Modelling customer lifetime value in the ferry industry

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Abstract

Customer Lifetime Value (CLV), which estimates the long-term contribution of customers to an organisation's profit, is of particular relevance in industries in which there is a mix of regular and occasional customers, and it needs to be taken into account to generate realistic prices. Working with two large ferry operators in UK, we aim to use real application data to model the CLV of different segments of customers with the objective to develop a pricing strategy in order to balance between immediate profit and CLV. In the ferry industry, customers' segments are dependent on the product being sold but it can typically divide into three segments: occasional purchaser, regular consumers and contractual business operators (e.g. tourist coach, lorries of retailers). Using customers' past purchasing behaviour (e.g. recency, frequency) as input variables, we will first apply the Pareto/NBD models to estimate the CLV. The second approach we will use is survival analysis. By using the Cox Proportional Hazard (PH) model, survival analysis is able to include censored data and time-dependent covariates. The PH model will be able to capture the customers' individual characteristics. The model will then be used to estimate the attrition rate of different groups of customers. The results of this study will not only be valuable to the two commercial partners but will also provide insights to researchers about the use of different approaches in estimating CLV in the ferry industry.