INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER

VAS Service Prediction for Telco Customers

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Submitted in partial fulfilment of the requirements for the MSc in Advanced Software
Engineering degree at the University of Westminster.

September 2022

ABSTRACT

A mobile telecommunications company's value-added services provide clients a range of services. Annual revenue from value-added services is significant for telecommunications businesses. The mobile telecommunications market in Sri Lanka is about to reach a point where mobile users will begin to understand that their phones can do more than just make phone calls. Even if users do not use all of the services, mobile network operators' VAS offers are drawing more subscribers since they have realized that mobile VAS has "value." Mobile network companies utilize VAS to boost the number of connections on their networks.

Value Added Services are offered by a value-added service provider externally or internally by the mobile network operator. The network operators make a significant amount of money from these services. It is vital to identify customers from the current customer base who are qualified for each VAS and recommend these services to them in order to reap the greatest benefits. The proper clients will be more likely to use the service and boost revenue for the business if it is recommended to them. These VAS will increase both the consumer base and customer satisfaction. The contented customers of a business are its most important asset, to sum up. On the other hand, a customer will be dissatisfied with the operator if he is suggested a service that he does not desire. Because the consumer will find the messages that make those suggestions burdensome and will become irate with the network operator. Therefore, it is critical to identify the right customers for each VAS.

This research tries to research, design and develop accurate VAS prediction model for telecommunication customers using machine learning. The research used a dataset from a prominent Mobile Service Provider in Sri Lanka and extracted 9 important features to build the model. Different machine learning algorithms, including classical algorithms and ensemble methods, are used to build many models. Stacking, Random Forest, XG Boosting, Bagged CART were used alongside with Logistic Regression, K-nearest neighbor (KNN) and Naïve bayes (NB) algorithms for the predictive modeling and analysis. Predictive model which was built using bagging Classification and Regression Trees algorithm (CART) showed the best results among other models with accuracy of **82.97%**.

Key Words: VAS, Machine learning, Ensemble, Classification