

Sales Prediction in Business Using AI and Machine Learning Techniques

Omkar Kumbhar¹, Saurabh Redekar², Prof. S. H. Thengil³

Students, Department of Computer Engineering^{1,2}

Professor, Department of Computer Engineering³

Navsahyadri Education Society's Group of Institutions, Pune, Maharashtra, India

Abstract: Most of the business management system heavily turn on a information base and request prediction of sales buzz. The outcome in sales forecast gives a big impact in business. Data mining system or algorithm are very effective element in extracting unknown knowledge from an training dataset to provide accuracy and efficiency of sale forecasting. The complete study and analysis of intelligible predictive models to enhance future sales predictions are comes out in this review paper. Newest forecast techniques are quite easy to deal with the large amount data and accuracy of sales forecasting. These problem can be overcome by using various machine learning techniques. Linear regression model which gives maximum accuracy in forecasting and upcoming sales prediction. Sales forecast is a sensible sales target proposed by certain analysis techniques on the basis of fully considering different influencing factors in the future, with external factors like changes in economic conditions and demand trends, also internal factors such as marketing techniques and actual product.

Keywords: Machine Learning, Sales Prediction, ARIMA, PYTHON, SPYDER, Linear Regression

I. INTRODUCTION

Machine Learning (ML) is an inventive way for sales forecasting. The sales forecast is mainly for recognition and incremental impact for inception of new plans to complete projects within the allocated amount. ML is allow to boost system advantages for securing economic profitability by growing sales rates in the management. It is one of the accurate solutions to prepare a complete data set for eradication of different challenging task in the organization. The study provide that sales prediction is an newest and modern and effective type of modern business intelligence. It is a detective to find out lost data, lack of data and difficult problems for enhance of business profitability. In ML techniques, the uses of different models such as GARCH, SARIMA, etc helps to introduce different algorithms to give the accuracy of business plans.

The use of ML is important to overcome the chances of unreliability in the sales prediction. These sales ‘prediction rate is important for maintaining of the supply chain management system in the management system. ML has increased in the last few decades for the maintenance of the management potentiality in the organization. Uses of artificial intelligence and computer algorithms help to design different programs for autonomous activities in the organization. In the work detected that python and Spyder are two innovative software that has been used for sales prediction. ML system helps in feature engineering, judge, data exploration and creating models to complete the system. There are different types of algorithms, such as Random Forest, Design tree, linear regression and ridge regression. All these effective algorithms will be used to make a positive impact on sales prediction.

The main aim of this review paper is to detect the impact of ML in sales prediction for the enhancement of business advisability. An authentic data preparation process is essential to detect the sales rate in the same year. The ML techniques is important for the vision of future sales income to determine the organization's advisability. Moreover, this system is required to generate effective sales management techniques for future outcome. Moreover, it is required for using monetary and human resources for sales forecasting in the management filed. The use of ML provide to allocate plans for the maintenance of sale and demand in the organization. Moreover, it will be effective to build a market strategy for the adaptation of appropriate decisions for securing the organization's advisability. ML is able to increase the organization's profitability by 15% to strengthen business outcome. Moreover, it will be effective to develop a professional combination with consumers and suppliers for the enhancement of management performances. Along from this, Machine Learning is essential for the arrangement of marketing campaigns for improve sales rates in the organization. ML also helps to predict

the number of services and products for securing business profits. Accurate forecast, analyses of data and development of robust systems is necessary for securing business profitability.

II. RELATED WORK

Paper-1: Intelligent Sales Prediction using Machine Learning Techniques

The analysis of comprehensible predictive models to improve future sales are carried out in this review paper. In this paper, the techniques that they use for sales data and sales forecast were briefly analyzed. The high accuracy is given by Gradient Boosting algorithm so it is considered as the best fit model.

Paper-2: Forecasting the Retail Sales of China's Catering Industry

Machine learning and deep learning are the techniques used in this paper for analyzing the train data and gain useful information from the patterns and trends. Neural network is the best algorithm for predict sales is given by these paper.

Paper-3: An Intelligent Model for Predicting the Sales of a Product

The main aim of this paper is to detect a dimension for the prediction of the Big Mart Company. It is comes out by using the sales data of last years. In these paper they uses many algorithm as Random forest, Xgboost, K-N and linear regression were among them Random Forest proves best.

Paper-4: Sales Prediction using Machine Learning Algorithms.

Here the train data such as sales, weather, and stock amount are carried out. These paper uses Gradient boost, Random and Extremely Randomized Trees over here. Among them Random Forest is considered to be effective after uses of several parameters.

Paper-5: Comparison of Different Machine Learning Algorithms for Multiple Regression on Black Friday Sales Data

In these paper author says that a company like Big Mart, prediction acts as a major part in the sales of the products. Over here, they uses Xgboost is provided them very good result and are effective.

III. METHODOLOGY

3.1 Concept of Data Management for Sales Prediction

In order to provide strong and sustainable strategies for sales prediction, gathering proper information about this system is one of the most useful objectives for the company management techniques. Sales forecasting is a method that directly supports estimating the future sales through an efficient manner by providing structure goals and better outcome.

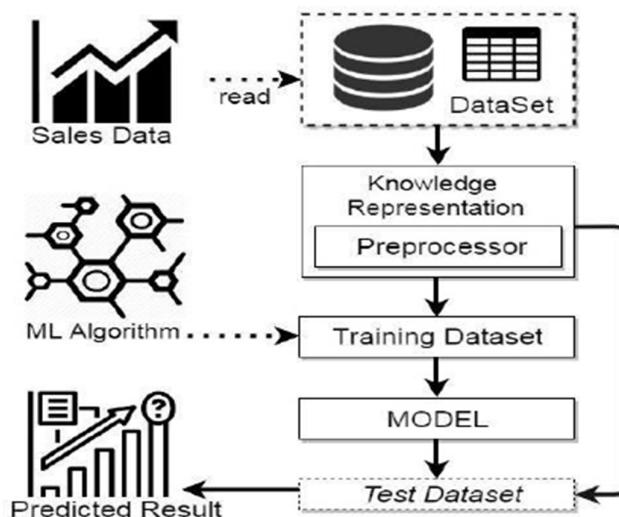


Figure: System Methodology

In the current global market, machine learning and A.I. algorithm are the most effective and attractive adoption of the company that supports the management to attract more customers through an efficient manner. In this case, by the support of machine learning a company can gather proper data of the future sales. On the other hand, in this current global market situation, a short time-consuming process is one of the most common user requests and in this case, machine learning simply uses the conduction process of sales prediction within minimum time.

According to the revenue of sales prediction or sales forecasting, it allows a company to make proper differentiation for the products and services based on the current marketplace situations. The sales prediction techniques includes many different types of output for the company such as strong goals, informed investors, suitable budgeting, and many more others. In order to support the company goals, there are many factors that need to be rectified by the company such as upcoming next five years annual income's assumptions, yearly capital cost's calculations and many other objectives. In this case, machine learning and other types of A.I. technologies also can support the process through an efficient manner as it also supports the company to attract more customers.

IV. CONCLUSION

The output is mainly focused on Accuracy. Machine learning algorithm provides the effective mechanism in prediction and data mining as it overcome the issue with traditional system. These techniques enhances the data optimization along with enhance the outcome with better results and greater predictability. In our future work, we will use the other feature selection techniques and advanced ML algorithms to enhance the efficiency of the model with improved optimization. Technological innovation and the use of Python and Spyder software helped to make huge changes to the management performance. Technological innovation helps to get a complete data set for exterminate of the data complexities for sales forecasting. The introduction part is introduced with the aim of this research paper.

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