Marketing Final Project Proposal

Business Question
What drives higher churn rate of customer and how can Telecoms tackle this problem?

Goal

Identify customers likely to churn and develop focused intervention plans to retain as many customers as possible.

Challenges

Customer churn is a critical and challenging problem affecting business and industry, in particularly, the rapidly growing, highly competitive telecommunication sector because most customers have multiple options from which to choose within a geographic location. There are 400 millions subscribers in the US telecommunication industry. The availability of wireless devices and networks is everywhere. Everyone has access to cell phones and internet. From social network to shopping or travelling, people can retrieve their needs and enjoy their leisure time online. Everything is accessible through mobile devices and Internet. Therefore, this is the prosperous market to thrive in. Nevertheless, competitions also arises in this market. With similar services, different companies compete vigorously for a segment in the telecom industry. The ultimate goal is to expand its coverage area and retrieve more customers loyalty. The core to succeed in this market lies in the customer itself.

The primary motivation is the dire need of businesses to retain existing customers, coupled with the high cost associated with acquiring new ones. It is reported, per carrier, its monthly loss from churn is up to $65M [1]. The cost of churning is undeniably an obstacle for profit-maximizing for these telecom companies. This problem urges each telecom company to reconstruct its services variety as well as its marketing strategy to acquire and retain its customers base. With competitions arising from non-stop technology movement, it is utmost important to improve its subscribers retention rate. Since it is costly to acquire new customers, telecom companies need to retain its already-existing and newcomers in order to break-even in costs. Hence, by solving churning, not only these companies maintain its position in the market, but also expand and thrive. More customers in their network, the less cost of initiation, the higher the profit. Therefore, minimizing churn rate in customers and developing strategic plans for retention are the main focus for the company to prosper.

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[1] Kapoor, Aditya (Feb 17, 2017) *Churn in the Telecom Industry- Identifying customers Likely to Churn and How to Retain Them.* Retrieved from wp.nyu.edu

Data Overview

Telco-Customer-Churn Data

● Each row represents a customer, each column contains customer's attributes described on the column Metadata
● The raw data contains 7043 rows (customers) and 21 columns (features)
● After cleaning the data for later analysis, the final data set contains 7043 rows (customers) and 41 columns (features).
● Data reports:

Customers who left within the last month: Churn

Customer Services: Phone Service, Multiple Lines, Internet Service, etc.

Customer Account information: Tenure, Contract, Payment Method, Charges, etc.

Customer Demographic Information: Gender, Partner, Dependents, etc.
● Source: Telco Customer Churn programs from Kaggle

Basic summary statistics

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Descriptive Statistics
========================================================================
Statistic        N     Mean   St. Dev. Min  Pctl(25) Median  Pctl(75)   Max
------------------------------------------------------------------------
SeniorCitizen  7,043   0.2      0.4      0       0        0        0        1
tenure         7,043  32.4     24.6      0       9       29       55       72
MonthlyCharges 7,043  64.8     30.1    18.2    35.5     70.3     89.8    118.8
TotalCharges   7,032 2,283.3 2,266.8  18.8   401.4   1,397.5  3,794.7  8,684.8
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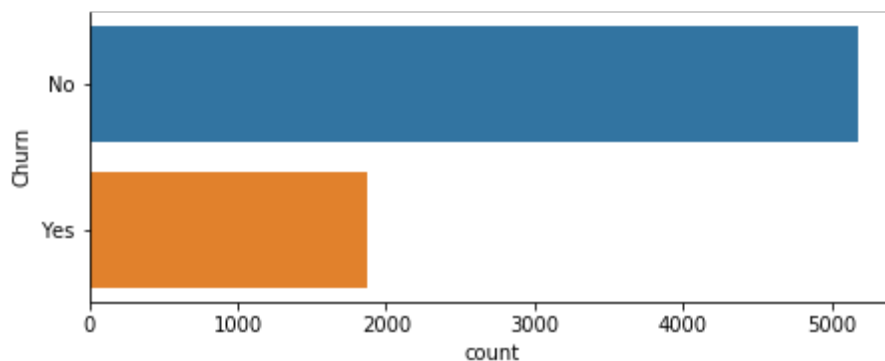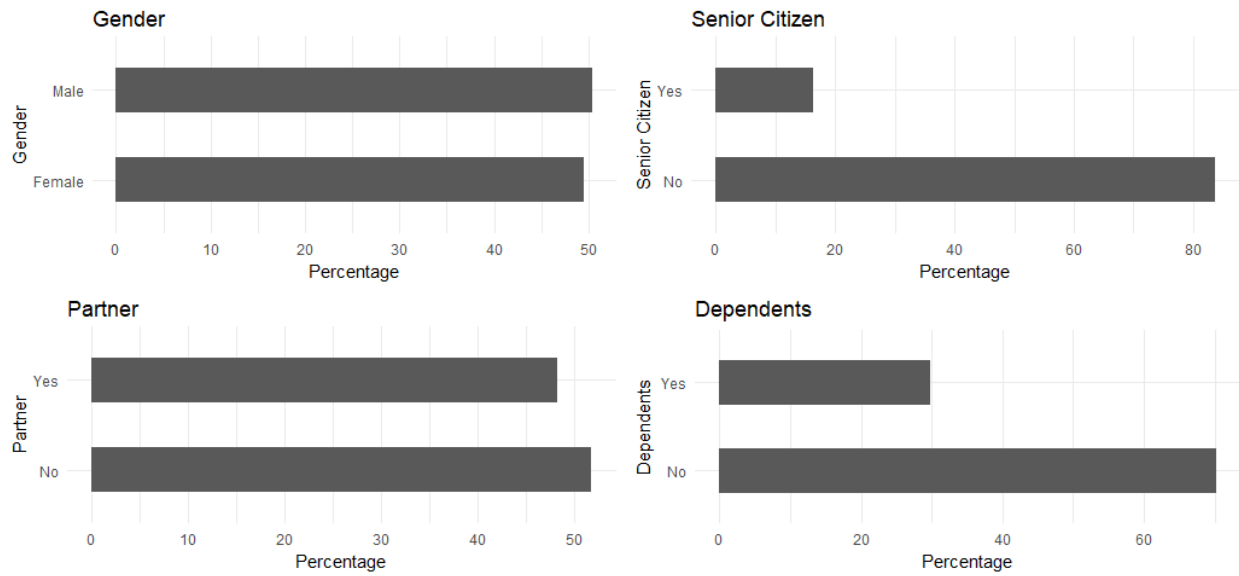
Plots

Figure 1 Churn rate

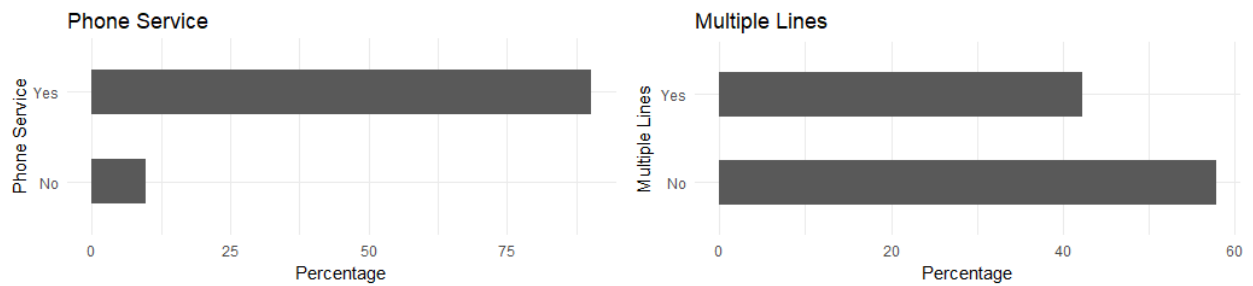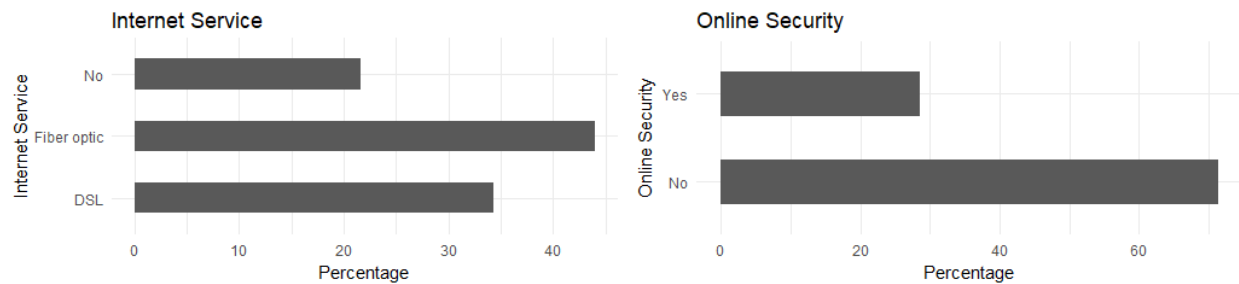**Figure 2 Demographic information of customers**

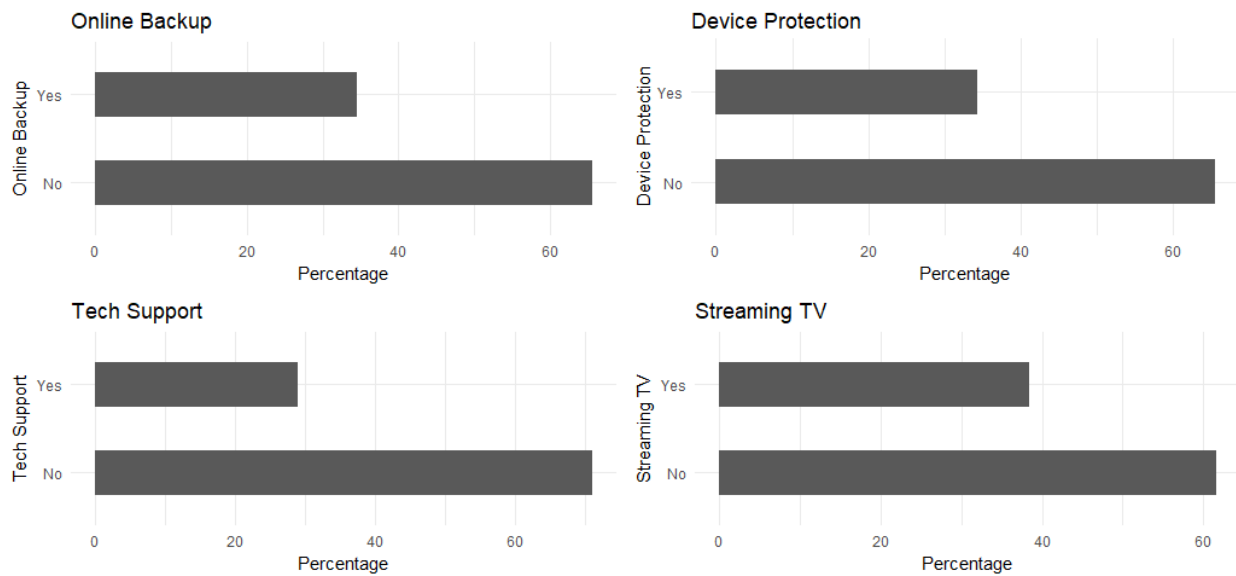

Figure 3 Phone service for customers

Figure 4 Internet service for customers

Data Suitability

The data set includes information that allows us to cluster customer and conduct analysis:

- Churn variable: information on customers who left within the last month.
- Services subscribed (phone, multiple lines, internet, online security, online backup, device protection, tech support, and streaming TV and movies)
- Customer's account information (duration of subscription, contract type, payment method, billings reference, monthly bills and total charges)
- Demographic information (gender, age range, marital status and dependents)

Analytical Tools

- Market segmentation with clustering analysis
- Predicting customer churn with Logistic Regression/ Random Forest