A novel Artificial Intelligence approach for forecasting of Customer purchasing Behaviour Accuracy

Vijendra Kumar, Sameer Kumar Jha

Department of Management, Compucom Institute of technology and management,Jaipur

ABSTRACT: These reviews and polls are used by consumers to make purchasing decisions. Such information can include either favourable or unfavourable reviews written by customers who have recently used the product. We can vectorize the information and create a visual representation of it with the use of machine learning calculations. The Naive Bayes and Logistic Regression method is presented in this research to examine consumer behaviour. The favoured performance was enhanced over others using the logistic regression procedures. Examining the present problems is followed by introducing and discussing the current solutions. The trial results demonstrate that the suggested technique has superior F1 score, precision, and recall. The tactic proves to be successful with high comment accuracy. Using Python, the reproduction and analysis are completed.

KEYWORDS: Naïve Bayes, Logistic Regression, Precision, Recall, F1 score, spyder.

I. INTRODUCTION

Machine learning (ML) is the scientific study of calculations and factual models that computer frameworks use to carry out a certain activity without using clear instructions, relying instead on instances and derivation. It is thought of as a part of mechanical thinking. In order to produce projections or judgements without being explicitly customised to carry out the task.[1]

Computational insights, which concentrates on generating forecasts with computers, are strongly associated with machine learning. The study of scientific smoothing out contributes concepts, theories, and areas of application to the science of machine learning.[3][4] Machine learning is referred to as perceptive research when it is applied to commercial challenges.

A few learning computations aim to uncover more accurate representations of the training data sources.[11] Exemplary models include group and head segment analysis. A pre-handling task before completing classification or expectations, feature learning calculations, also known as depiction learning calculations, frequently attempt This eliminates the need for human component planning and enables a machine to become accustomed to the features and use them to carry out a particular activity.
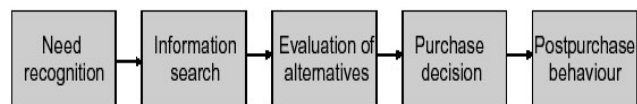

Figure 1: Five-Stage Model of the buying process

According to this approach, buyers should go through all five phases of the buying process. In high-including buys, this might be the case. Customers may skip or converse through some of these steps in low-inclusion purchases. This model depicts the whole range of considerations that arise when a consumer faces a much larger new purchase.

The pre-deals phase includes assumptions about the product, its profits, its price, and its availability. The point in a commercial transaction when a customer comments on the weather, the product, the type of service, the delivery, the quality, and market changes. the period following a transaction during which the customer expects help or guidance, a product substitute or the arrival of the aggregate, fixes, and charge cycles.

II. PROPOSED METHODOLOGY

We developed a framework for consumer behaviour display by concentrating on scientific methods to evaluate how another help is acknowledged in the public sphere. Online business associations can learn more and better understand the needs and ambitions of their customers by doing an accurate analysis of this client-created content. We can plot precise visual representations of this consumer behaviour with the use of machine learning calculations. In the design of the framework, machine learning classifiers like Naive Bayes and Logistic Regression are used.
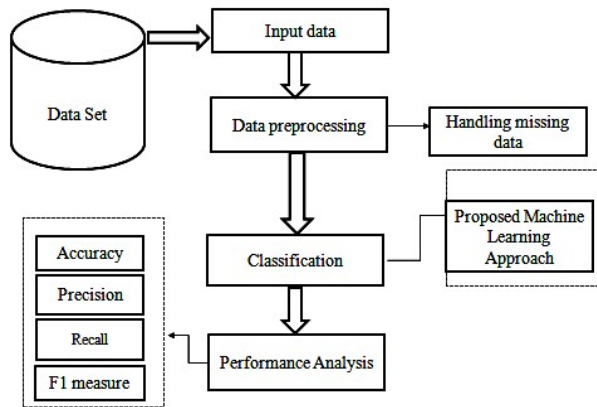
Figure 2: Flow Chart

III. CONCLUSION

In order to grow their client base and earnings, businesses need know their customers and use targeted marketing strategies, which is what this paper proposes. We were able to analyse the performance of various products in the market by using sentiment analysis to assess consumers' attitudes towards them. Simulated results demonstrate that the proposed approach provides 97% accuracy compared to the prior 94% accuracy. The new method has a 3% classification error while the old method had a 6% error. While earlier it was 92% and 92% respectively, the proposed value for precision is 98% and F-measure is 97%.

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