

**Predicting online customers using machine learning technique to
Improve the Online Sales at Dialog Axiata plc.**

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ABSTRACT

In an era of rapid growth, western countries have witnessed a shift from traditional shopping to online platforms. Similarly, Sri Lanka is experiencing an increasing potential for online shopping, expanded by the covid-19 pandemic. Responding to this trend, Dialog started online business in 2020. However, the online sales have not reached satisfactory levels, with only 1% of customers using the online channel. To address this, the researcher aims to identify factors influencing online sales and proposes the implementation of a machine learning (ML) model for predicting potential customers.

The researcher conducted an extensive review of existing literature to determine independent variables, statistical tools, and machine learning algorithms relevant to the research objective. The identified independent variables including “age, gender, occupation, area of living, marital status, education level, customer satisfaction, and level of awareness”. The dependent variable is “online sales”. The research particularly suggests employing seven algorithms namely logistic regression, Decision tree, random forest, support vector machine (SVM), naïve bayes, K-nearest Neighbors (KNN), and neural network as the research problem is classification.

The researcher collected a dataset of 500 real instances from Dialog Axiata plc, a prominent telecommunication company in Sri Lanka, to determine the significance of the variables and develop the predictive model. The model experienced accurate evaluation, encompassing training and testing data, with accuracy, precision, recall, and overall model accuracy serving as evaluation metrics. Drawing conclusions from hypothesis testing and model outcomes, the researcher set findings and extended tailored recommendations to Dialog Axiata plc to achieve the research objective.

The decision of this research resides in the conclusion chapter. Herein, the researcher outlines the proposed business solutions, the contribution the study makes to the organization, evaluation insights, acknowledged limitations, avenues for future research, and the researcher’s new skill set. Through a thorough journey of examination, data collection, modeling, and evaluation, this research not only shows the factors influencing online sales but also provides many recommendations for Dialog Axiata plc to enhance their online business performance.