Customer Lifetime Value Prediction

Customer Lifetime Value represents a customer’s value to a company over a period of time. It’s a competitive market for insurance companies in 2019, and insurance premium isn’t the only determining factor in a customer’s decisions. CLV is a customer-centric metric, and a powerful base to build upon to retain valuable customers, increase revenue from less valuable customers, and improve the customer experience overall.

Business Problem

An Auto Insurance company in the USA is facing issues in retaining its customers and wants to advertise promotional offers for its loyal customers. They are considering Customer Lifetime Value CLV as a parameter for this purpose. Customer Lifetime Value represents a customer’s value to a company over a period of time. It’s a competitive market for insurance companies, and the insurance premium isn’t the only determining factor in a customer’s decisions. CLV is a customer-centric metric, and a powerful base to build upon to retain valuable customers, increase revenue from less valuable customers, and improve the customer experience overall. Using CLV effectively can improve customer acquisition and customer retention, prevent churn, help the company to plan its marketing budget, measure the performance of their ads in more detail, and much more.

Project Overview

The objective of the problem is to accurately predict the Customer Lifetime Value(CLV) of the customer for an Auto Insurance Company

Performed EDA to understand the relation of target variable CLV with the other features.

Statistical Analysis techniques like OLS for numerical and Mann–Whitney U and also Kruskal Wallis test for the categorical variables were performed to find the significance of the features with respect to the target.

Supervised Regression Models like Linear Regression, Ridge Regression, Lasso Regression, DecisionTree Regression, Random Forest Regression and Adaboost Regression.

Using GridSearchCV with Random Forest Regression gave the best RMSE and R^2 score values

Dataset Description

The dataset represents Customer lifetime value of an Auto Insurance Company in the United States, it includes over 24 features and 9134 records to analyze the lifetime value of Customer.

DATASET:-

<https://docs.google.com/spreadsheets/d/1cltj1nQA2hSM_-BJ2b7S1afMV78hKj9ygd4_P-Aqjqk/edit?usp=sharing>