Study for the Prediction of E-Commerce Business Market Growth Using Machine Learning Algorithm

[1]Naved Kalal, [2] Sameer Dhanawale, [3]Rohit Ghadge, [4]Kulwantsinh Nimbalkar, [5]Prof. Madhuri Gawali

[1,2,3,4]Students, [5]Assistant Professor
Information Technology
JSPM's Jayawantrao Sawant College of Engineering
Pune, India.

***Abstract*- Knowledge is a key to perform ideas adequately. Machine Learning empowers IT associations to identify the patterns on the base of presently available algorithms and data frames to cultivate respectable result generalities. Online business request and customer retention is a relation like the two sides of a coin. It's a nonlinear relationship. prophecy of Business growth is a truly sensitive issue of E- Commerce request with its future actuality. Online dealers of business request manage their inventories on virtual prophecy bases for full filling the introductory need of demand- force chain of guests. Authorizing traditional ways and analysis styles are not icing the rate of responsibility of the deals prophecy . To produce more precise prognostications and analysis, we use ML algorithm. In this paper, we employed the selling data set of an E-commerce company and isolated it, in different diggings also calculating the trade income per quarter. After that we divided the dataset in the proportion of 70 and 30 for Training data set and Testing data set. By applying machine knowledge algorithm, we will be predicting income of coming diggings as well as analysis the maximally sold goods with their frequency of purchase per quarter. also give analysis results and prophecy of customer's purchase patterns to the business association to make a strategy to take a competitive advantage by sustaining and accumulating for their goods operation and planning for inventories.**

***Index Terms*- QoS, Machine- commerce, Inventory, prophecy, guests Retention**

I. INTRODUCTION

Online E-Commerce request shows an imperative donation in speedy marketable expansion in the profit development of our country. So same as other country's progress rate in mercantile, could also predicate on the profit of deals and purchase in online request of E-Commerce(1). In the period of internet and fast speed, presumably in all the countries, further than 50 of the population engaged with online shopping and ordering goods because of the dynamic and robotic purchasing request with in one click only. As time changes, human's thresholds evolving different type of request structures and several ways of selling – purchasing ways. This online fashion is veritably easy, accessible, less precious compare to traditional styles, presto and no time boundation with easy return programs(2).All these installations and numerous further options are available for the online/e-shopping guests but on the other side of coin, online service and goods furnishing dealers, they're facing numerous problems too. In current situations and scripts, request- competition is on the loftiest point, especially online business request strategies. These E-business associations involve in strive to find out better and innovative ways to make a scheme to take a competitive advantage. For sustaining and accumulating goods and supplies with some types of vaticination or managing ideas(3).

The ways of vaticination in business, especially for onlineE-commerce request merchandisers can shows a critical part in their capital investments for inventory. However, also they make good gains out of that, If the prognosticated results are more favorable to merchandisers and shop- keepers. Indeed they can study the mindset or the patterns of the purchasing habits of guests. numerous online and offline tools are available which associated with Data booby-trapping ways. Which ready to help ERP model to prognosticate consumer's actions and unborn tendencies in dynamic business interpretations to knowledge driven opinions(2)(4).principally with the use of these artificial Intelligent data analysis models or tools creates results and unseen analysis. which we aren't suitable to produce by traditional styles, it's caching information beyond expert's prognostications(5). before data birth ways are strange. Generally, people do n't know the impact of that, but it has implicit and this is use for forming salutary data and results from data sets. In general, databases addresses are used and this process is discovered as knowledge discovery(KDD) from data sets(6).

II. MOTIVATION BEHIND PROJECT TOPIC

In business, random predictions are very problematic and confusing because numbers of online orders and purchasing are very uncertain it's totally depends on customers purchasing trends and behavior. Even it is also time variant means, according to different seasons and festivals. Based on existing data, the aim is to use machine learning algorithm to develop model for prediction for E-commerce business growth.

III. AIM AND OBJECTIVE(S) OF THE WORK

Project aim :

The aim of the project is to predict companies business growth and to manage the financial resources effectively and predicting the

future demand of the products or service, predicting how much of the product will be sold in a given period.

Project objectives:

- To build machine learning algorithms which are able to forecast the sales of the e-commerce platform
- To give a view of the current and forecasted sales.
- To Provide best prediction range.

IV. LITERATURE SURVEY

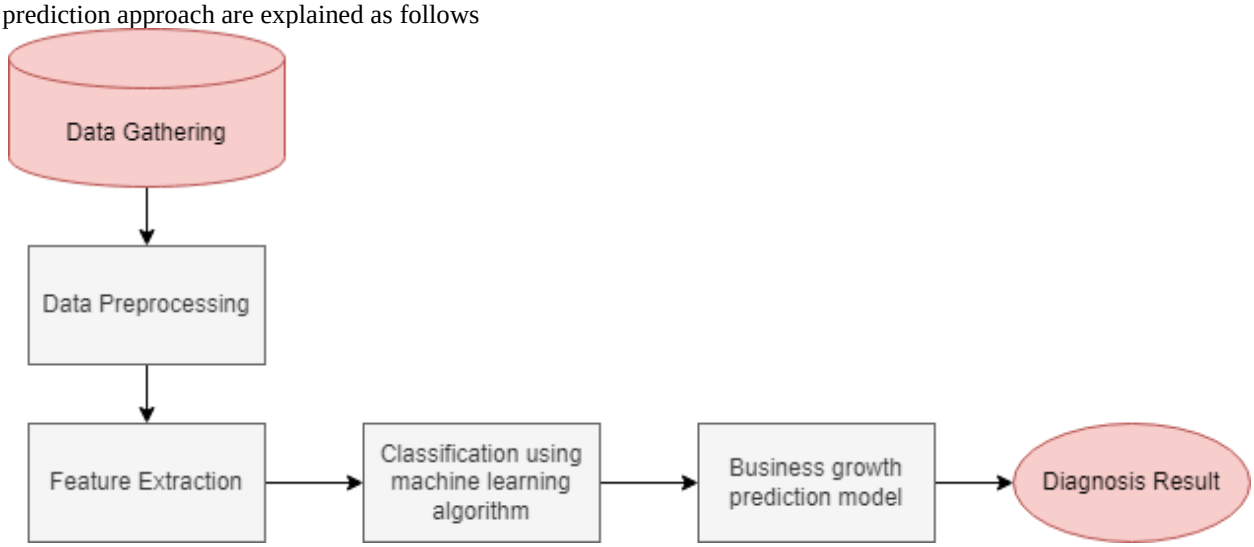
According to author Shilpi Kulshrestha,M. L. Saini we utilized the selling data set of an E-commerce company and segregated it, in different quarters then calculating the sale income per quarter. After that we divided the dataset in the proportion of 70% and 30% for Training data set and Testing data set. By applying machine learning algorithm, we will be predicting income of next quarters as well as analysis the maximally sold commodities with their frequencies of purchase per quarter. Then provide analysis results and prediction of customer's purchase patterns to the business organization to make a strategy to take a competitive advantage by sustaining and accumulating for their goods management and planning for inventories.

According to author Karandeep Singh*, Booma P M and Umapathy Eaganathan the sales of the e-commerce platform. A research was being done to understand the literature reviews based on similar systems and similar studies that relates to the researcher project. The purpose of doing this literature review is to understand which machine learning model was being used by other studies so the researcher will be able to select some of the best machine learning models for this study. Once the researcher has selected the models, he will them build the models and test their accuracy, error and performance. At the end, the researcher will compare all of the model's accuracy and errors to get the best model which have low error and high accuracy for forecasting sales. The model which have been fulfill the criteria, will be integrated into the system which is being built by the researcher. The system will give a view of the current and forecasted sales.

V. PROPOSED SYSTEM

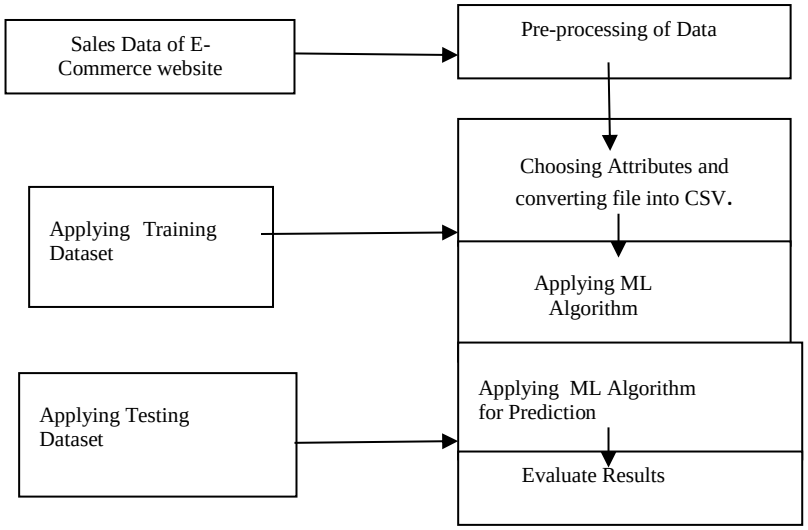
Time series prediction or forecasting is an imperative zone of Machine Learning. In many fields, Time series analysis and forecasting is very crucial because we have so many prediction issues and complication that include a time component or a time series. These types of problems are more complicated to solve and problematic to handle.

Basically these types of series contain data points, which are successive in nature and we can have mapped these points at progressive interval of time. it grouped the functions that attempt to suspicion a time series in terms of understanding either the underlying concept of the data points in the time series or signifying or creating predictions[5].For forecasting generally, we use data analysis and algorithms on the behalf of sell and purchase history and past outcomes. With the help of some substantial Time series model We can predict better future assumptions. Mostly identified time-series models, which are analyzed by me for evaluating a better prediction approach are explained as follows



Algorithm

Support Vector Machine(SVM)- SVM is one of the most popular Supervised literacy algorithms, which is used for Bracket as well as Retrogression problems. The thing of the SVM algorithm is to produce the stylish line or decision boundary that can insulate n- dimensional space into classes so that we can fluently put the new data point in the correct order in the future(hyperplane). SVM selects the extreme vectors and points that aid in the creation of the hyperplane. Support vectors, which are used to represent these extreme cases, form the base for the SVM system. The challenges of utilising direct functions in the high-dimensional point space can be overcome using SVM



SYSTEM REQUIREMENT

Hardware requirement:

- System : Intel I5 Processor.
- Hard Disk : 40 GB.
- Monitor : 15.
- Ram : 8 GB

Software requirement:

- Operating system : Windows 10.
- Coding Language : Python
- IDE : Spyder
- Database : SQLite

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