



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 2, February 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.569

Sales Prediction Using Machine Learning

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ABSTRACT: Most of the business organizations heavily depend on a knowledge base and demand prediction of sales trends. The accuracy in sales forecast provides a big impact in business. Data mining techniques are very effective tools in extracting hidden knowledge from an enormous dataset to enhance accuracy and efficiency of forecasting. The detailed study and analysis of comprehensible predictive models to improve future sales predictions are carried out in this research. Traditional forecast systems are difficult to deal with the big data and accuracy of sales forecasting. These issues could be overcome by using various data mining techniques SVM (Support Vector Machine) which shows maximum accuracy in forecasting and future sales prediction.

KEYWORDS: Sales Predictions, SVM (Support Vector Machine Algorithm), Machine Learning

I. INTRODUCTION

One of the major objectives of this survey paper is to find out the reliable sales trend prediction mechanism which is implemented by using data mining techniques to achieve the best possible revenue.

Accurate predictions allow the organization to improve market growth with higher level of revenue generation. Data mining techniques are very effective in tuning huge volume of data into useful information for cost prediction and sales forecast, it is the basic of sound budgeting. One of the challenges for companies that have invested a lot in consumer data collection is how to mine important information from their vast customer databases and product feature databases, in order to gain economical advantage. Several aspects of market basket analysis have been studied in academic literature, such as using customer interest profile and interests on particular products for one to one marketing, purchasing patterns in a multi-store environment to improve the sales. Market basket analysis has been intensively used in many companies as a means to discover product associations and base a retailer's promotion strategy on them.

II. RELATED WORK

Sales forecasting is essential to take a future decision regarding Business plan, production and employee management. Nowadays accurate sales prediction is a challenge. Researchers have been studying different sales forecasting techniques. We can use different algorithm and different technique for sales forecasting. In 1960, author presented exponential forecasting model [1]. He proved that this model is faster than any other model which is present at that time. In [2], the authors used 26 forecasting models. They forecast South Africa's aggregate seasonal retail sales. Author presented a novel optimization approach for finding the optimized weights of a sales forecasting function in [3]. Minimizes error in sales forecasting by using optimization model.

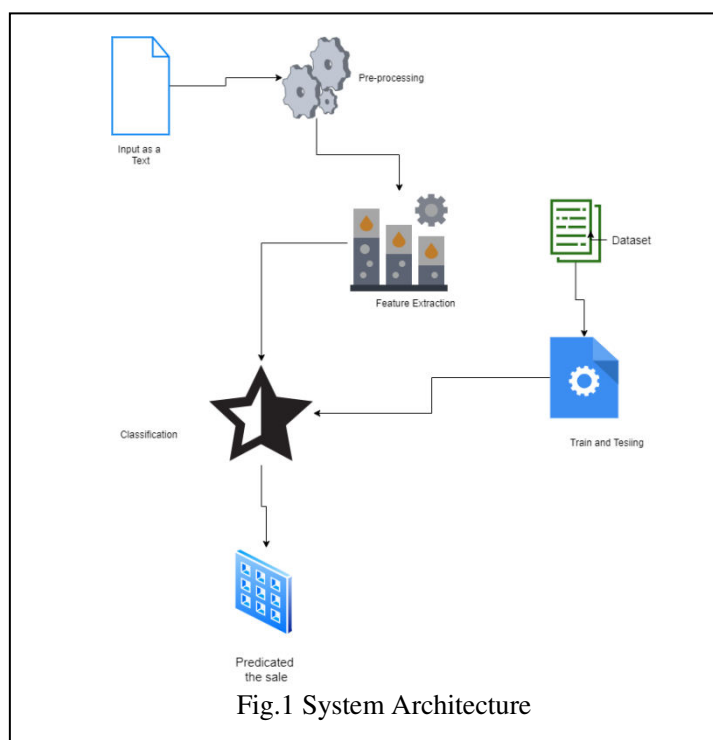
Recurrent neural networks in forecasting is popular because it has data driven nature and flexibility. Recurrent neural network makes accurate sales prediction. It is better than traditional forecasting model. Hybrid model can identify features of past sales data, counts positive and negative reviews of product [4].

This work [5] is dedicated to Svijany Slovakia, Ltd. Using modern cloud computing tool Microsoft Machine Learning Studio they predicted accurate sales forecasting. In the paper they described characteristics of the company and sales. Software system Helios Green is used in the company. They described data processing.

III. METHODOLOGY

What is SVM -Support Vector Machine or SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. However, primarily, it is used for Classification problems in Machine Learning.[6]

The goal of the SVM algorithm is to create the best line or decision boundary that can segregate n-dimensional space into classes so that we can easily put the new data point in the correct category in the future. This best decision boundary is called a hyperplane.[6]



To increase the accuracy we train the model on 10k dataset values.

Softwares Used -

1. Annaconda
2. Spyder

Required packages and Installation

- 1.numpy
- 2.pandas
- 3.keras
- 4.tensorflow
- 5.csv
- 6.matplotlib.pyplot

IV. CONCLUSION

In business organization sales prediction system is required to handle large volume of data, production rate. Business decisions are based on accuracy and speed of processing techniques. In this paper, we increases accuracy of sales forecasting by using support vector machine (SVM) algorithm. This algorithm is used for Classification as well as Regression problems.



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