Telco Customer Churn EDA and Prediction

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About the Dataset

| Services	Account Info	Demographic	Target
• Phone • Multiple lines • Internet • Online security • Online backup • Device protection • Tech support • Streaming TV and movies	• Tenure • Contract • Payment method • Paperless billing • Monthly charges • Total charges	• Gender • Age range • Partners • Dependents	• Churn – Customers who have left within the last month

Our Goal

Increase Customer Retention

- Identify trends between customer demographics, account information, and service plans correlated with churn.

Feature-Churn Correlation

Extracting the correlation between each feature and churn from a correlation matrix

Feature Correlation with Churn
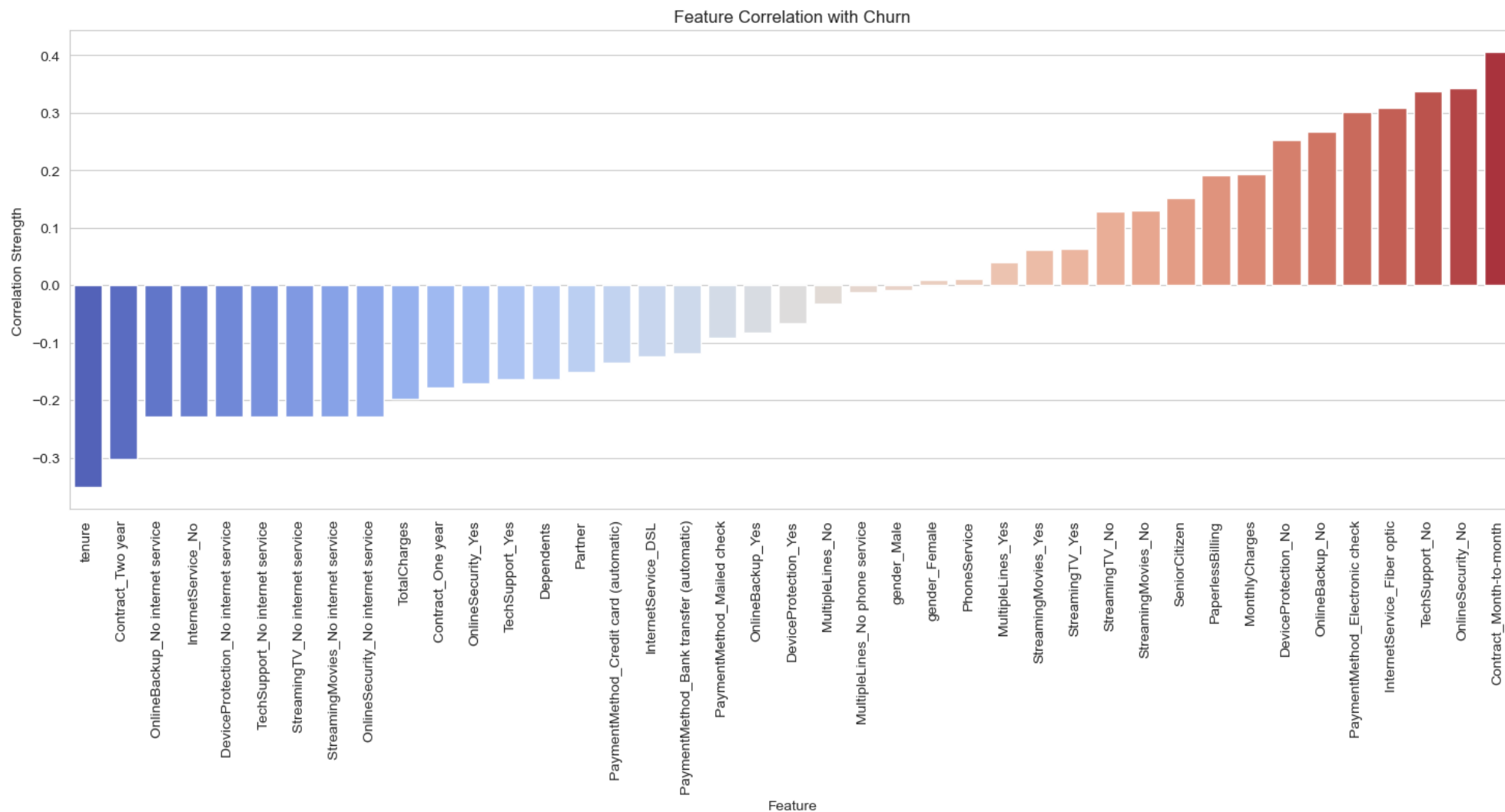
These corrélations will be explored in greater detail using percent distribution plots.

Percent Distributions

Comparing the percent distribution plots of retained and churned customers

# Why Use Percent Distribution Plots?

Churn – Target Feature

- Very imbalanced – Significantly more retained customers than churned.

- Using percent distributions allow us to avoid the issue of imbalance by normalizing the data.

- Makes comparing features for retained and churned customers easier.

Count of Churn for All Customers
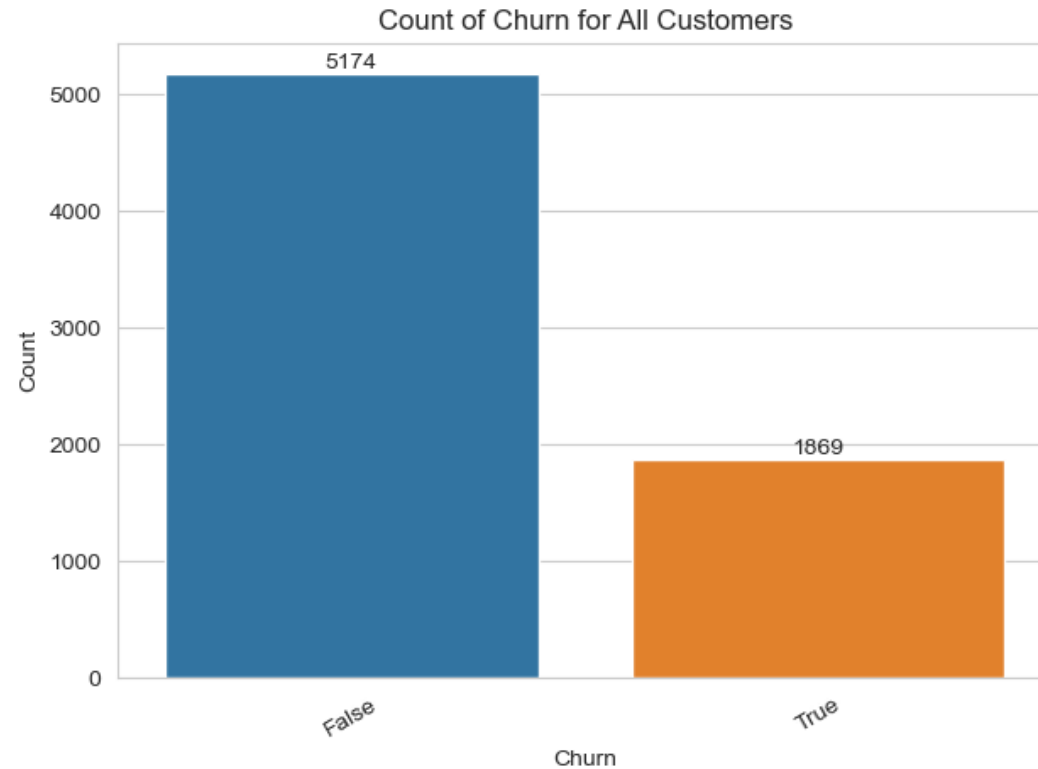
Gender

- Similar distributions between retained and churned customers.

No correlation.

Percent Distribution of gender
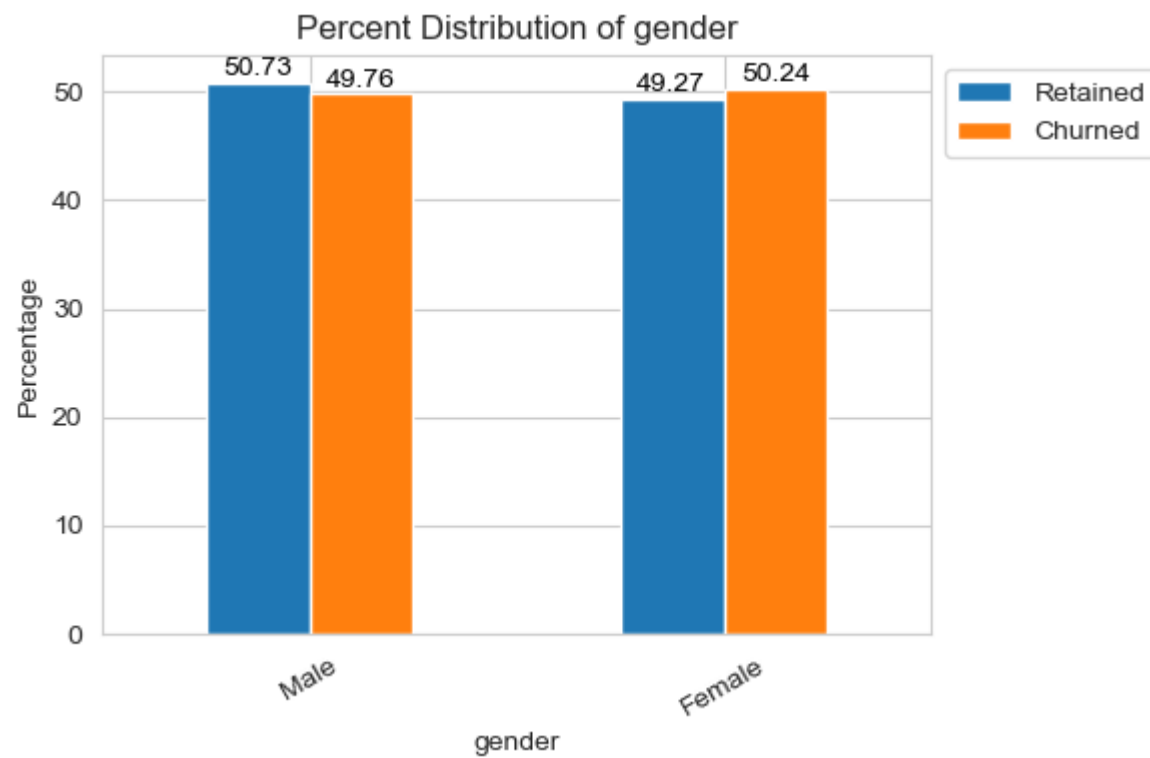
Senior Citizen

- Minor difference in distributions.

Very weak positive correlation.

Percent Distribution of SeniorCitizen
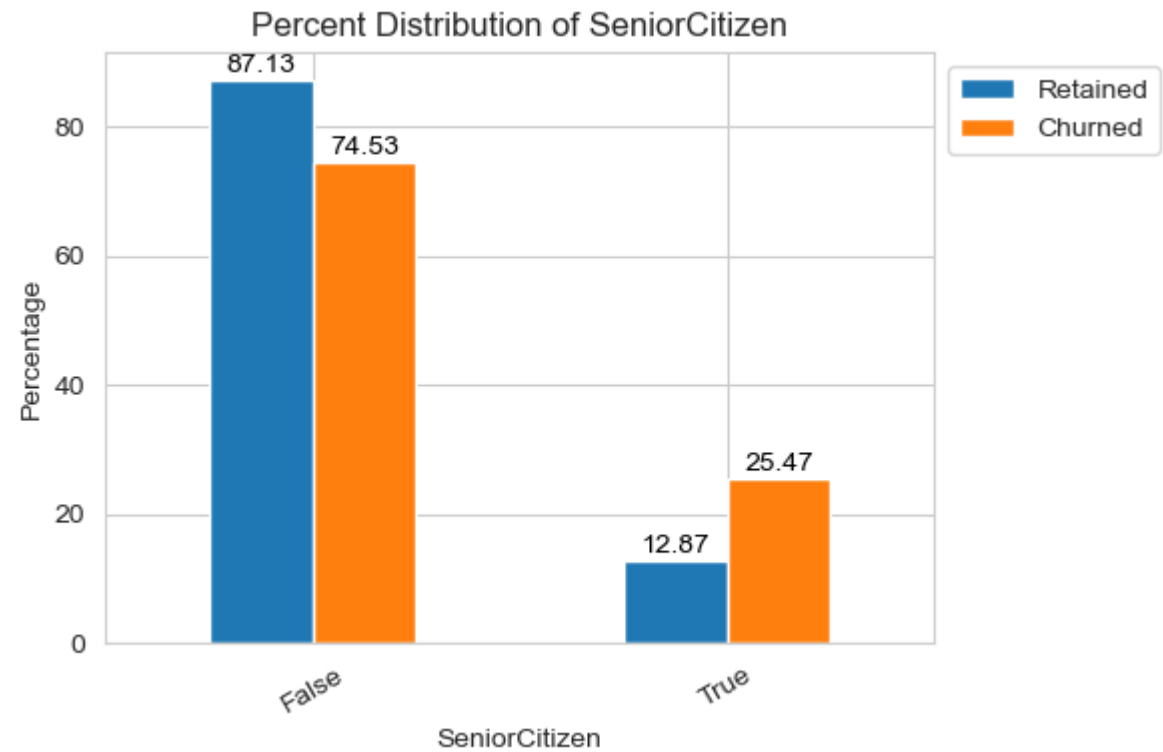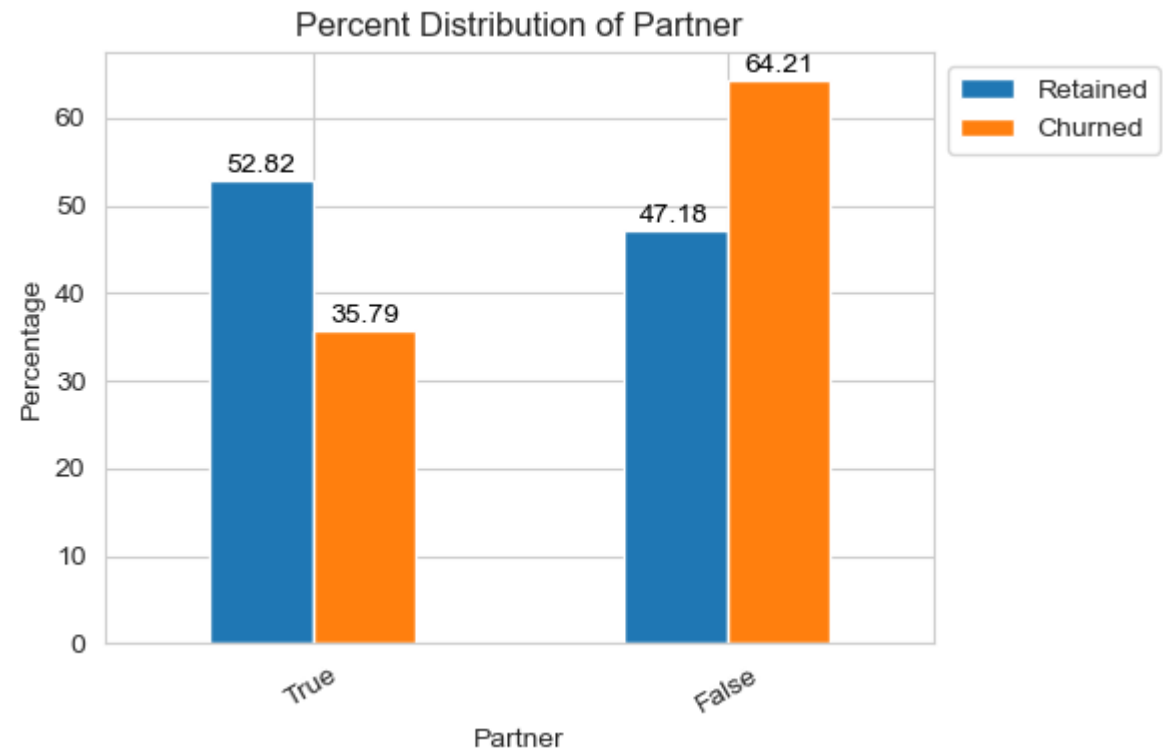
Partner

- Minor difference in distributions.

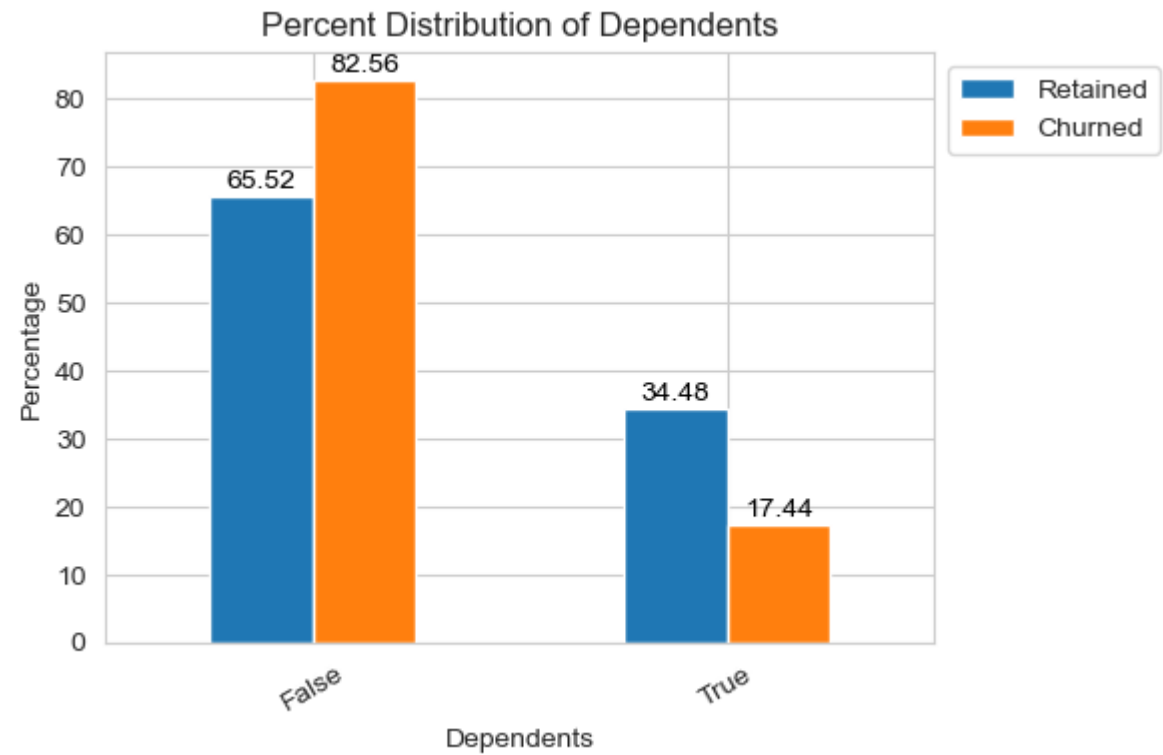**Very weak negative correlation.**
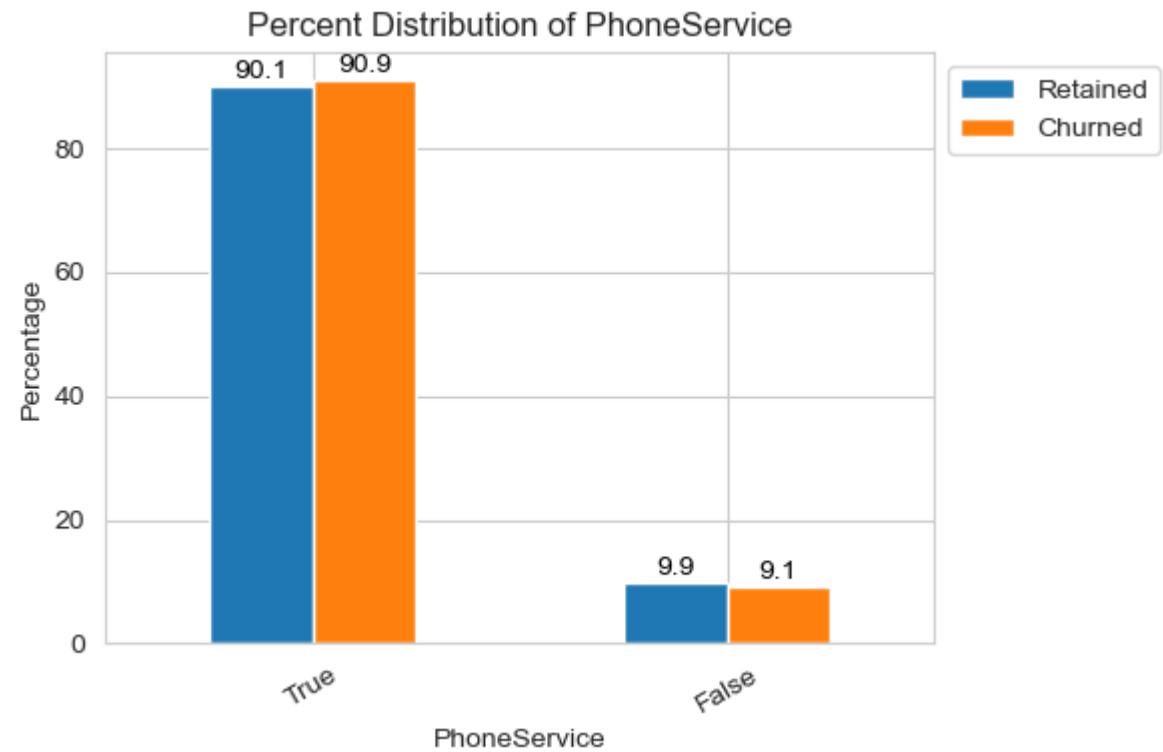
Dependents

- Minor difference in distributions.

Very weak negative correlation.

Percent Distribution of Dependents

Phone Service

- Similar distributions between retained and churned customers.

No correlation.

Percent Distribution of PhoneService

Multiple Phone Lines

- Similar distributions between retained and churned customers.

No correlation.

Percent Distribution of MultipleLines
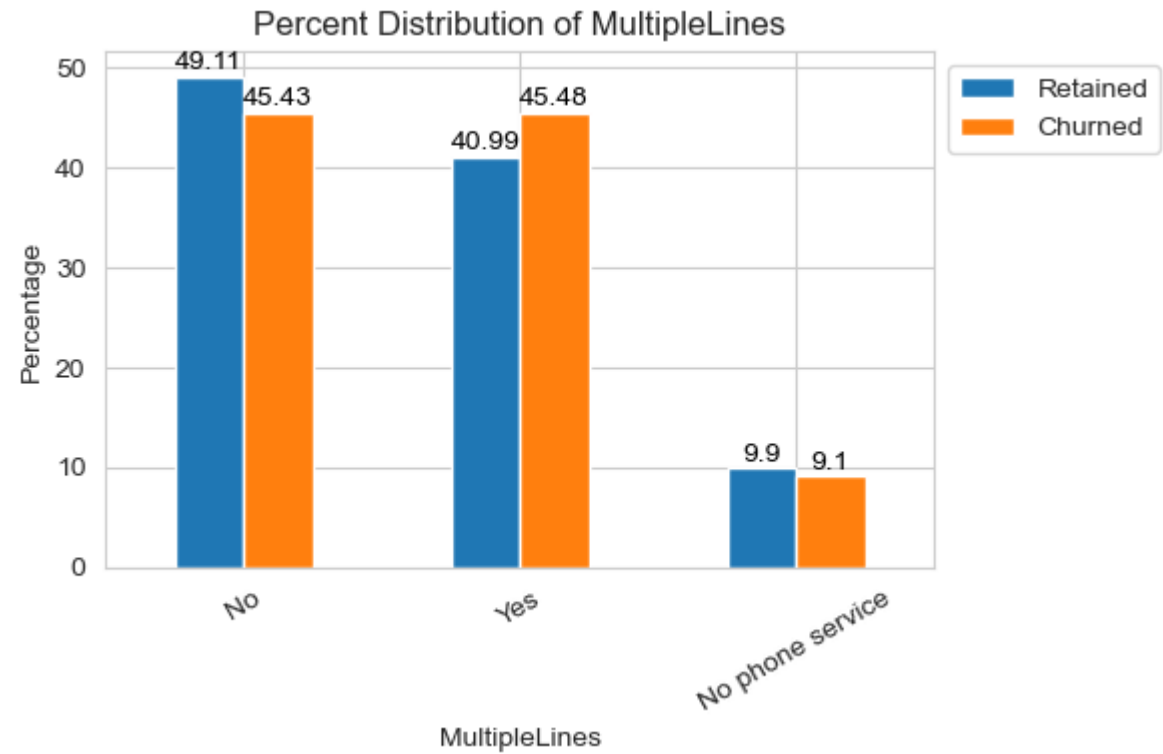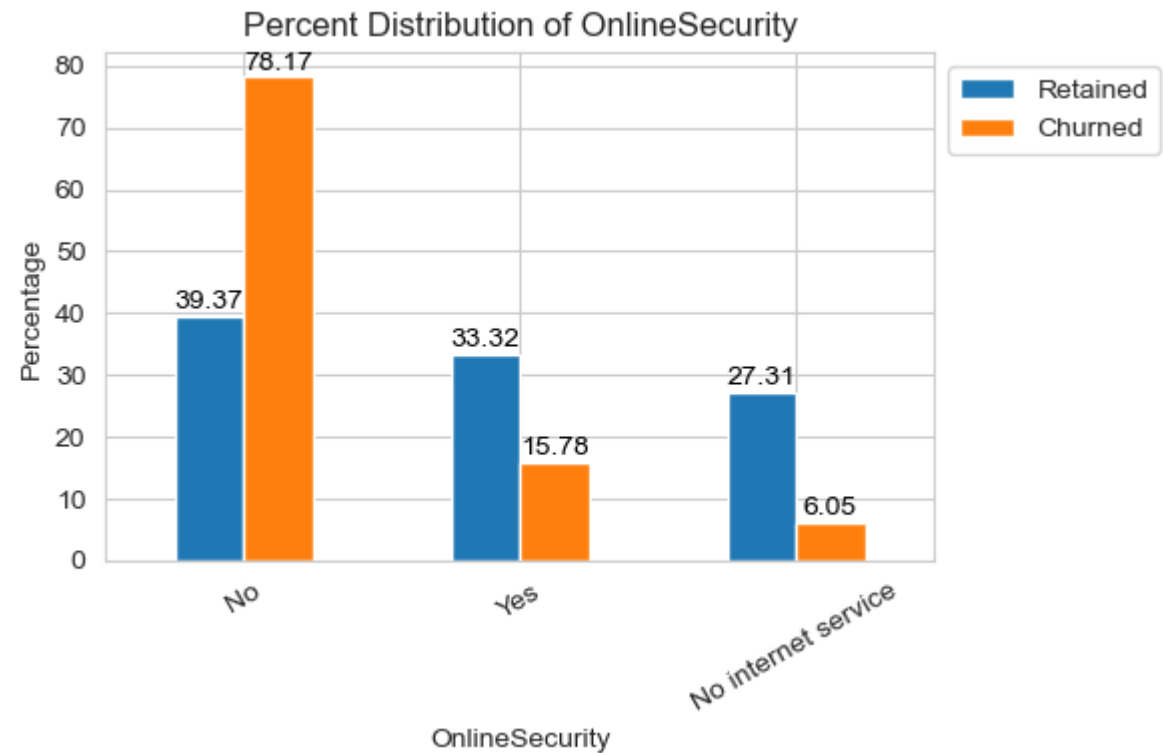
Internet Service

Weak positive correlation between fiber optic packages and churning.
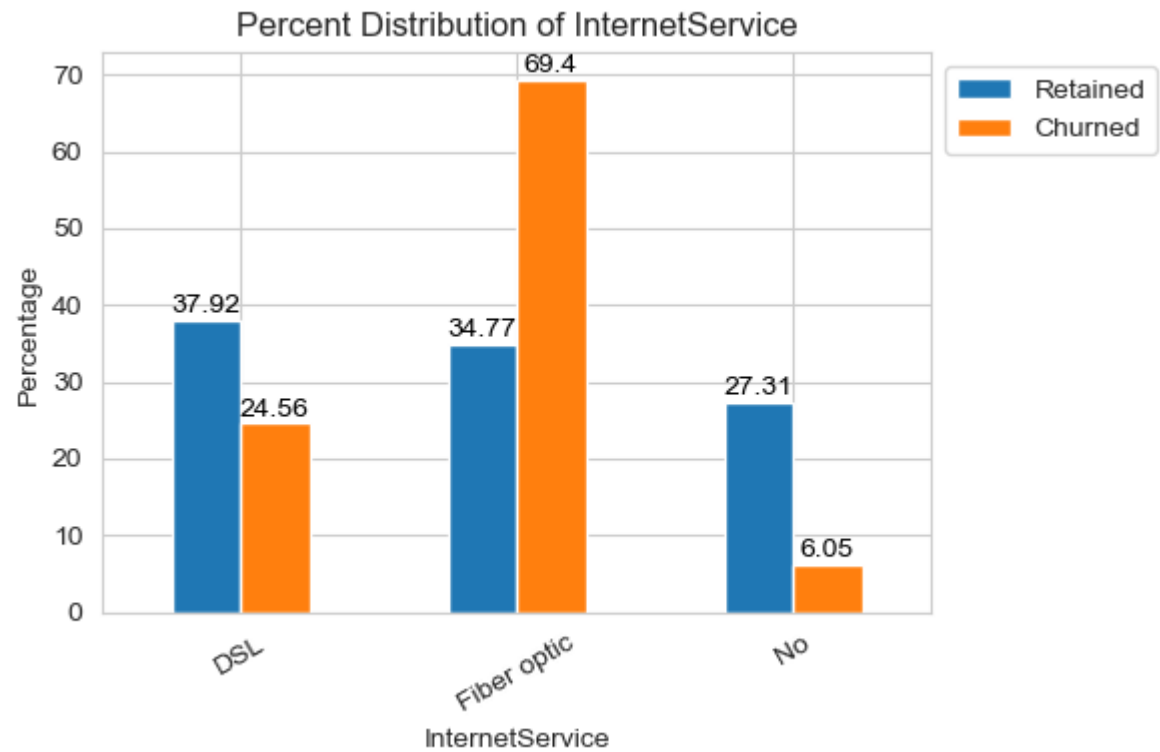
Online Security

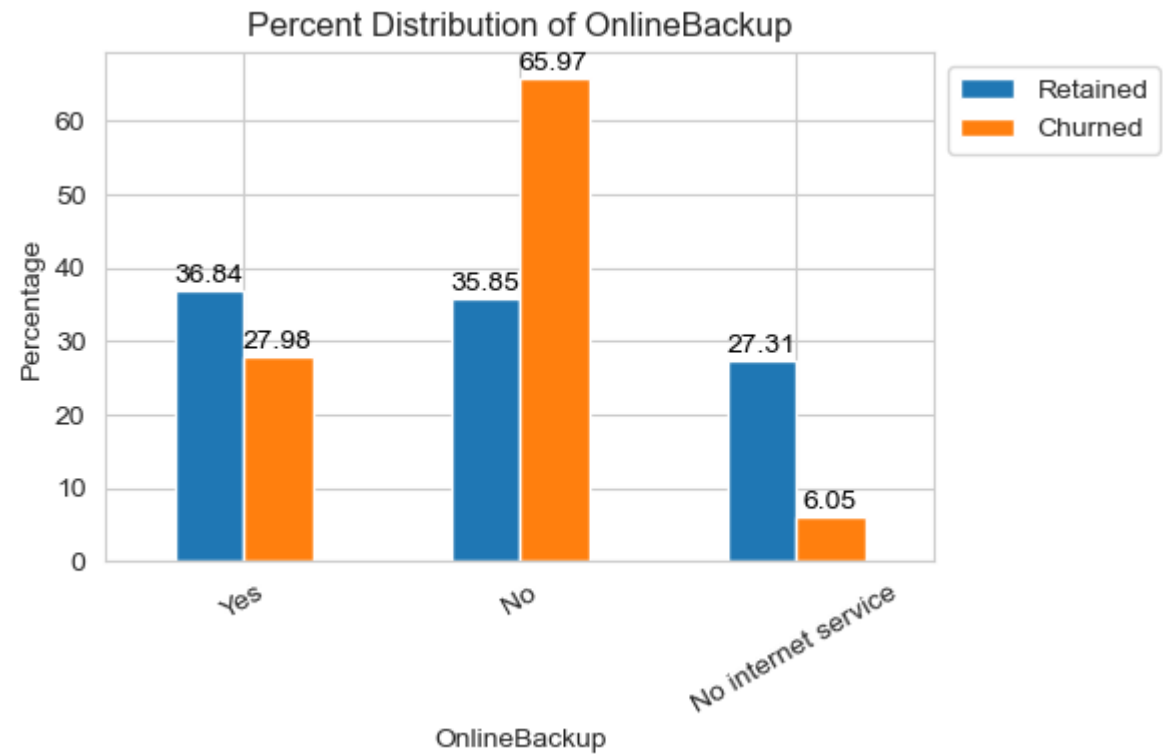- Noticeable difference in distributions.

Negative correlation.
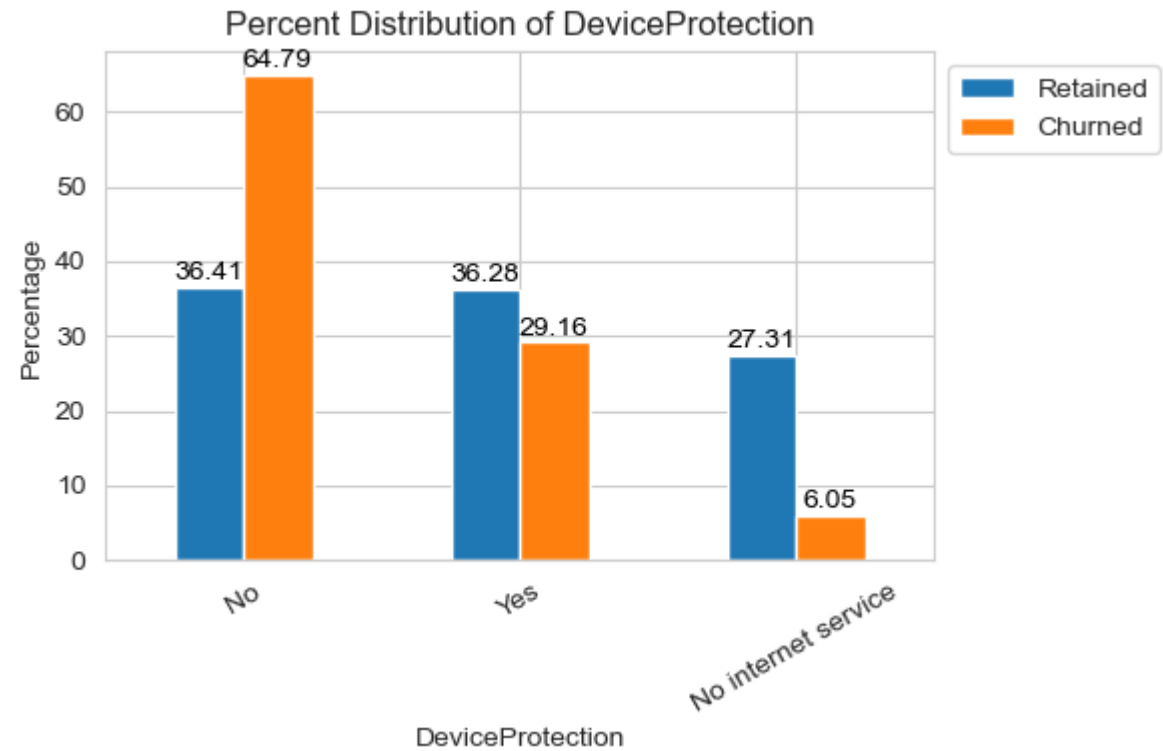
Online Backup

- Noticeable difference in distributions.

Negative correlation.

Percent Distribution of OnlineBackup

Device Protection

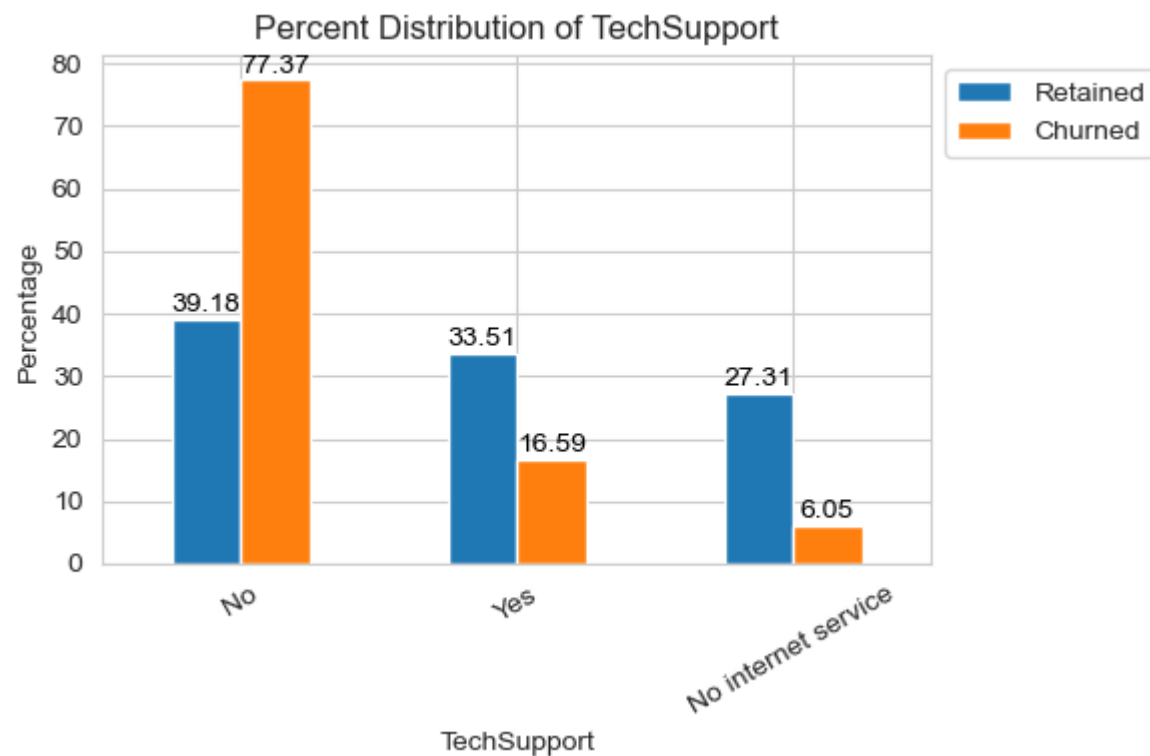- Noticeable difference in distributions.

Negative correlation.

Tech Support

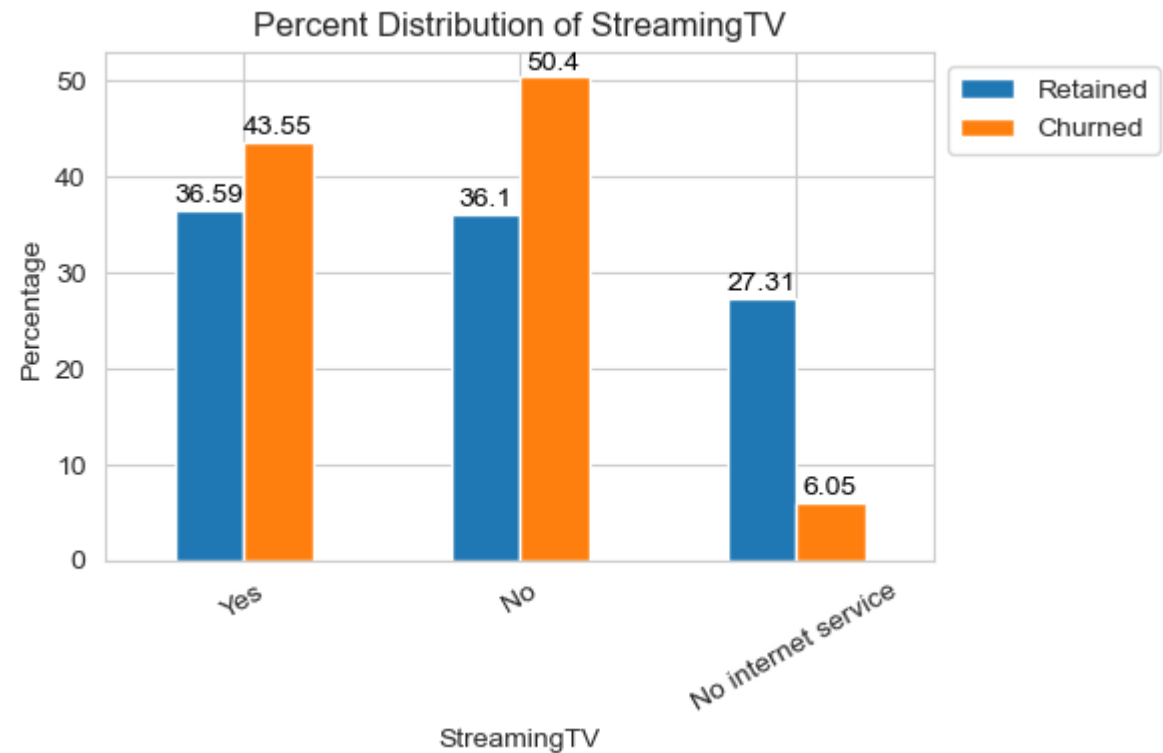- Noticeable difference in distributions.

Negative correlation.

TV Streaming

- Minor difference in distributions.

- Higher percentages for churned customers who do and don't have TV streaming.

Very weak positive correlation with having internet service.

Percent Distribution of StreamingTV

Movie Streaming

- Minor difference in distributions.

- Higher percentages for churned customers who do and don't have movie streaming.

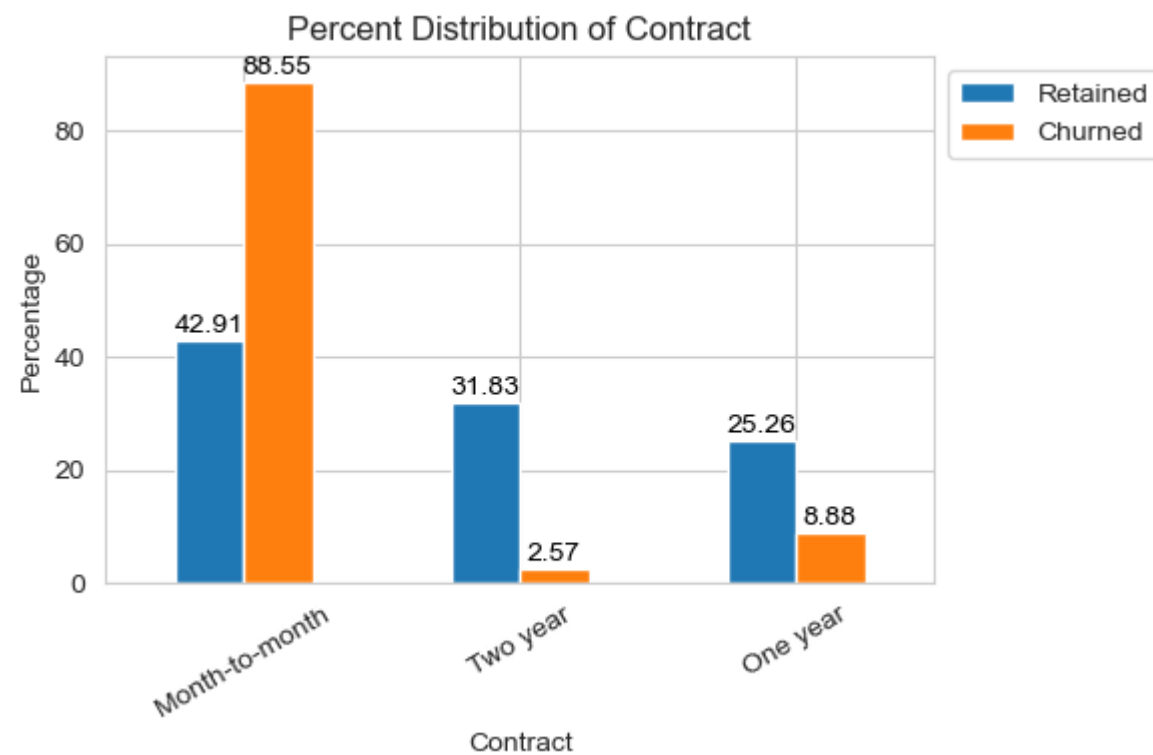**Very weak positive correlation with having internet service.**

Percent Distribution of StreamingMovies
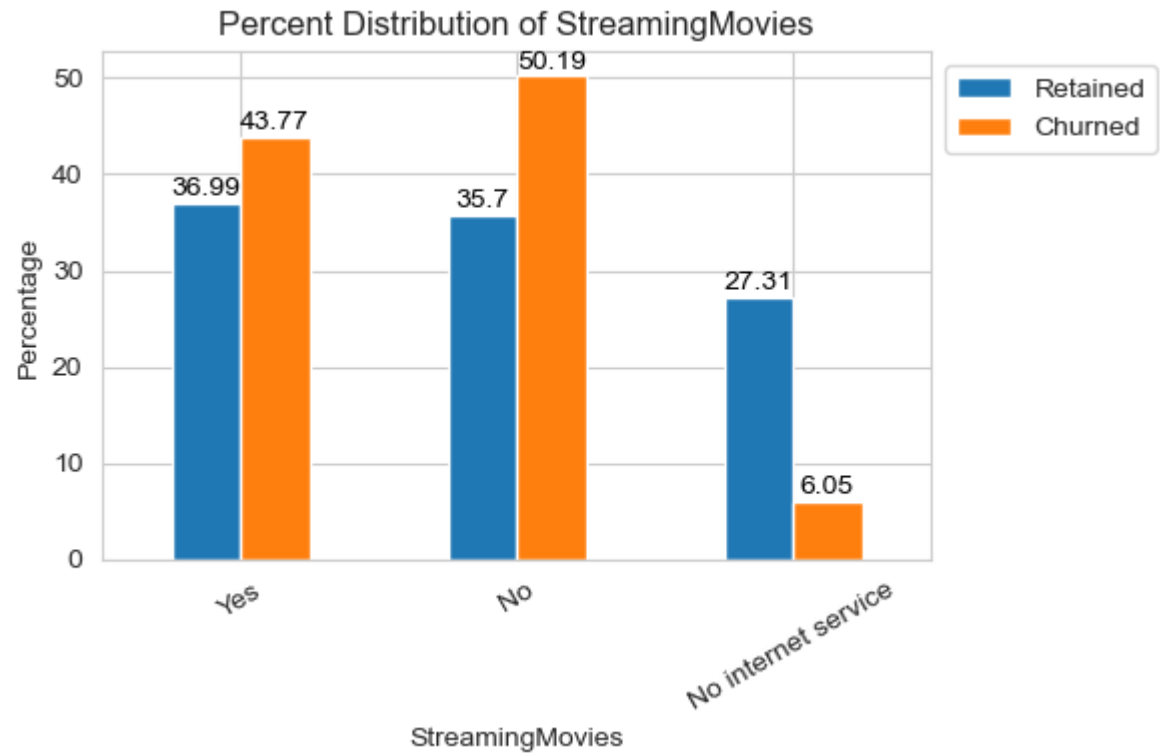
Contract

- Noticeable difference in distributions.

Negative correlation with contract length.

Percent Distribution of Contract

Paperless Billing

- Minor difference in distributions.

Very weak positive correlation.

Percent Distribution of PaperlessBilling
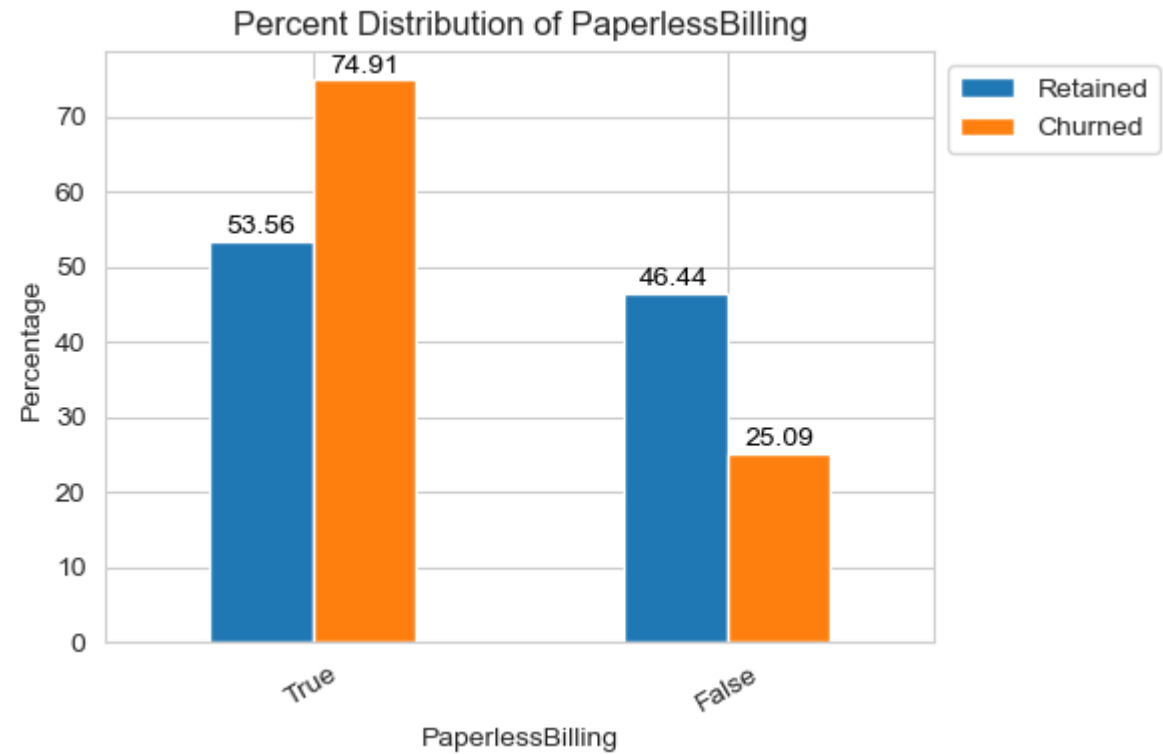
Payment Method

- Noticeable difference in distributions.

- Older/more traditional payment methods less correlated with churning.

- **Positive correlation between paying by electronic check and churning.**

Percent Distribution of PaymentMethod