

Customer Churn Behavior Analysis

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Code documentation available [here](#).

Problem Definition

Consumers Sticky Behavior

Customer chooses to subscribe a product from your company more than once

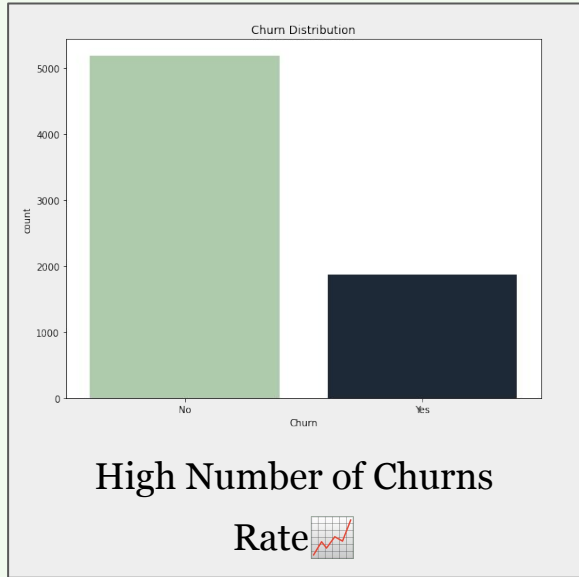
Churns Rate

Rate of customers stop doing business with an entity

Retention Rate

Percentage of customers that sign up and stay.

Problem Definition



Customers journey

Product Pricing

Customer
Preferences

*Pinpoint specific
strategies to handle churn*



Improve customers
interaction and
loyalty with product

Pinpoint specific strategies to handle churn

Define risky customers who tend to churn

Exploratory data analysis

Hypothesis testing

Key outcome

Improve product

Allow business to learn about product, pricing plan weak point, and operation issues

Identify unhappy customers, customer preferences, and expectation

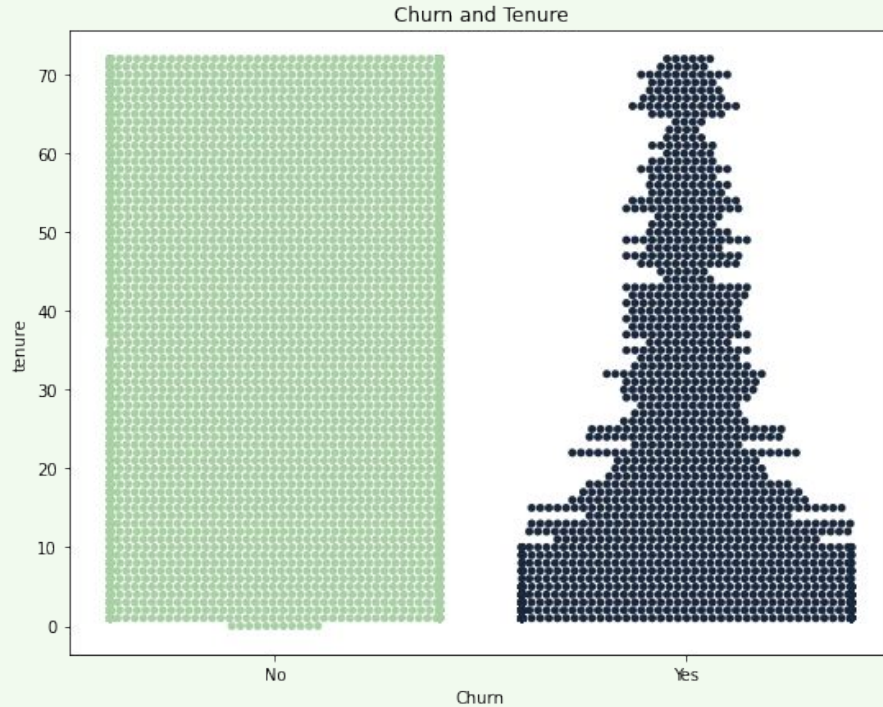
Data Profiling

Dataset contains data about telco consumers' indications to churn. Telco is a fictional company that provided home phone and internet services. It consist of 21 columns and 7043 rows

1. **Customers who leave within the last month** (churn)
2. **Demographic Info** (gender, senior citizen, partner, dependents)
3. **Service Plan** (phone service, multiple lines, internet, online security, online backup, device protection, tech support, streaming TV, and streaming movies)
4. **Customer account information** (contract term of customer, payment method, paperless billing, tenure (number of months the customer has stayed with the company), monthly charges, total charges)

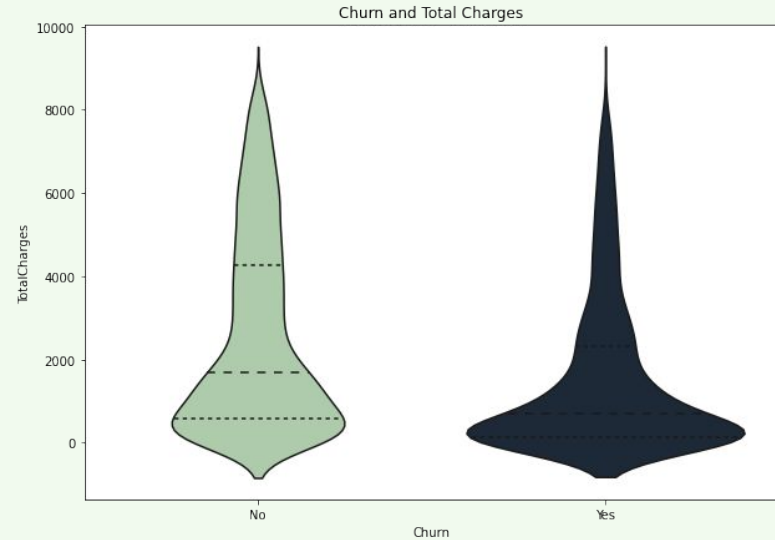
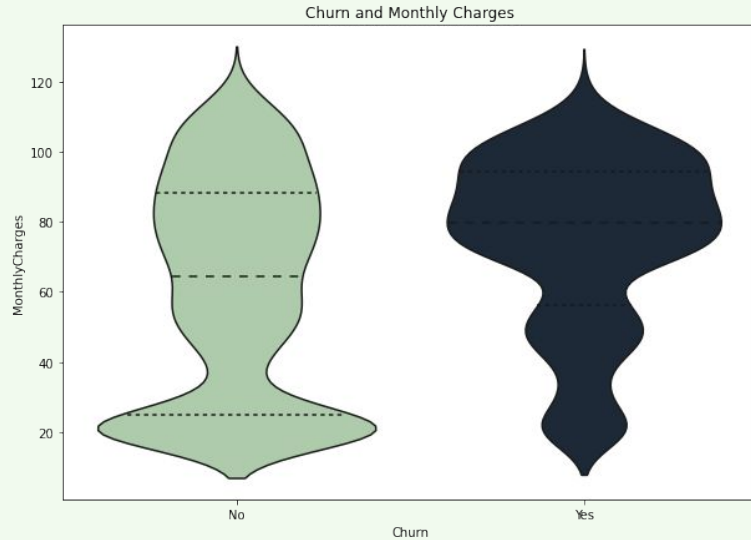
How long the average duration of product usage for churn and non-churn customers?

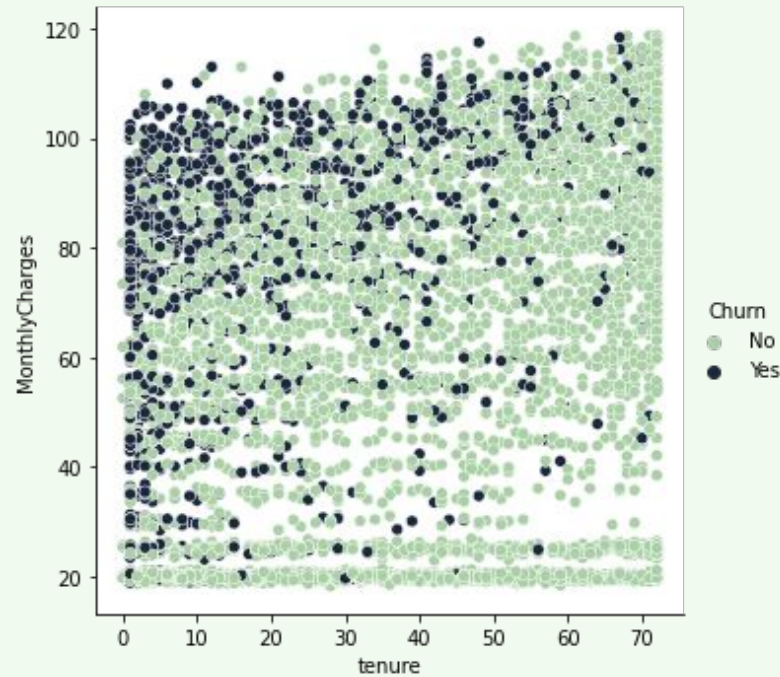
Customers who churn have less product usage duration



What is the average income earned from churn and non-churn customers?

Churn consumers bring in more monthly income than non-churn





Churn users are new users who spend more money. This result explained why Total Charges has the same value over churn and non-churn users

Why new users have higher monthly charges? Is there something wrong with the Service Plan?

We suspect users will be more loyal to the product if they do multiple subscriptions to the internet service.

Service Plan	Using Service Plan	Not Using Service Plan
Phone Service	No churn	No Churn
Multiple Lines	Churn	No Churn
Internet Service	Churn	No Churn
Online Security	No churn	Churn
Online Backup	No churn	Churn
Device Protection	No Churn	Churn
Tech Support	No Churn	Churn

Multiple Plan Service Analysis

Multiple subscriptions is subscribe to main service (internet service) with one or more additional services (such as online security, online backup, device protection, and tech support).

Hypothesis

Ho = There is no relationship between doing multiple service plan subscriptions with a low tendency to churn.

H1 = There is a relationship between doing multiple service plan subscriptions with a low tendency to churn

Chi Square Analysis

Chi Square > Critical Value
P-value < Alpha

HO is rejected

Effect Size

Odds ratio of multiple subscription= 1.3
Odds ratio of single subscription= 0.76

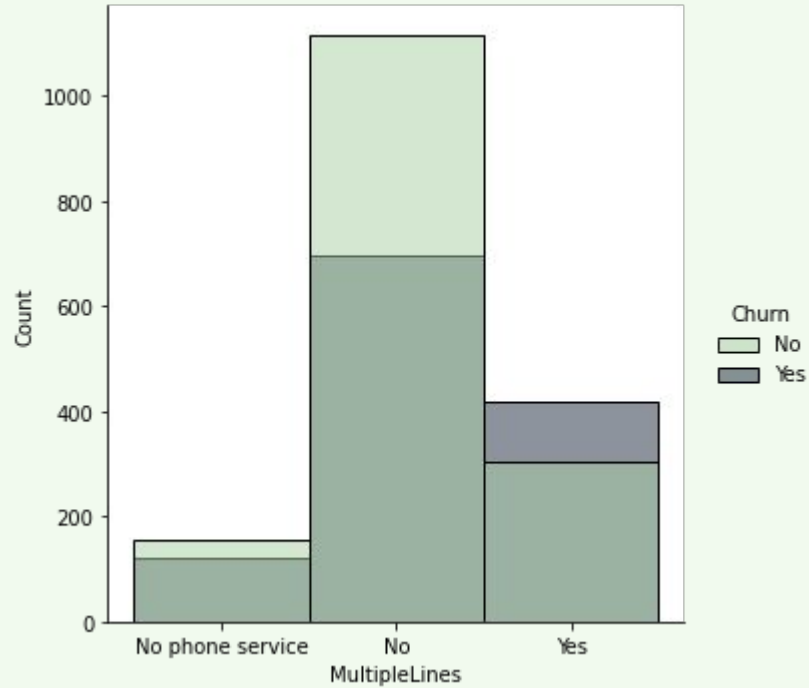
*Multiple subscriptions doesn't prevent
consumers from churning*

Business Recommendation

The high rate of churn occurs because some products do not match consumer preferences. The explanation for each product is as follows.

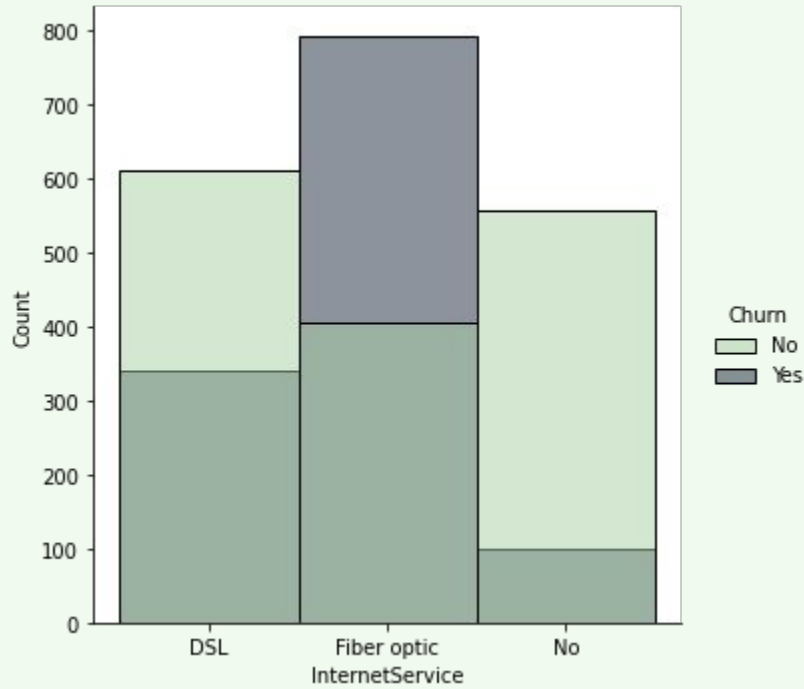
Service Plan	✓/✗
Phone Service	✓
Multiple Lines	✗
Internet Service	✗
Online Security	✗
Online Backup	✗
Device Protection	✗
Tech Support	✗

Multiple Lines



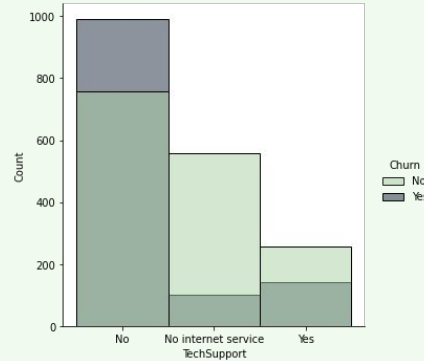
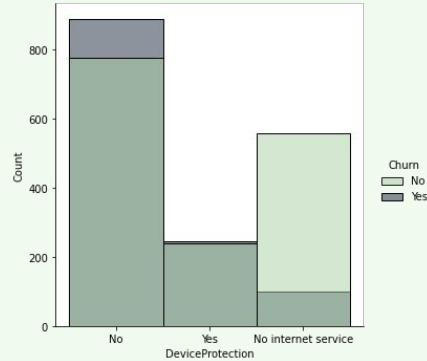
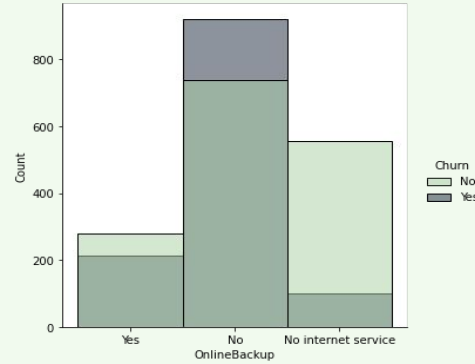
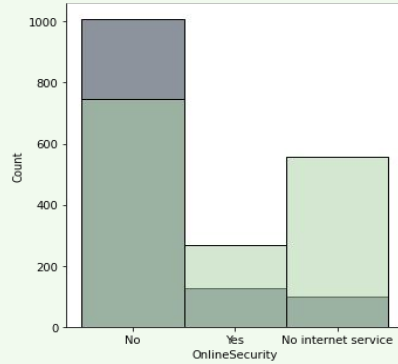
The number of consumers who use and do not use has almost the same comparison. This makes the product not in accordance with consumer preferences.

Internet Service



Fiber optic services need to fix, since its have churn user than DSL services

Online Security, Online Backup, Device Protection, Tech Support



Users on these four service plans have a fairly far comparison with consumers who do not use it. This indicates that the product requires more promotion to consumers.