

PERFORMANCE ANALYSIS OF ENSEMBLE METHODS IN PREDICTING BUYING INTENTION OF ONLINE SHOPPERS'

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ABSTRACT

Online shopping is very popular nowadays. Customers often visit the website but do not always make the purchase. Traders will benefit if they can take appropriate action on the prediction of machine learning model based on customer's browsing data. In this paper, we compare the accuracy rate of ensemble algorithms (Adaptive Boosting, Hard Voting, Simple Average Voting) in predicting customers' intention. We use "Online Shoppers Intention Dataset" for predicting buying intention of customers. Though the dataset contains imbalance class instances of positive and negative classes, the Adaptive Boosting algorithm gives highest accuracy (0.8924) and F1-Score (0.62) among the three algorithms with full set of features. It also gives the highest accuracy with different sets of features. Among them best accuracy rate is 0.894 and F1-Score is 0.63 with the feature set (10 features) selected through RFE algorithm.

Key words: Buying intention, Ensemble, RFE, Voting, Feature Ranking, Extra Tree Classifier, Adaptive Boosting.

INTRODUCTION

From the manner in which we organize, to the manner in which we have our news, we're gradually moving everything on the web. What's more, shopping is no special case. In last two decades, buying products online has become more popular and turned into a billion-dollar business industry. As of late, the quantity of individuals purchasing merchandise and enterprises online has expanded like never before previously. The reasons why web-based purchasing intention has increased in great amount throughout the years is an outcome of the experience that e-commerce websites are providing to their customers. We're observing that businesses add new features and services for online customers, with the intent of providing them the same feel and comfort that they would have experienced at the time of shopping in shopping mall.

The expansion of web-based business utilization throughout the most recent years is made potential in the market as expressed; statistics indicates that near about 95 percentage of web clients visit online retailers without reason for really making any purchase. Moreover, in any event, when shoppers visit online retailers in motivation behind making a buy, huge numbers of them don't complete the exchange and desert their motivation only preceding checkout. As indicated by investigation, normal pace of purchasers who don't satisfy the way toward shopping exchange is around 60-70 rate in 2010 (Forrester Research, 2009). It is critical to gauge this circumstance for online retailers since it expresses the contrast between their benefits or lost deals. Numerous online retailers and IT companies put resources into early identification and business purpose expectation frameworks which emulates the conduct of a salesman in virtual shopping condition. Since in physical retailing, the salesman can change rates and marketing projections. Online sellers are also offering customer-based promotional offers to draw customers, which relies primarily on customers' previous purchases or searches.

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