

Chapter 3

Development of Effective Electronic Customer Relationship Management (ECRM) Model by the Applications of Web Intelligence Analytics

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ABSTRACT

Analysis of customer relationships based on their satisfaction is a practical and motivating success factor for the growth of every company. Web intelligence describes the scientific development that uses information technology and artificial intelligence for new frameworks, services, and products provided by the web. This chapter aims to present the model of analyzing the users' sentiments from their online reviews on an e-commerce platform using machine-learning classifiers, namely naive bayes, logistic regression, support vector machine, and neural network. For data analysis, latent semantic analysis has been applied to examine the most frequent words used in online reviews. Finally, customers' interest in online shopping analysis has been performed to classify the customers' sentiments from their posted reviews on the e-commerce platform. In addition, the authors compared the performance results of these classifiers on the e-commerce dataset. The results reveal that the naive bayes classifier has performed better than all the other three classifiers.

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INTRODUCTION

Online shopping is a form of e-commerce and provides advantages such as avoiding store visits and travel costs, shopping at any time, increasing marketing, decreasing overhead expenses, and offering variety of products for both consumers and retailers. According to (Sam & Chatwin, 2015), it has been found that more than 85% of the world's online population supported the online shopping via internet during the recent year. This involves the technical specifications of an online store focused on the technology-centered view, which influences consumer's awareness of using that technology (Cheng, 2009). It allows the customer to buy products or services directly online by choosing products while visiting online shopping mobile applications or websites (Kütz, 2016).

The study (Mohammed & Mouhoub, 2014) sheds light on an important topic in the field of e-marketing, which is accepting online shopping by consumers. It also discussed the benefits of using online shopping in terms of saving money, time, effort, and getting rare products at competitive prices, and its impact and the results of using Internet in marketing, promotion, and sales to reduce operational costs.

The study (Moore, 2020) helps in understanding and analyzing the factors affecting individuals' behavior and decisions towards adopting or using internet shopping and ensuring their confidence in using internet-shopping technology as the human factor is the main driver of this process.

The chapter aims to apply four classifiers namely Neural Network, Support Vector Machine, Naive Bayes and Logistic Regression on e-commerce dataset, and compare the performance of the classifiers using various metrics in mining the buying interest of the customers in online shopping. The rest of the chapter has planned as follows: Section 2 focuses on background and survey related to online shopping and customer interests in e-commerce. Section 3 experimental methodology and problems on online-shopping. Section 4 covers the solutions& recommendations. Future research directions and the conclusion of the chapter is summarized in section 5 & 6 respectively.

BACKGROUND

Online Shopping

Business is the process of buying and selling products or providing services to customers. The traditional way of buying takes place when customers visit stores and search for the products or services they need. One of the obstacles to this traditional way of doing business is that the seller can obtain business from a specific

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