

[3] 'Sales Prediction System Using Machine Learning

In this paper, the objective is to get proper results for predicting the future sales or demands of a firm by applying techniques like Clustering Models and measures for sales predictions. The potential of the algorithmic methods is estimated and accordingly used in further research.

[4] 'Intelligent Sales Prediction Using Machine Learning Techniques'

This research presents the exploration of the decisions to be made from the experimental data and from the insights obtained from the visualization of data. It has used data mining techniques. Gradient Boost algorithm has been shown to exhibit maximum accuracy in picturing future transactions.

[5] 'Retail sales prediction and item recommendations using customer demographics at store level'

This paper outlines a sales prediction system along with the product recommendation system, which was used for the benefit of the group of retail stores. Consumer demographic details have been used for precisely designing the sales of each individual.

[6] 'Utilization of artificial neural networks and GAs for constructing an intelligent sales prediction system'

In the study, the usage of deep neural network techniques is to know about their sales strategy regarding electronic components ahead of time. Some optimization algorithms are also used to maximize the efficiency of the system: like Genetic Algorithm.

[7] 'Bayesian learning for sales rate prediction for thousands of retailers'

In this paper, it is shown that from the prediction of the single one's rate of transactions, many vendors would benefit from it, which means the information obtained could be beneficial for the construction of a set-up that would estimate a large number of outputs. The prediction uses a neural network approach. Here they have practiced Bayesian learning to gain insights.

III. PROPOSED SYSTEM

There are several ways of forecasting sales in which companies have previously focused on various statistical models such as time series and linear regression, feature engineering, and random forest models to obtain future sales and demand prediction. Time series contains data points that are stored over a fixed period and are used to forecast the future. Time series is a collection of data points that are collected in a period at sequential, evenly spaced points.

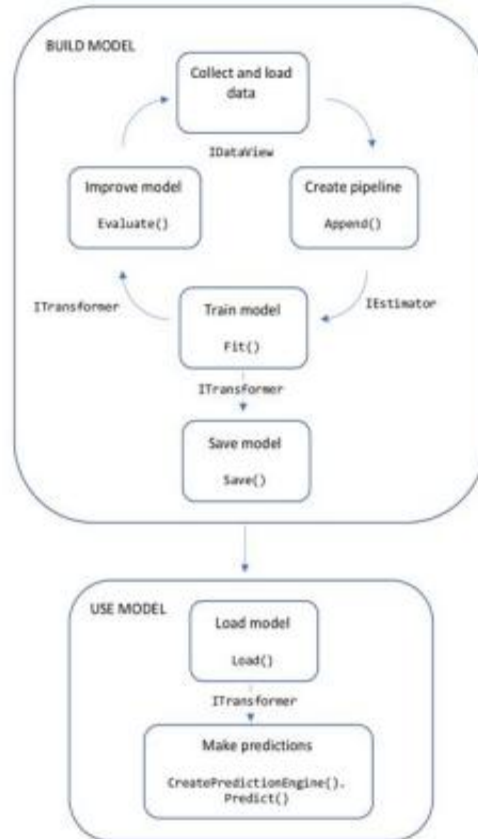
The most important components to analyze are patterns, seasonality, irregularity, and cyclicity. Linear regression is a mathematical tool used to forecast past values.

It can help to determine the underlying trends and address cases involving overstated rates. Feature engineering is the use of data on domain knowledge and the development of features to make predictive Machine Learning models more accurate.

It makes for deeper data analysis and a more useful perspective. A decision tree is a fundamental principle behind a model of random forests. The decision tree approach is a technique used in data mining to forecast and classify data.

IV. ARCHITECTURE

The figure shows the system architecture in which the model trains the previous data of a mart provided using the CSV file and creates a prediction model using various different Machine learning algorithms like Linear Regression, Random Forest, and Decision Tree the model is saved, after creating the prediction model the very next moment the current data is tested using a CSV file. The prediction provides the predicted value (RMSE, Mean, Standard, Minimum, Maximum).



V. RESULT

Machine Learning algorithms such as Linear Regression, KNearest Neighbors algorithm, XGBoost algorithm and Random Forest algorithm have been used to predict the sales of various outlets of the Big Mart. Various parameters such as Root Mean Squared Error (RMSE), Variance Score, and Training and Testing Accuracies determine the precision of the results of the four algorithms.

VI. CONCLUSION

With traditional methods not being of much help to business organizations in revenue growth, the use of Machine Learning approaches proves to be an important aspect for shaping business strategies keeping into consideration the purchase patterns of the consumers. Prediction of sales with respect to various factors including the sales of previous years helps businesses adopt suitable strategies for increasing sales

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