Telecom Churn Project

A presentation by Fiona Wangui Njuguna

Overview

- Churn is a metric that shows customers who stop doing business with a company or a particular service.
- The telecoms sector has a turnover rate of 15 to 25 percent annually in this fiercely competitive market.
- Customer retention is becoming even more crucial than acquiring new customers because it costs 5–10 times more to do so than to keep an existing customer.

Project Outline

- Business understanding.
- Data understanding.
- Modeling.
- Model Evaluation.
- Conclusion.
- Recommendations.

Business Understanding.

Problem Statement.

In this project, I analyse customer data from a telecom company, build predictive models to identify reasons that cause customer churning by identifying the indicators of churning from the features used in the predictive models.

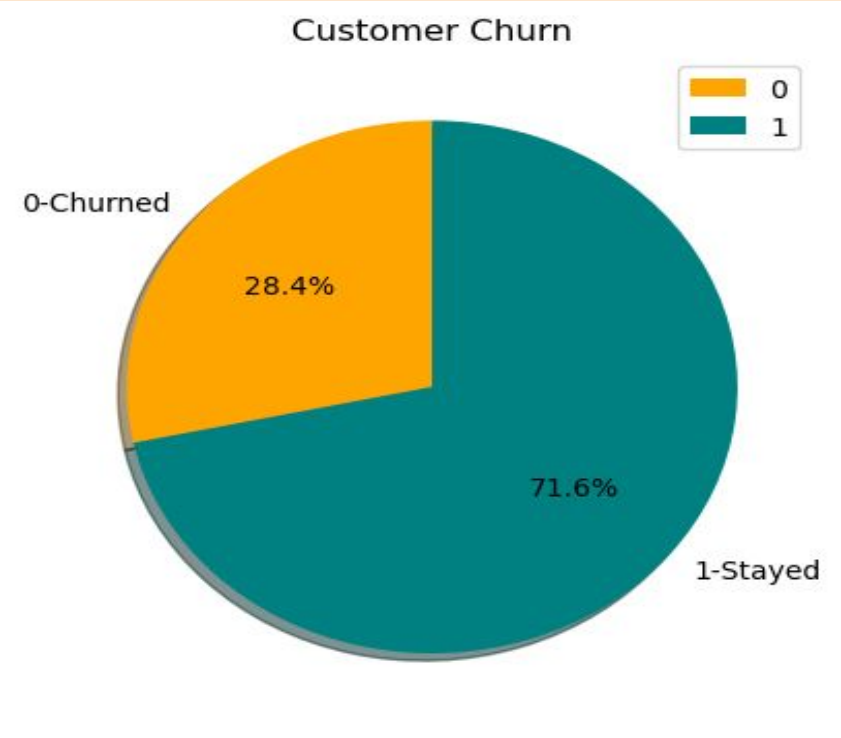
Objectives.

- To identify the trends between both customers that churn and customers that stayed.
- To identify customers that churn using a basic analysis and predict the chances of a customer churning based on available variables.

Data Understanding.

- The data set used contains information about features that affect customer churning.
- It contains 7043 records and 38 columns.(23 categorical, 15 numeric).

Univariate Analysis

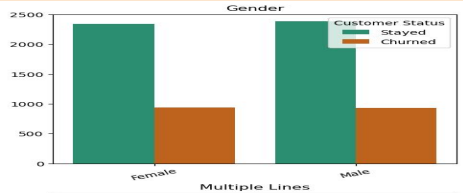


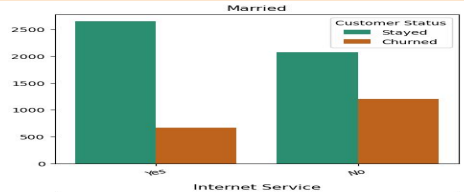
- The percentage of customers that churned are 28% and those who stayed are 72%.

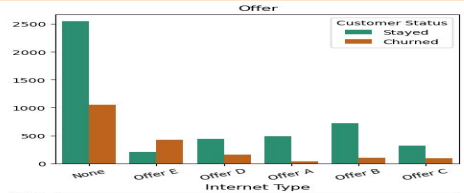
Bivariate Analysis

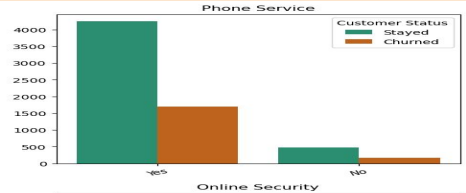
- For most of the categorical columns, the number of customers who stayed are more than those who churned.
- Choosing a few columns such as contract, those within a month contract are more than likely to churn as compared to the rest.
- Another example is payment method, where customers with bank withdrawal are more likely to churn as compared to those with a credit card or mailed check.

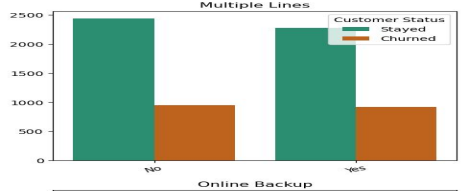
Bivariate Analysis

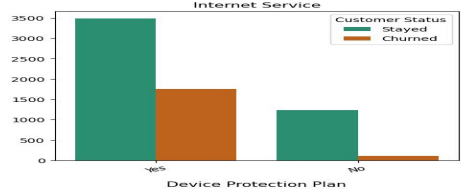


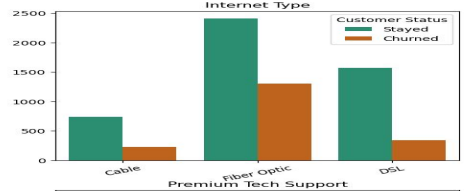


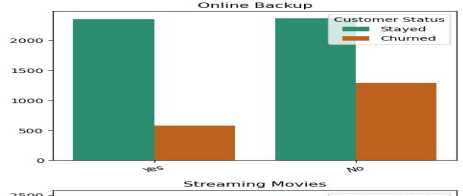


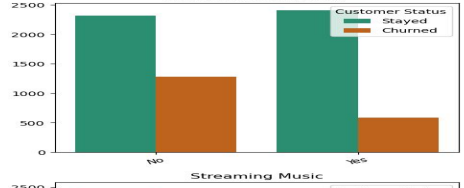


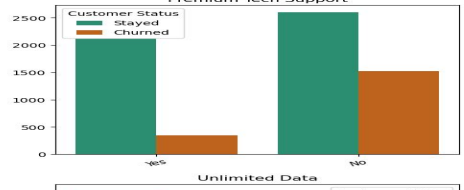


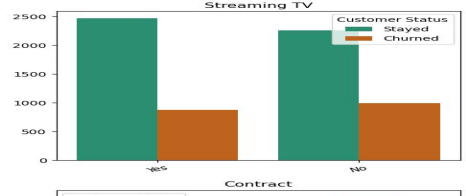


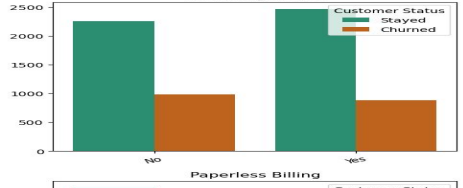


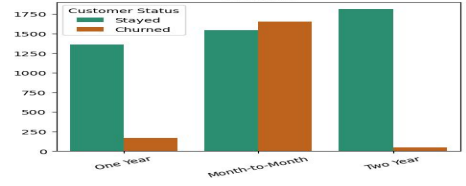


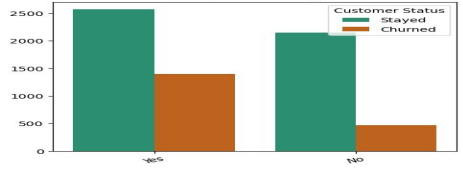


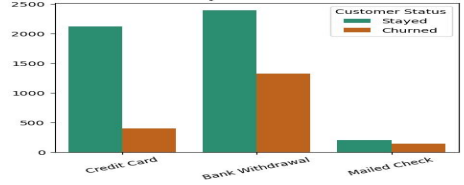


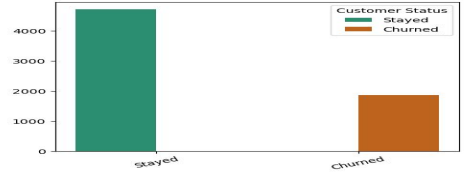












Modelling

- The goal of this section is to build a model based on the features.
- The model will be evaluated on it's prediction accuracy.
- A model that achieves an accuracy of 85% is considered a success in this analysis.

Evaluation.

- The success metric used for model evaluation was Accuracy of 85%.
- From the model predictions above, the model that reached the desired accuracy score was the Random Forest model and performed better after parameter tuning and performing a cross validation on it.
- It improved by a slight percentage increase of 1%.

Conclusions.

- Telecom firms can lower customer churn and raise customer satisfaction by using machine learning approaches for churn prediction.
- The identified predictors and patterns can help in accurately classifying customers that churned and those that stayed.
- The likelihood that a customer would churn can be predicted using given factors and the right techniques.

Recommendations.

- Consider using techniques like feature selection or feature importance to identify most influential variables for churn prediction.
- Work together with business stakeholders to comprehend their needs, take advantage of their subject-matter expertise and match the churn prediction model with business objectives and recommendations.