AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF COMPUTER ENGINEERING

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Project Synopsis

on

"Supermarket Stock Prediction Using Machine Learning"

BE Computer Engineering

BY

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Title:

Supermarket Stock Prediction Using Machine Learning

Domain:

Machine Learning

Sub-domain:

Data Mining

Objectives:

- To build prediction model using Neural Network technique.

- To compare the model with real data for its accuracy.

- To perform supermarket stock prediction.

Abstract:

Stock prediction is an important when it comes to supermarkets who are engaged in retailing, logistics, manufacturing, marketing and wholesaling. Now a days shopping malls and Supermarkets keep track of the sales data of the each and every individual item for predicting the future demand of the customer. It contains large amount of customer data and the item attributes. Further, the frequent patterns are detected by mining the data from the data warehouse. Then the data can be used for predicting the sales of the future with the help of several machine learning techniques (algorithms) for the companies like Big Mart.Predicting the future demand of any product and stocking them accordingly is an essential in every business organization. With a precise prediction one can achieve better customer retention and satisfaction and avoid over-stock and under-stock situations. Accurate forecasts of future sales assist the firm in developing a business plan or strategy based on market demand and present conditions. Standard sales forecasting helps firms in reviewing historical scenarios and then implementing customer purchase inferences to Prior to budgeting and establishing a strong plan for the following year, evaluate shortcomings and

weaknesses. A thorough understanding of previous opportunities enables one to plan for future market demands and increase one's likelihood of succeeding. Regardless of external factors, firms that view sales modelling as the first step toward improved performance outperform those that do not.

Keywords (ACM Keywords):

Machine learning, Linear regression, Decision trees, Random forest.

Problem Definition:

Supermarket data are highly time-variant, to maintain each grocery items and other day to day life related items in supermarket is highly challenging, thus keep an eye on each supermarket stock and maintain it, build and develop a supermarket stock prediction and analysis Using Machine Learning.

List of Modules:

1. Data Collection

2. Data Preprocessing

3. Feature Extraction

4. Classification

5. Result

Current Market Survey:

- Supermarket,is a large retail store operated on a self-service basis, selling groceries, fresh produce, meat, bakery and dairy products, and sometimes an assortment of nonfood goods. Supermarkets gained acceptance in the United States during the 1930s. The early stores were usually located in reconverted industrial buildings in outlying areas; they had no elaborate display facilities, and their primary advantage was their low prices. During the 1940s and '50s, they became the major food-marketing channel in the United States, and in

the 1950s they spread through much of Europe. The extent to which they have succeeded in various countries has depended on the ability or willingness of producers and wholesalers to adapt their operations to large-scale retailing. The spread of supermarkets has been part of a trend in the developed countries toward reducing costs and simplifying the pattern of marketing. With the development of neural networks, researchers hoping that the market mysteries can be unraveled.

- As supermarkets have race to introduced technology that enables the customers to get service on their own Growing number of customers interacted with the technology to create service outcomes instead with a service firm employee The overall affect model is based on the consumer's feelings toward the use of technology . The Supermarkets which introduce self-service checkout systems wish to gain rapid acceptance and usage of these technologies by potential consumers. Since superarket data are highly time-variant and are normally in a nonlinear pattern, predicting the future of a stock is highly challenging. With the increase of economic globalization and evolution of information technology, analyzing supermarket data for predicting the future of the stock has become increasingly challenging.

Scope of The Project:

- Today we are all connected with digital and every In all seasons, supermarkets should be aware of customer demand and avoid stockouts.This project mainly focus on predicting the future demand of products in all seasons using various machine learning concepts like Linear regression,decision trees,random forest and XG Booster.Supermarkets can keep track of each individual item's sales data in order to anticipate potential consumer demand and update inventory management. There is a no need to maintain a large number of employees for surveying and due to all digital system accuracy increases in supermarket sell and goes increases day by day even in festival time too.This system reduces human error as well as time and increases wealth of supermarket owners and world wide supermarket organisations.

Literature Survey:

Author	Title Of Paper	Methodology	Results
Dulam Mounika, Aditya Singh, Abhinav Dharipalli, RamaKrishna Bollepally **(2022)**	Predictive Analysis of Supermarket Sales Using Machine Learning	Linear Regression, Random Forest, Decision Trees, XGboost	The model will forecast the product's minimal and maximum demand.
Rising Odegua **(2020)**	Applied Machine Learning for Supermarket Sales Prediction	Multiple Linear Regression,Gradient Boosting,Random Forest	We observed that getting more data would increase predictive power of our model
D. Ashok kumar and S. Murugan **(2013)**	Performance Analysis of Indian Stock Market Index using Neural Network Time Series Model	Artificial Neural Network,Time series analysis	Better Stock Index Performance analysis.
Aditya Nawani, Himanshu Gupta, Narina Thakur **(2013)**	Prediction of Market Capital for Trading Firms through Data Mining Techniques	Data mining,Neural Networks,Image Compression.	Greater involvement of artificial neural network in global market trends
Akhter Mohiuddin Rather **(2011)**	A prediction based approach for stock returns using autoregressive neural networks	Time Series Prediction,Back propagation neural network	Regression variables are diffrence of the values of the series and a determine past value
D. Venugopal Setty, T.M.Rangaswamy **(2010)**	A Review on Data Mining Applications to the Performance of Stock Market	Decision trees genetic algorithm nearest neighbor method rule induction	Performed data mining applications on stock market

Software and hardware requirements of the project:

Software Requirements

1. Operating System - Windows 7/8/10

2. Application Server - Apache Tomcat 7/8/9

3. Front End - HTML, JSP, CSS, Bootstrap

4. Language - Python.

5. Database - My SQL

6. IDE - Visual Studio

Hardware Requirements

1. Processor - Intel i3/i5/i7

2. RAM - 2 GB(min)

3. Hard Disk - 40 GB

Contribution To Society:

Based on the information supermarkets do not seem to have any intelligent tool that can help them to predict the stock.This project show a trend on future stock and it is therefore desirable to have a tool to predict the stock. A machine learning model that is well tuned with the appropriate parameters can be used to develop such a predictive tool.There is no need to waste time or money we get many advantages like less wastage of product,more satisfaction for both seller and receiver and many more. This method could be beneficial and overcome the drawbacks of the current method.

Probable Date Of Project Completion: April 2023

Outcomes:

1. The system will find best stock using machine learning

2. Prediction method system's error rate is less having high prediction accuracy which is 90%.

3. Integrated data and analysis bring detailed results from customers' behavioral method and its relations

References

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4. Aditya Nawani, Himanshu Gupta, Narina Thakur, "Prediction of Market Capital for Trading Firms through Data Mining Techniques",International Journal of Computer Applications (0975 – 8887) Volume 70– No.18, May 2013

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