Telecom Customer Churn Prediction

Shiva Dhanush Konuru	Manikanta Sai Kommireddy	Mayuresh Bhangale	Chetan Rahane
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Objective

The main goal of this project involves analyzing the behavior of customers in the telecom sector and establishing the possibility of churning, a situation in which customers leave the service provider. It aims to bring useful insights that may enable the telecom firms to create effective customer retention programs through the recognition of various variables that drive customers to leave. Predicting which customers churn, on the other hand, enables companies to take corrective actions in order to retain them in a very focused manner and thereby help decrease revenue losses, enhancing the quality of long-term customer loyalty.

Customer and Importance

Our customers are telecom companies facing the problem of retaining their subscriber base continuously within a highly competitive market. The model should provide the telecom providers with insights into the most influential factors that cause customer churn, including tariff plans, service duration, and customer satisfaction. This will become crucial for proactive measures in terms of customized offers and loyalty programs to help prevent churn. Based on the output from the model, the telecom companies are able to reduce churn, retain customers, and consequently gain higher profitability.

Data

The project will make use of the Telco Customer Churn dataset, containing various customer attributes, including demographic details, contract information, service usage, and tenure. This gives a broad basis on which such customers can actually leave. In other words, this is a complete dataset that encompasses almost all possible causes for churning.

Algorithms

Following are some of the machine learning algorithms that will be applied for the prediction of customer churn:

- **Random Forest**: A very powerful ensemble method in which, to improve upon the results of prediction, several decision trees are combined.
- **Logistic Regression**: This is one of the most used statistical models that is used to predict binary classification problems, such as churn prediction.
- **Decision Trees**: To give insight into how decisions are made on customer data in a very interpretable way.
- **AdaBoost**: To further improve model performance by focusing on hard-to-predict examples.
- **Naive Bayes**: A probabilistic model which will help in understanding the underlying patterns in customer behavior.

Learning Outcomes

The following insights and skills are obtained with this project:

- **Churn Factors**: Identify the most important factors causing changes in customer churn, such as contract duration, pricing models, and interaction with customer support.
- **Model Evaluation**: Compare the performance of different ML algorithms in predicting churn and point out the most potent model in this use case.

The outcome of this project will give a great framework to the telecom companies in predicting customer churn and undertaking necessary steps to counter the situation, hence improving their customer satisfaction by reducing churn.