businesses, that is whether a business will be able to compete or not. This data can also enable companies in taking strategic decision of expanding their footprints in international market, increasing their product portfolio and addressing the customer demands in the best possible manner.