

Telco Customer Churn Analysis

Andrew Cole | [GitHub Repository](#) | [EDA Blog](#) | [Model Blog](#)

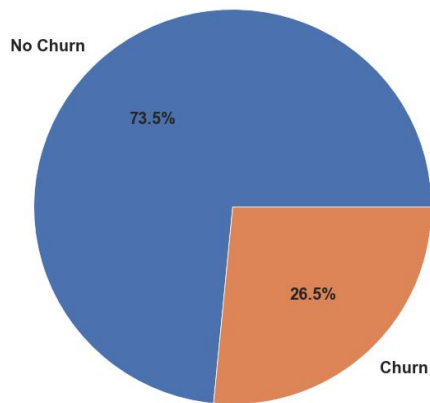
Overview

- **Goal:** Analyze telecommunication company customer data to predict whether or not a customer is likely to leave the platform (churn)
- Data from 7043 customers (21 features):
 - Churn (Yes or No)
 - Customer account information (tenure, contract, payments, etc.)
 - Demographic Information (Partner, Gender, Age, etc.)
 - Add-on services provided by the platform
- Source: [Kaggle.com](https://www.kaggle.com)

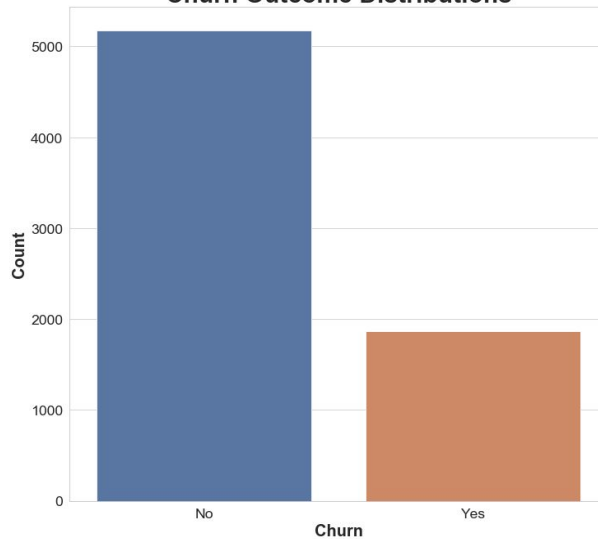


Target - Customer Churn

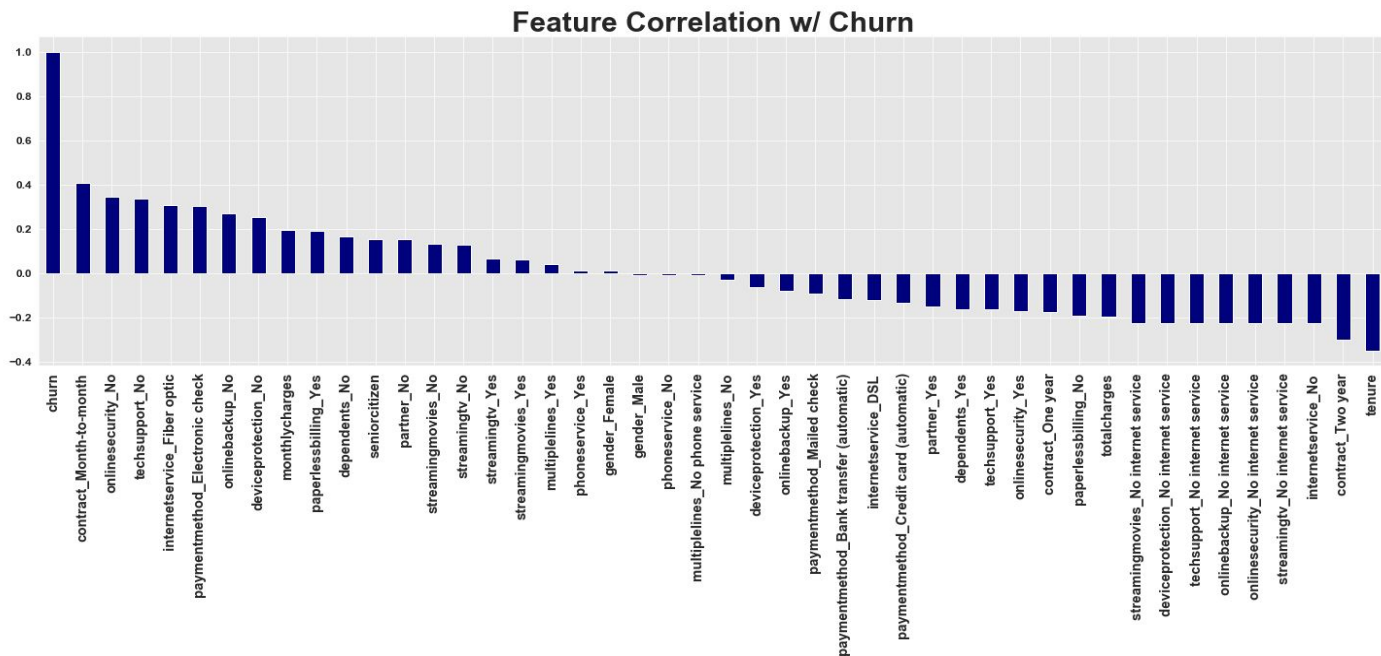
Churn Outcome Pie Chart



Churn Outcome Distributions



Feature Correlation to Churn

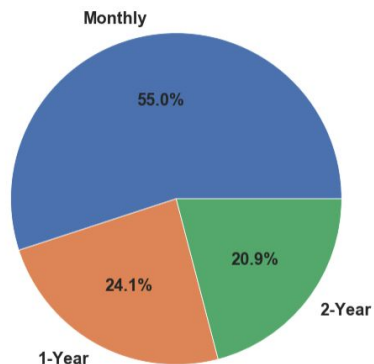


Most Positively Correlated: Monthly Contracts, No Online Security Add-On

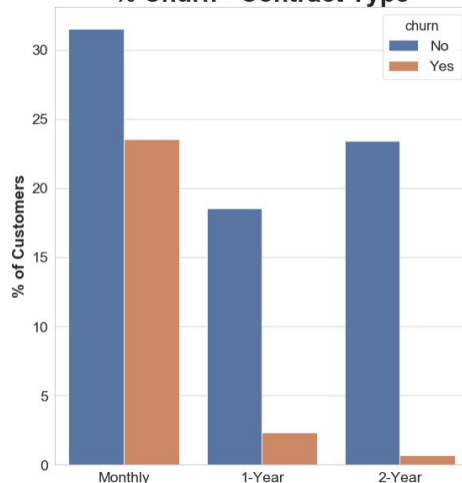
Most Negatively Correlated: Tenure, Two-Year Contracts, No Internet Service

Contract Types

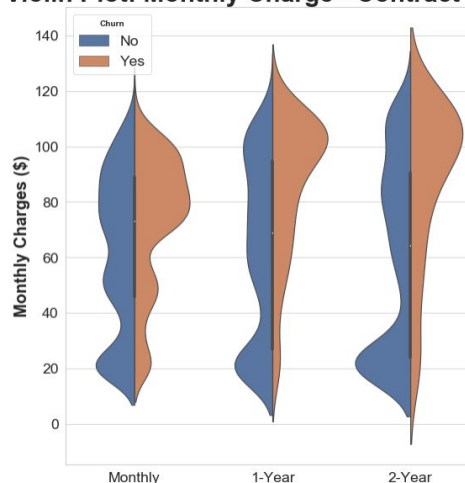
Customer Contract Composition



% Churn - Contract Type

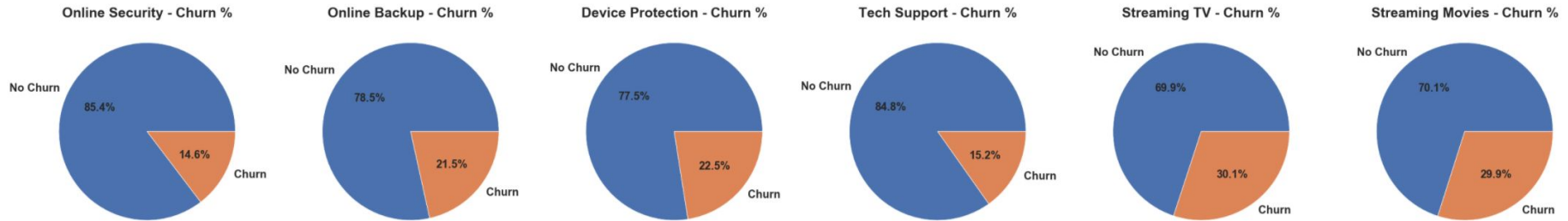


Violin Plot: Monthly Charge - Contract Types



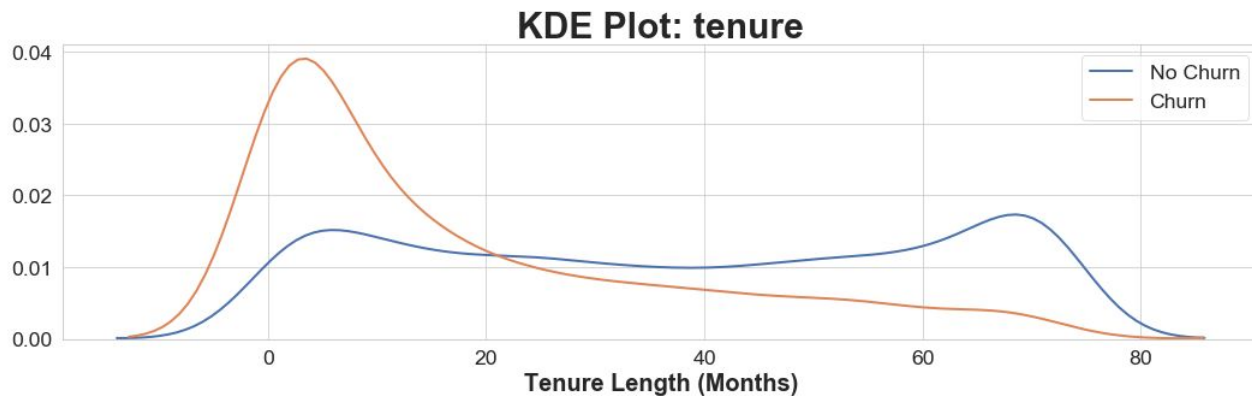
- Significantly more customers will churn when on monthly contracts
- Churn decreases as contract lengths increase
- Customers on monthly contracts are most likely to pay above \$60/bill

Add-On Services



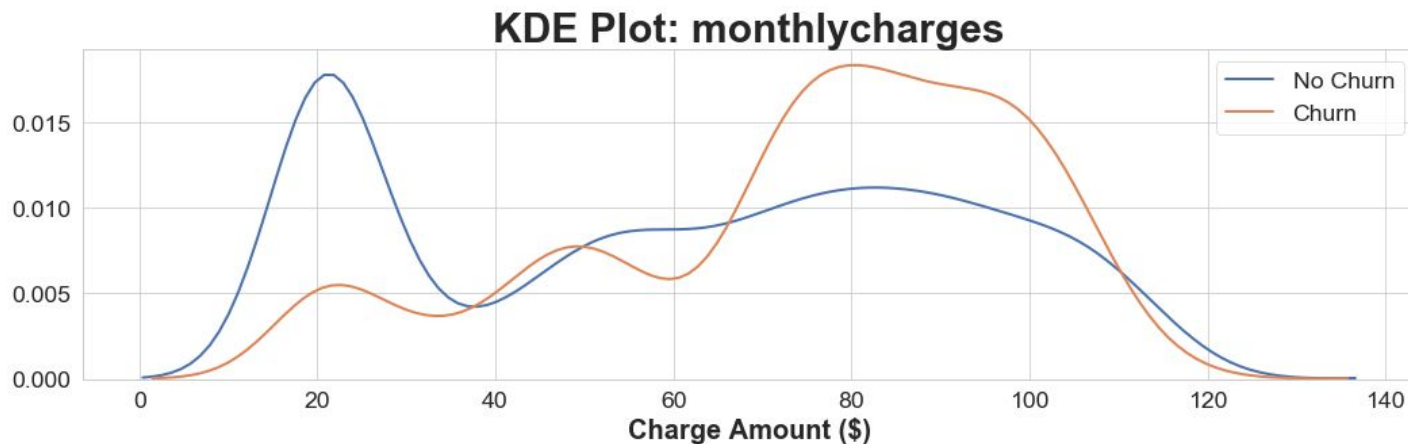
- Customers with online security and/or tech support add-ons will churn the least
- Customers with Streaming services (TV/Movies) will churn the most

Customer Tenure



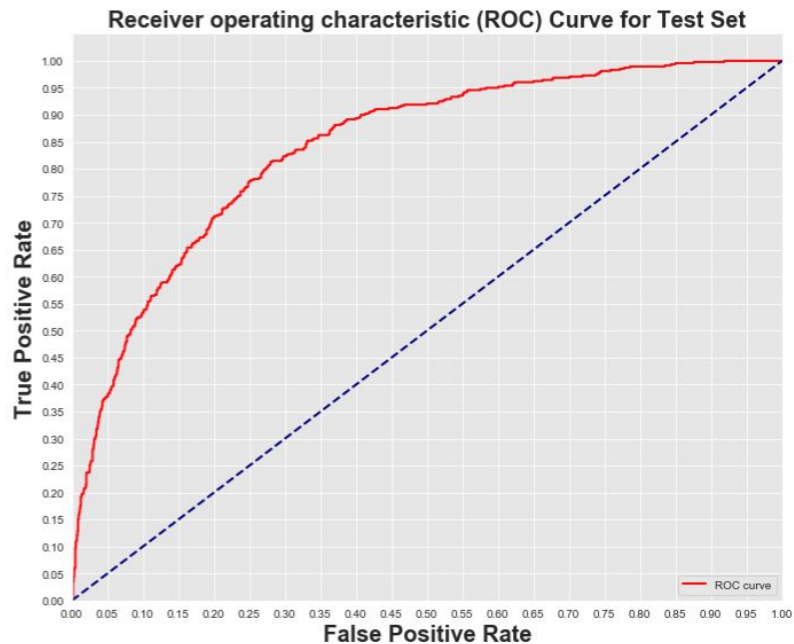
- Customers are significantly more likely to churn within the first year of tenure on the platform
- As tenure increases, probability of churn decreases

Customer Monthly Charges



- As monthly charges increase, the probability of customer churn increases
- Customers who churn are most likely to have bills exceeding \$60

Logistic Regression Classifier



- 80% Accuracy Achieved
- AUC Score = .8388

Conclusions

- Customers with monthly contracts are 20% more likely to churn than with annual contracts
- Customers have the highest probability of churning within the first 20 months on the platform
- Tech-Support & Online Security add-ons play a critical role in preventing churn, while streaming add-ons significantly increase likelihood of churn
- Customers are twice as likely to churn when the monthly charge is greater than \$60

