A Machine Learning Approach to Predict the Personalized Next Payment Date of an Online Payment Platform

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Abstract

Use of digital payments have risen exponentially in the recent past especially due to the COVID-19 pandemic. This is due to the fact that online payment methods offer many benefits in performing their day-to-day transactions and paying utility bills such as electricity bill, water bill, telephone bill and etc. Knowing when a consumer will perform a specific online transaction, or a bill payment is beneficial to an online payment platform to plan marketing campaigns since targeted marketing has become very prevalent nowadays. However, predicting this is not an easy task since thousands of transactions are happening in each an every minute of an online payment platform. This paper presents the results of a study that investigated predicting the customer personalized, utility bill payment type wise next payment date of a financial company in Sri Lanka by using ma- chine learning techniques. This is accomplished by analyzing not only online transaction history but also customer characteristics and a holiday calendar which is specific to Sri Lanka. At the end of the study, it was identified that XGBoost Regressor is the most suitable machine learning algorithm to deal with this scenario which provided 91.02% accuracy. These predictions will be used for sending personalized reminders and discount offers to customers without sending general common notifications when they are planning to do an online payment. Such reminders and offers will be notified on the mobile devices of the customers and, ultimately both customers and the business owners will be benefited by this.

Keywords

Online Payment Platforms, Next Payment Date, Predict, Machine Learning