

EDA Case Study

Telecom Churn Analysis

-Khadija Sultana

Business Understanding

In the telecommunications industry, customer churn refers to the rate at which customers discontinue their service with a company over a given period of time. Understanding and reducing customer churn is crucial for telecom companies as it directly impacts revenue and profitability. By analyzing factors contributing to churn and implementing targeted strategies, telecom companies can improve customer retention and enhance overall business performance.

Overview

This analysis focuses on understanding customer churn in the telecom industry. I explore a dataset containing various attributes of telecom customers, including demographic information, usage patterns, and service subscriptions. By leveraging data analytics techniques, I aim to uncover insights into customer behavior and identify factors that influence churn. The findings from this analysis will inform strategic decision-making and help devise effective retention strategies to mitigate churn and foster long-term customer relationships.

Understanding the Data

Total Columns - 21

Numerical - 3 Columns

Float - 1 Column

Integer - 2 Columns

Object - 18 Columns

Data columns (total 21 columns):				
#	Column	Non-Null Count	Dtype	
0	customerID	7043 non-null	object	
1	gender	7043 non-null	object	
2	SeniorCitizen	7043 non-null	int64	
3	Partner	7043 non-null	object	
4	Dependents	7043 non-null	object	
5	tenure	7043 non-null	int64	
6	PhoneService	7043 non-null	object	
7	MultipleLines	7043 non-null	object	
8	InternetService	7043 non-null	object	
9	OnlineSecurity	7043 non-null	object	
10	OnlineBackup	7043 non-null	object	
11	DeviceProtection	7043 non-null	object	
12	TechSupport	7043 non-null	object	
13	StreamingTV	7043 non-null	object	
14	StreamingMovies	7043 non-null	object	
15	Contract	7043 non-null	object	
16	PaperlessBilling	7043 non-null	object	
17	PaymentMethod	7043 non-null	object	
18	MonthlyCharges	7043 non-null	float64	
19	TotalCharges	7043 non-null	object	
20	Churn	7043 non-null	object	

dtypes: float64(1), int64(2), object(18)

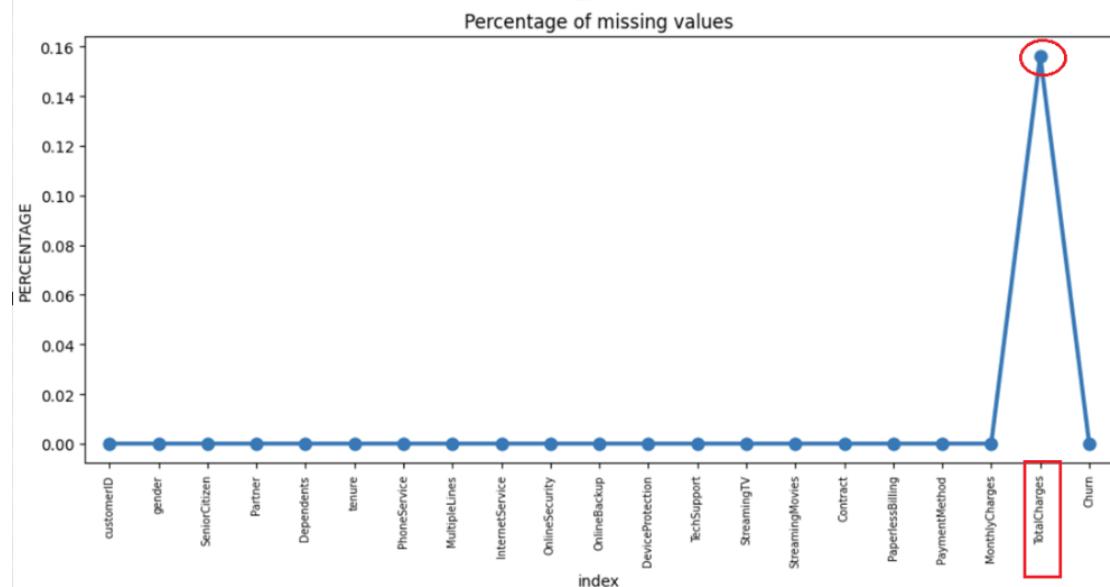
TARGET VARIABLE – “CHURN”

- Overall Churn rate is 26.58%.
- This indicates that approximately 26.5% of customers discontinued their service with the telecom company over the analyzed period.
- Understanding and addressing factors contributing to this churn rate are crucial for the company's efforts to improve customer retention and reduce revenue loss.

IDENTIFYING AND HANDLING MISSING VALUES

Only one column has missing data: “TotalCharges”. When the “TotalCharges” column is converted from Object type to float, we identified missing values in it. As % of the missing value is very low i.e. 0.15%, it is safe to remove those values.

```
RangeIndex: 7043 entries, 0 to 7042
Data columns (total 21 columns):
 #   Column            Non-Null Count  Dtype  
 ---  -- 
 0   customerID        7043 non-null   object  
 1   gender             7043 non-null   object  
 2   SeniorCitizen      7043 non-null   int64  
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 4   Dependents         7043 non-null   object  
 5   tenure              7043 non-null   int64  
 6   PhoneService       7043 non-null   object  
 7   MultipleLines      7043 non-null   object  
 8   InternetService    7043 non-null   object  
 9   OnlineSecurity     7043 non-null   object  
 10  OnlineBackup        7043 non-null   object  
 11  DeviceProtection   7043 non-null   object  
 12  TechSupport         7043 non-null   object  
 13  StreamingTV         7043 non-null   object  
 14  StreamingMovies     7043 non-null   object  
 15  Contract            7043 non-null   object  
 16  PaperlessBilling    7043 non-null   object  
 17  PaymentMethod       7043 non-null   object  
 18  MonthlyCharges     7043 non-null   float64 
 19  TotalCharges        7032 non-null   float64 
 20  Churn               7043 non-null   object  
dtypes: float64(2), int64(2), object(17)
```



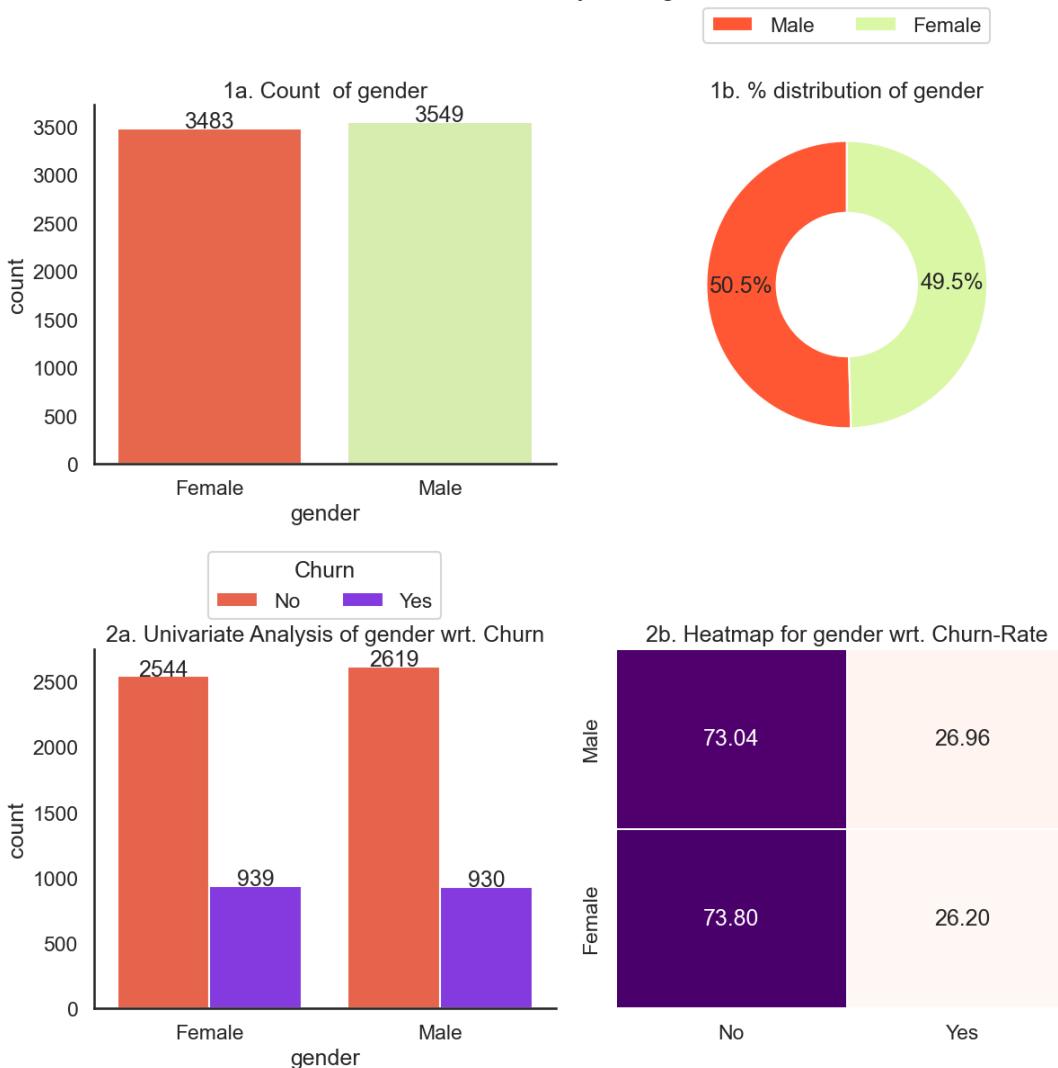
EXPLORATORY DATA ANALYSIS



1. UNIVARIATE ANALYSIS
2. BIVARIATE ANALYSIS
3. ANALYSIS WRT
TARGET VARIABLE

1. UNIVARIATE ANALYSIS

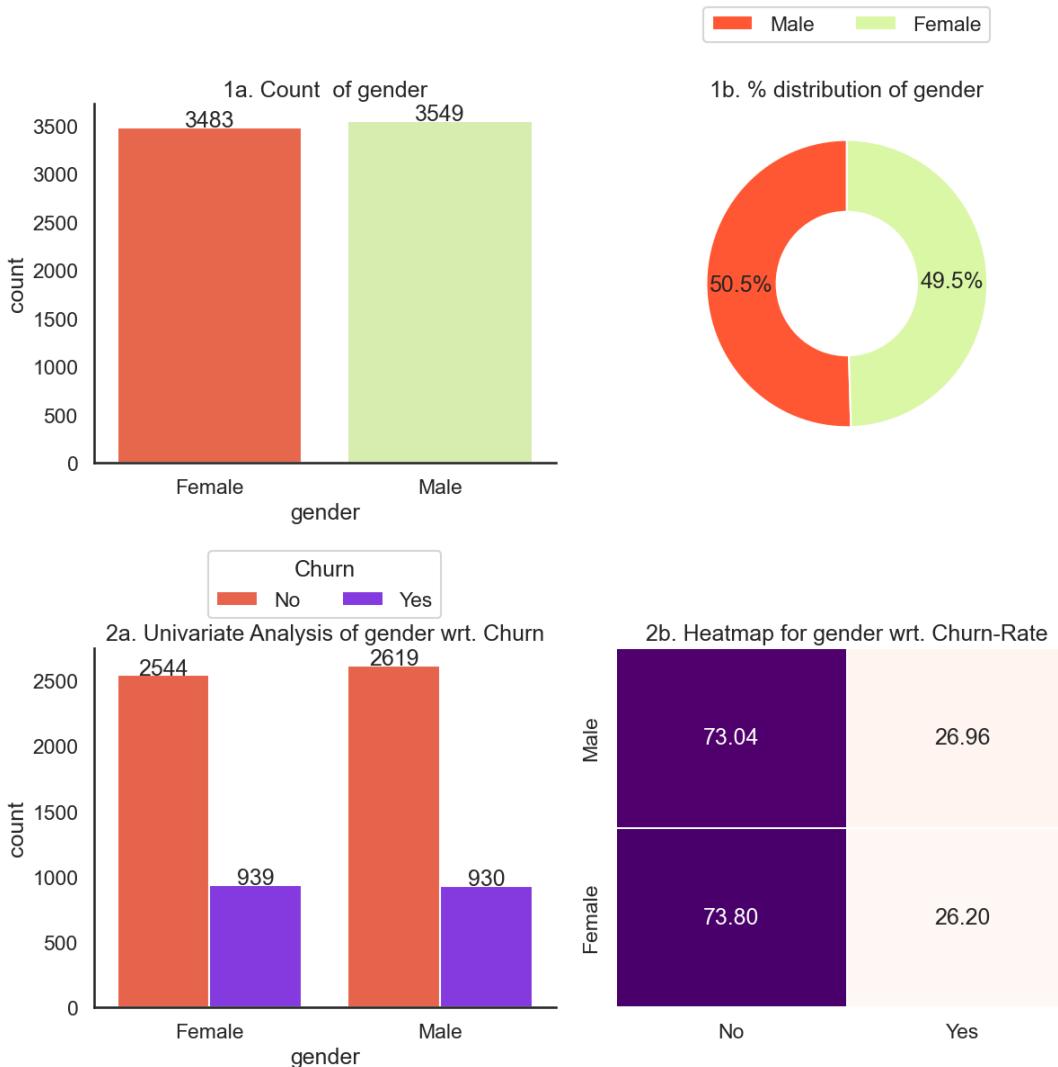
Distribution and Univariate Analysis of gender wrt. Churn



Insight:

1. We see that there is equal distribution of male and females.
2. The Churn rate for females (~26.95%) and males (26.2%) is same.

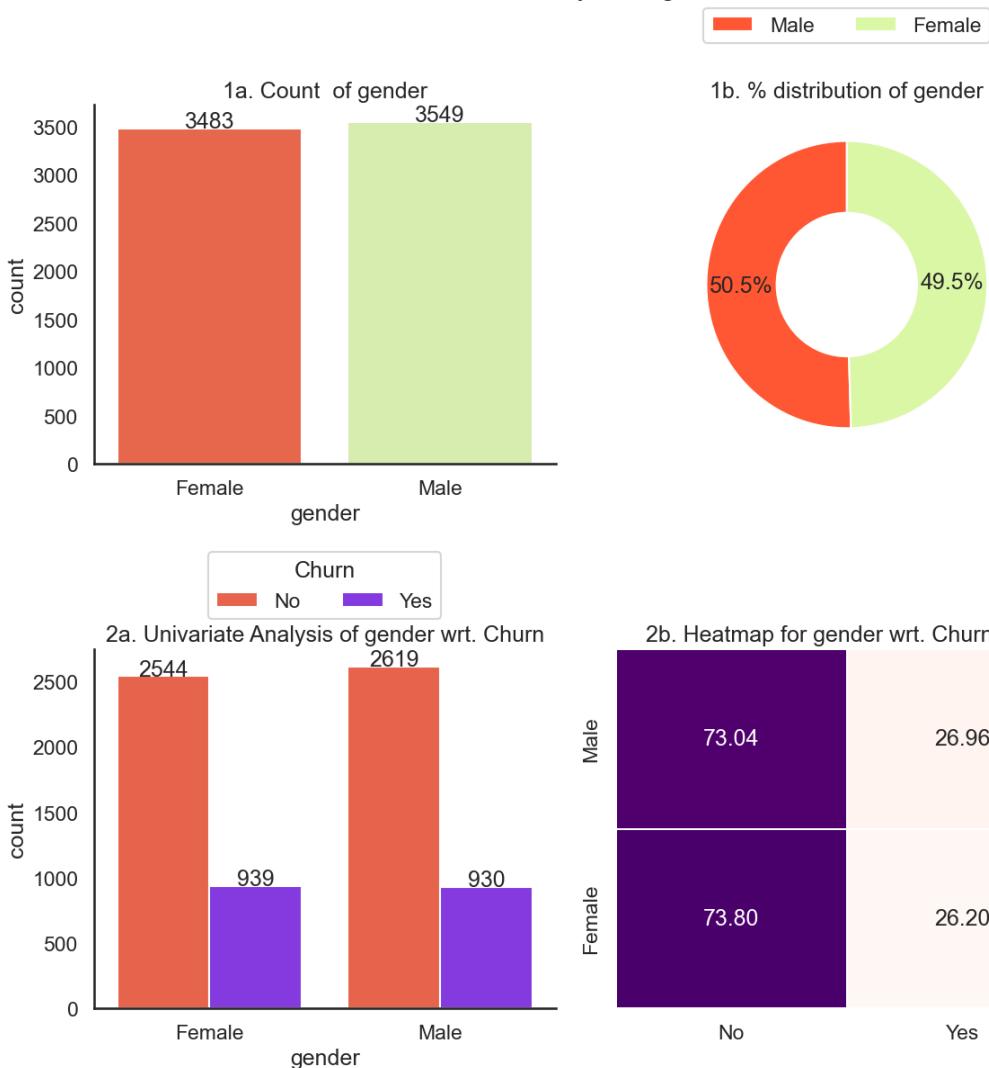
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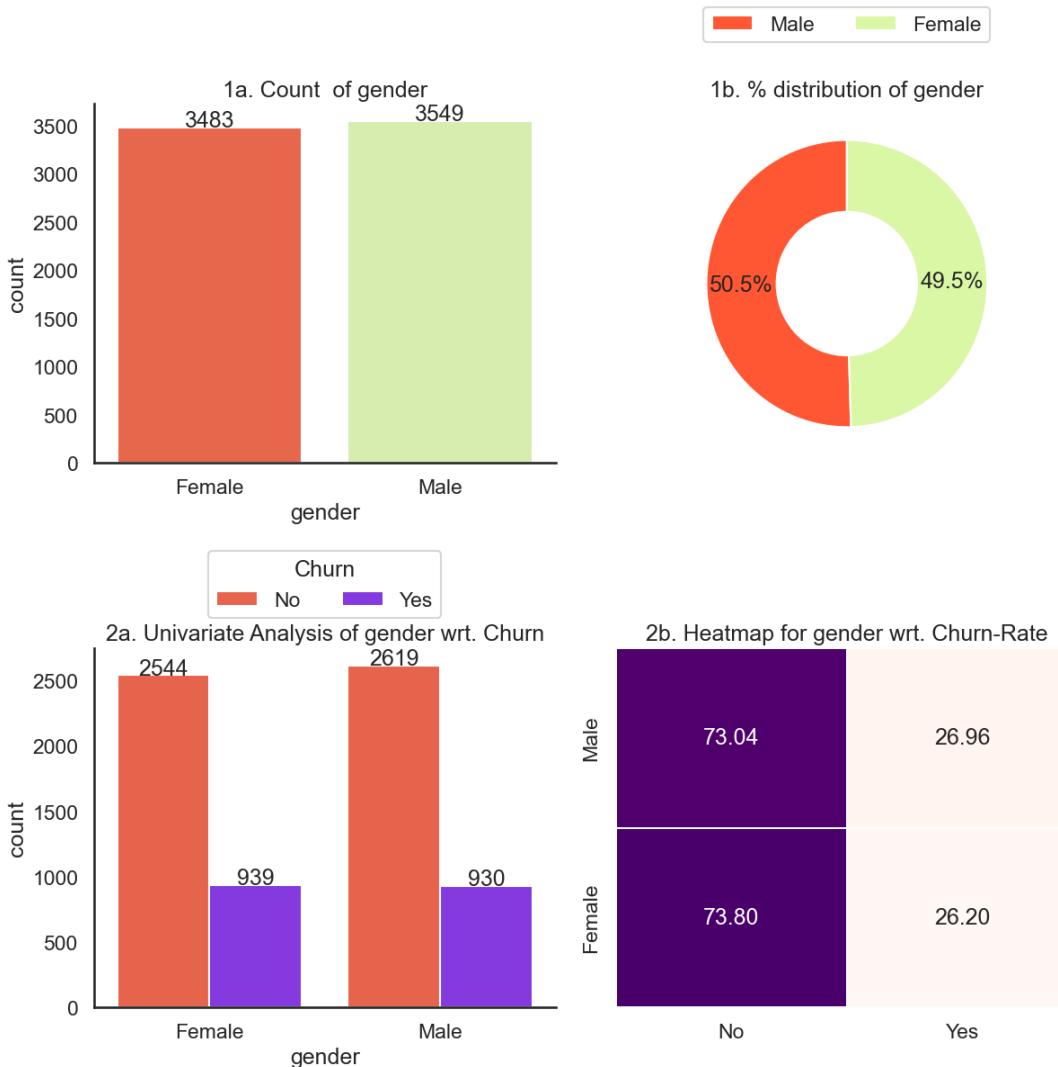
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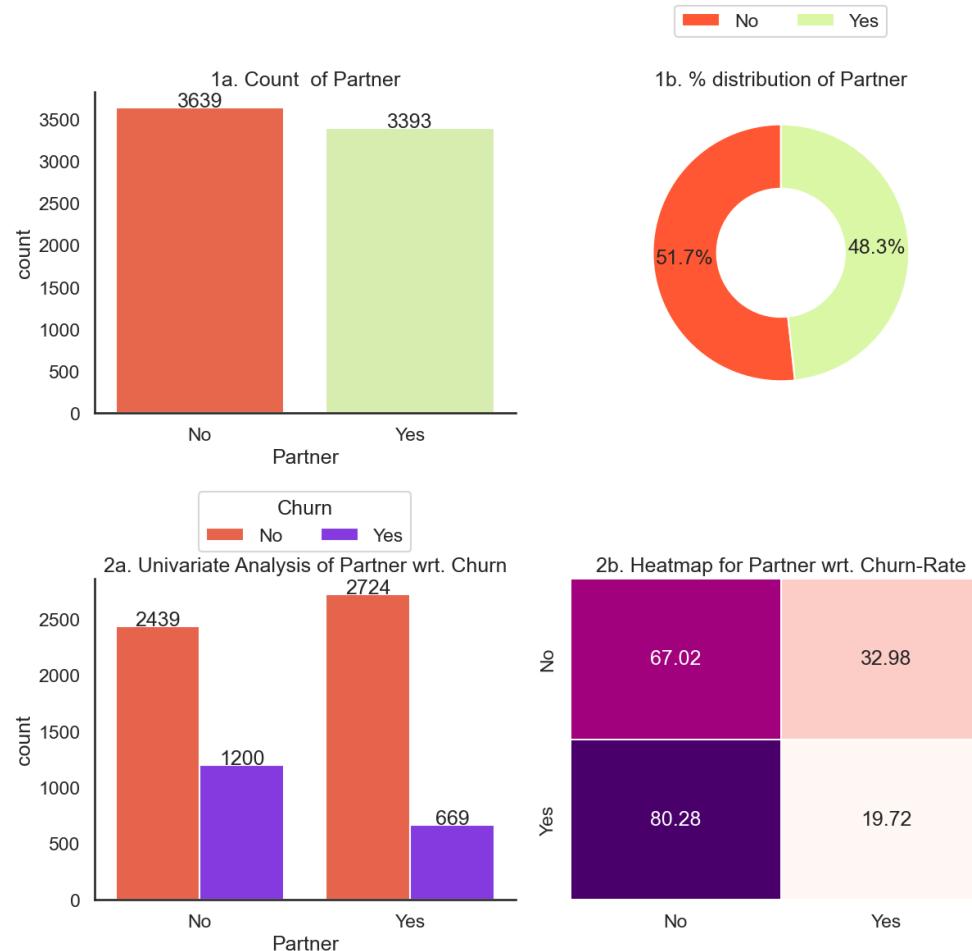
Distribution and Univariate Analysis of gender wrt. Churn



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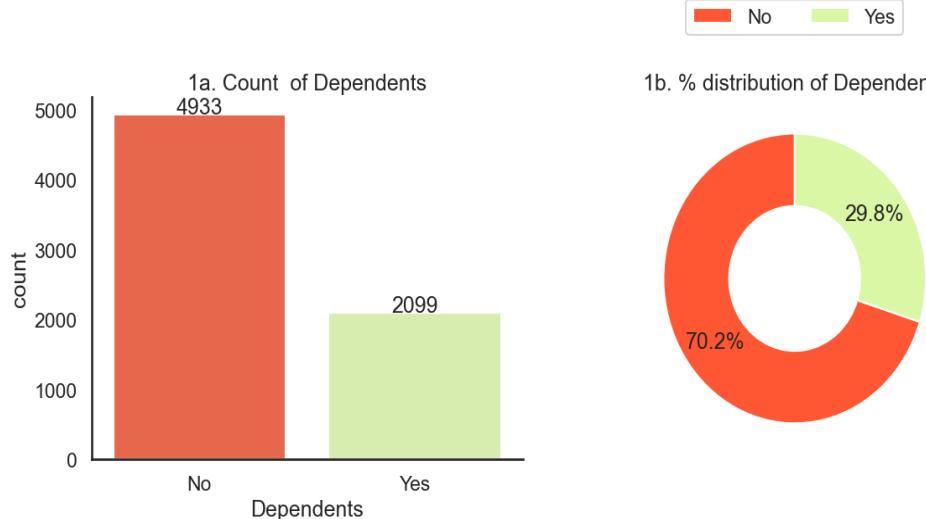
Distribution and Univariate Analysis of Partner wrt. Churn



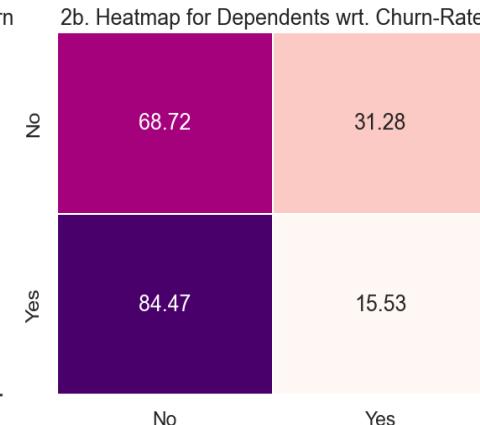
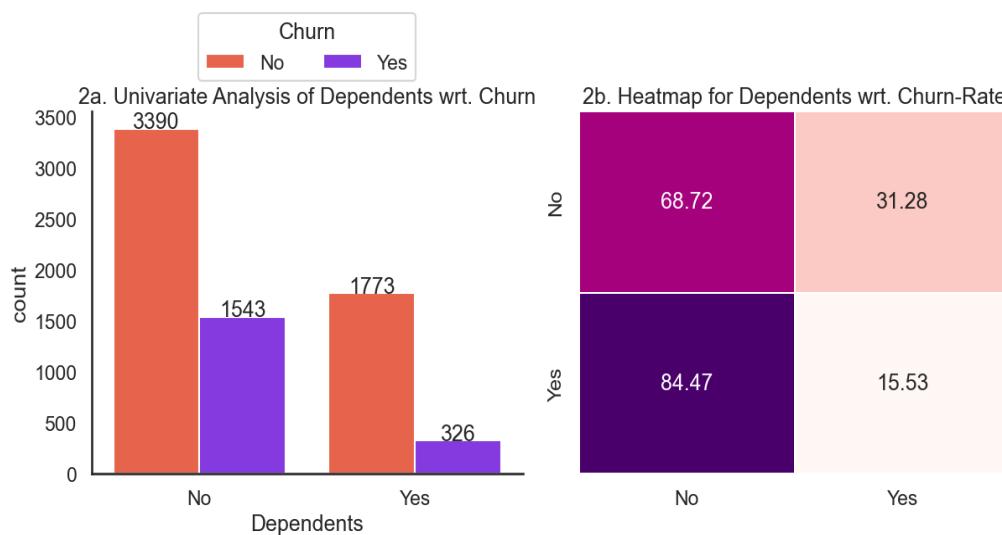
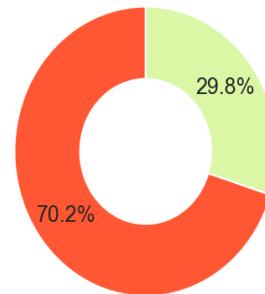
Insight:

1. 52% customers dont have partners compared to the ones who have partners.
2. The churn rate of customers with partners is 19.7% where as its 32.97% for the customers without partners.
3. So Customers without partners are more likely to churn.

Distribution and Univariate Analysis of Dependents wrt. Churn



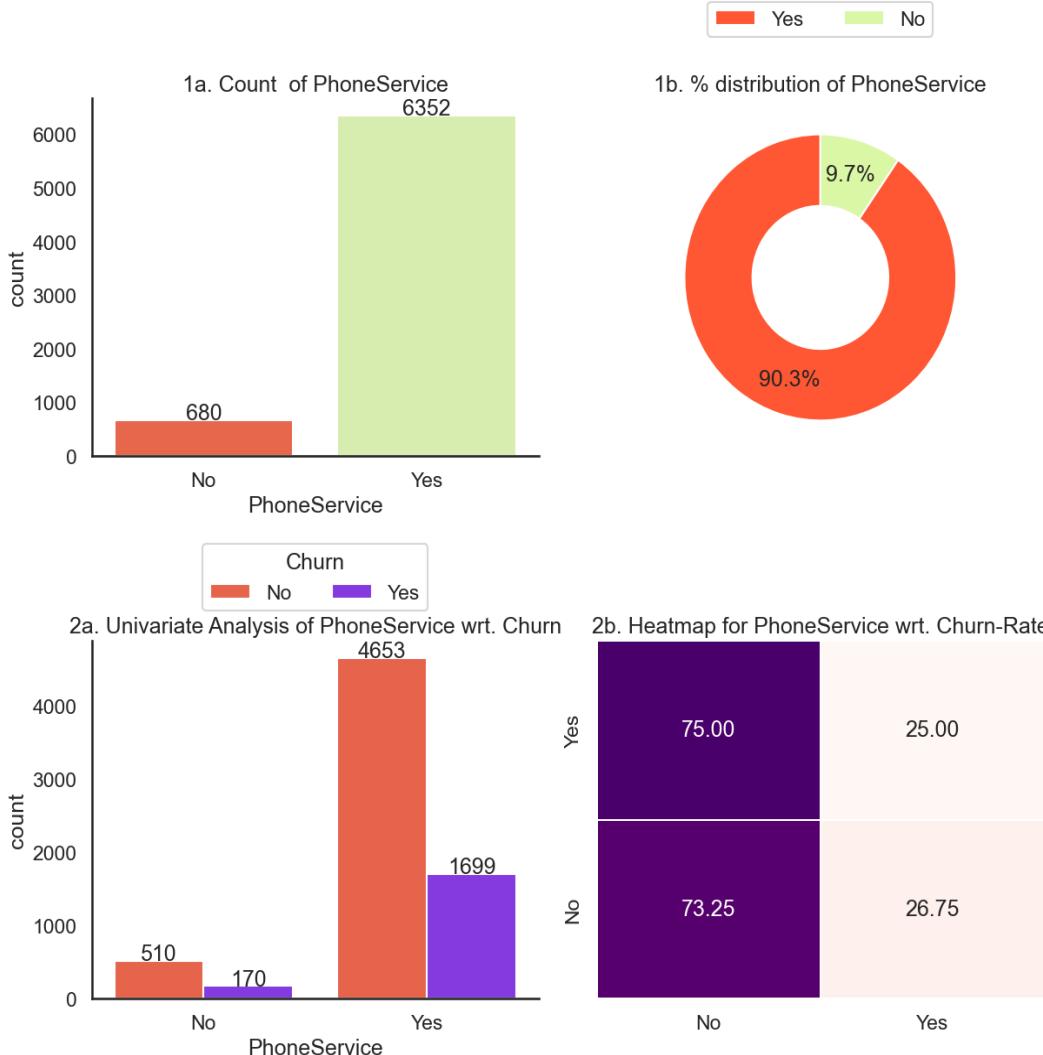
1b. % distribution of Dependents



Insight:

1. 70% of Customers have a dependent.
2. Customers with a dependent have a significantly lower churn rate when compare to the customers with a dependent ~31.28%

Distribution and Univariate Analysis of PhoneService wrt. Churn



Insight:

1. 90.3% customers have a phone service.
2. But the churn rate for customers with and without churn rate is similar ~26.75%

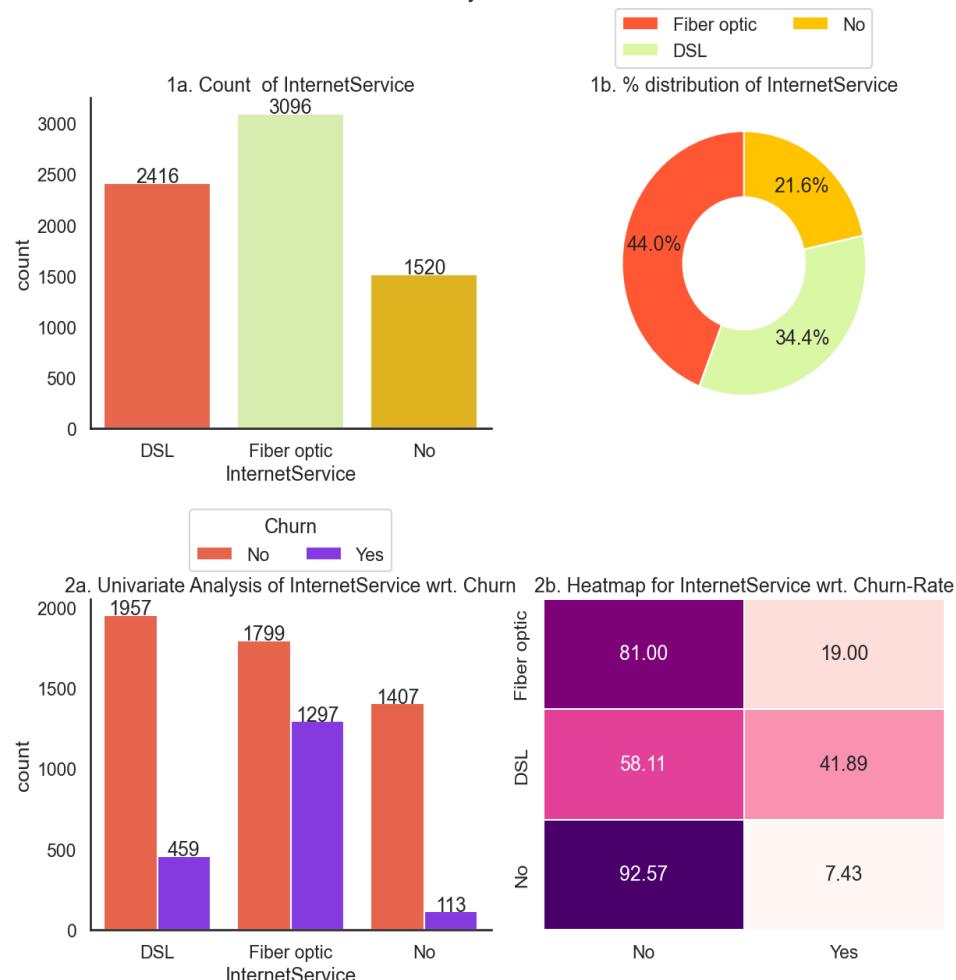
Distribution and Univariate Analysis of MultipleLines wrt. Churn



Insight:

1. 48.1% customers dont have multiple lines.
 2. 42% Customers have a multiple line. So they might cancel inactive accounts frequently
 3. Customers with no phoner service have more churn rate ~29%.
- Customers with other options too have a significant churn rate.

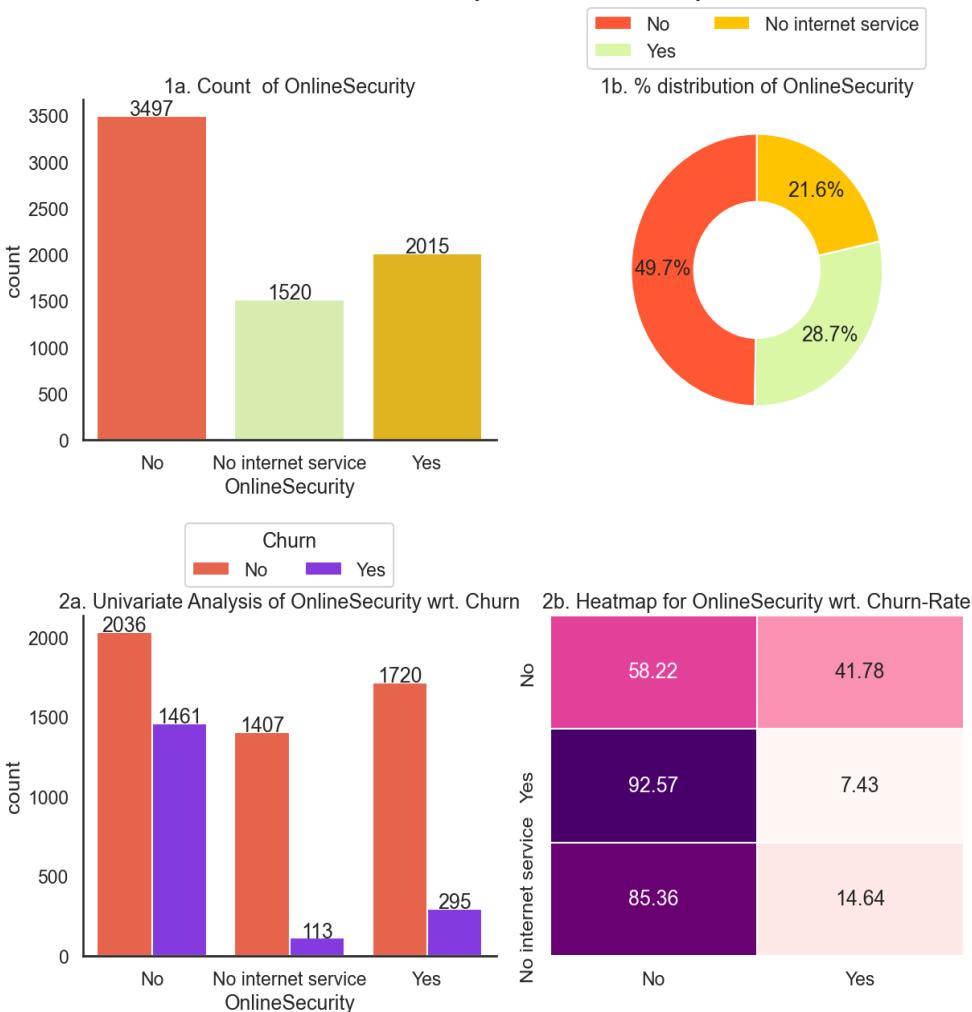
Distribution and Univariate Analysis of InternetService wrt. Churn



Insight:

1. It could be seen that most of the Telco services are Fiber Optic service as this option is becoming common among customers (~44%)
2. Customers without internet have very low churn rate 7% whereas as the users for fibre optic service increases, churn rate also increases (~42%)

Distribution and Univariate Analysis of OnlineSecurity wrt. Churn

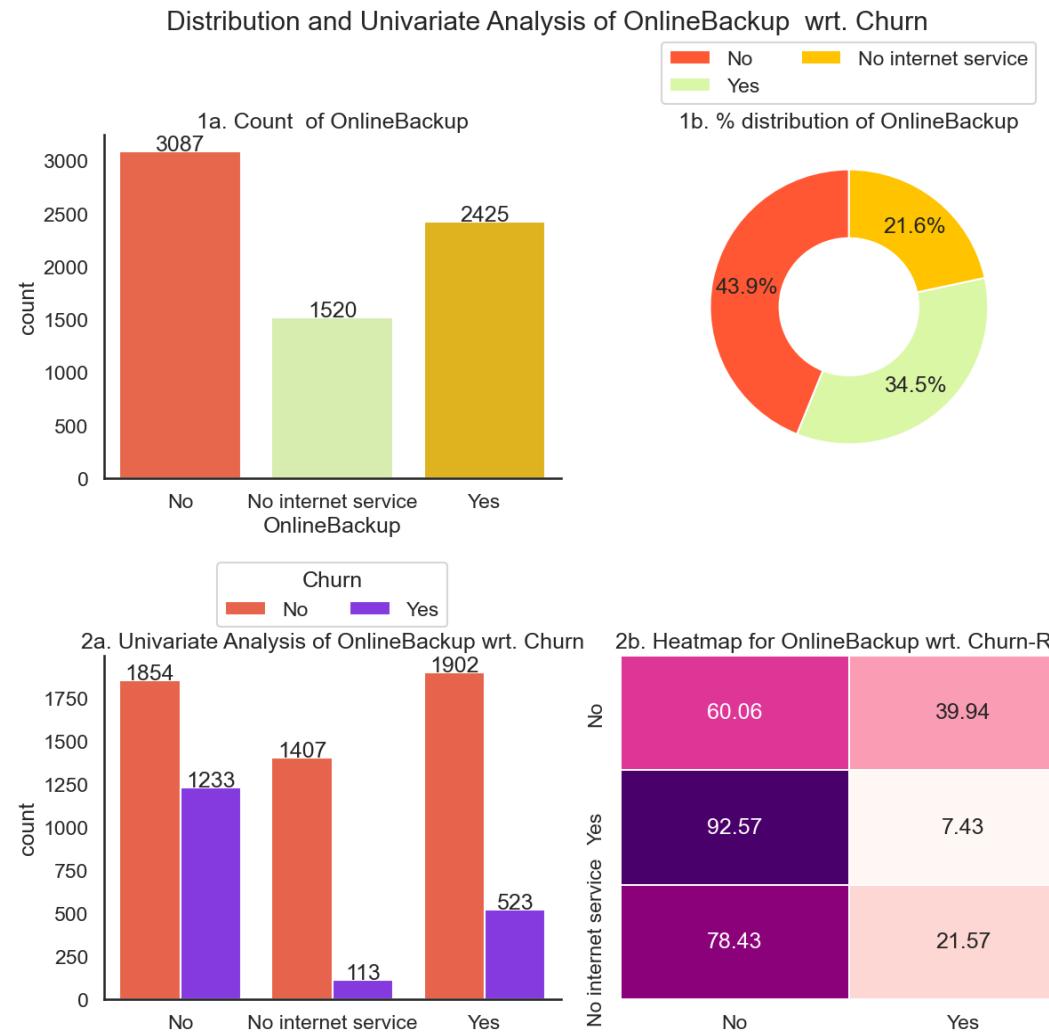


Insight:

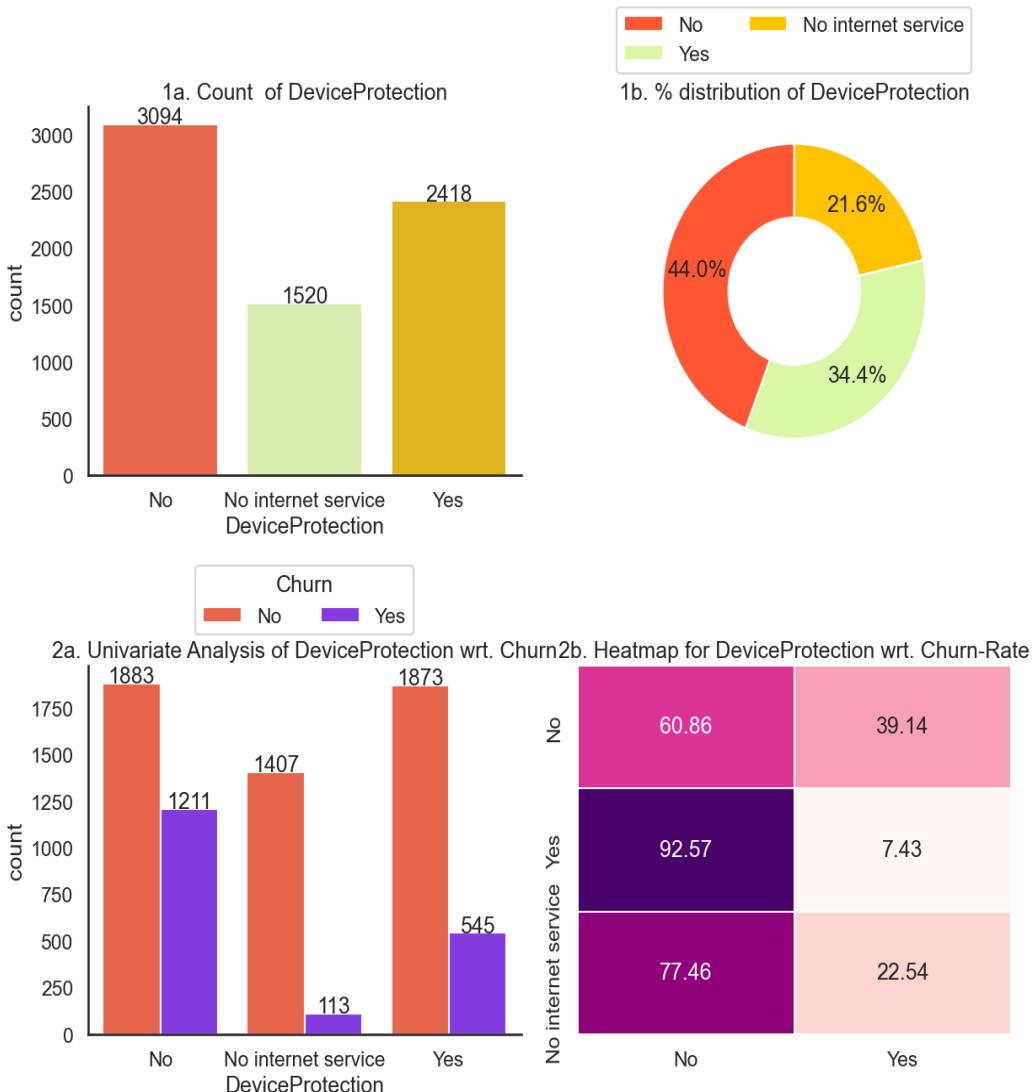
1. 49.7% of Customers dont have online security
2. Customers with no online security is more likely to churn ~41.78% whereas other options are significantly low.

Insight:

1. 43.9% customers do not prefer Online Backup Services as clearly shown in the above plot.
2. There are quite a few customers who do not opt the internet service as well.
3. Therefore, we should also consider whether a person has an internet service or not before determining whether they would prefer online backup.
4. Customers who had internet had a very low churn rate ~7%. Customers without internet or no backup are likely to churn with churn rates ~22% and 40% respectively

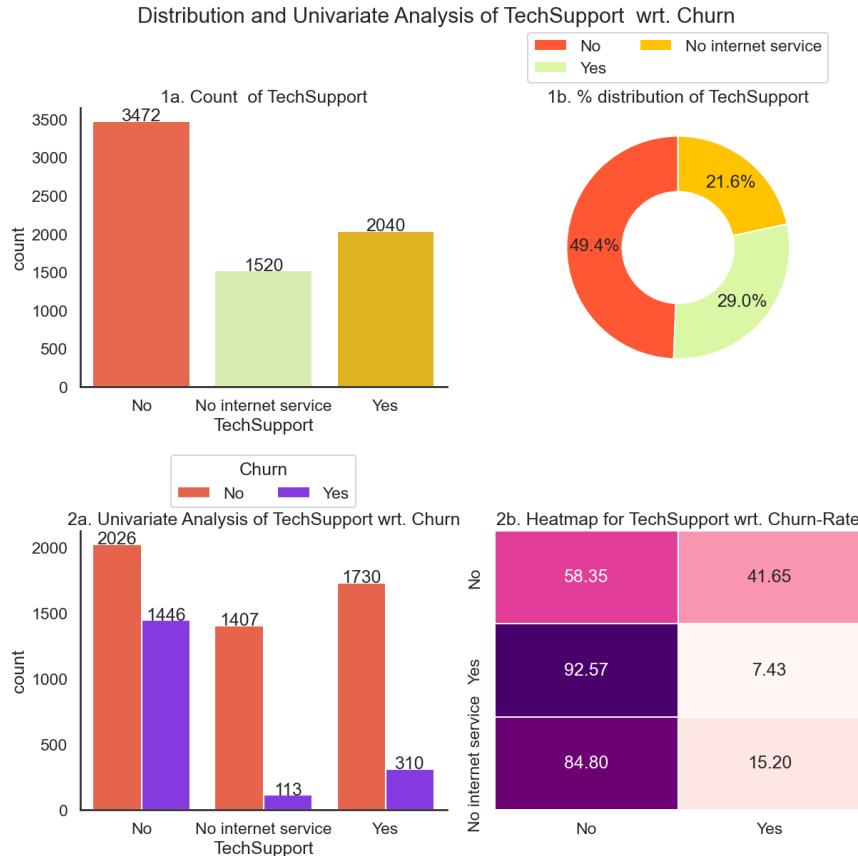


Distribution and Univariate Analysis of DeviceProtection wrt. Churn



Insight:

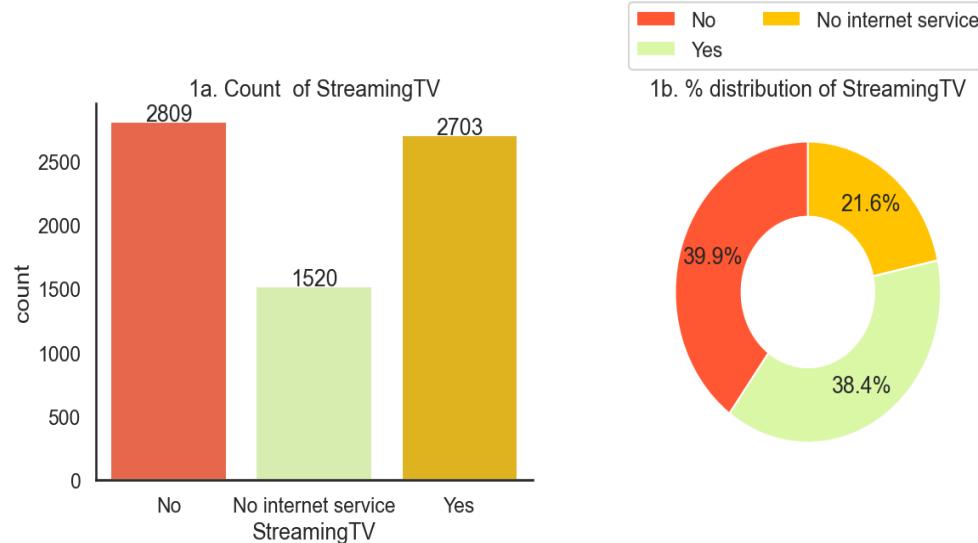
1. Most of the customers didn't have device protection.
2. Customers who don't have device protection have 39.14% churn rate



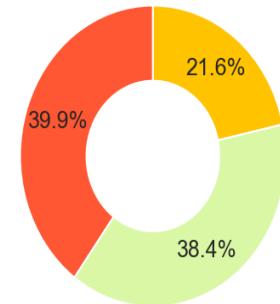
Insight:

1. Most customers don't have tech support.
2. Customers who don't have Tech Support have highest churn rates 41.65%. Cu

Distribution and Univariate Analysis of StreamingTV wrt. Churn

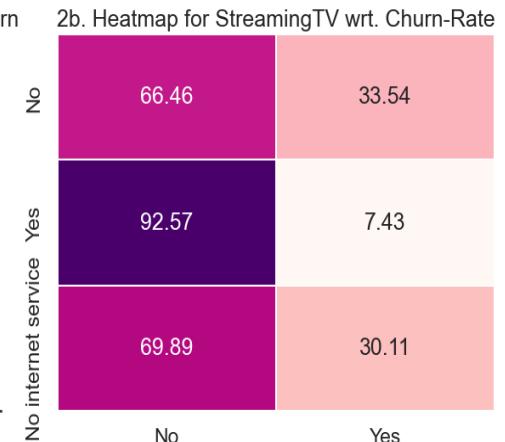
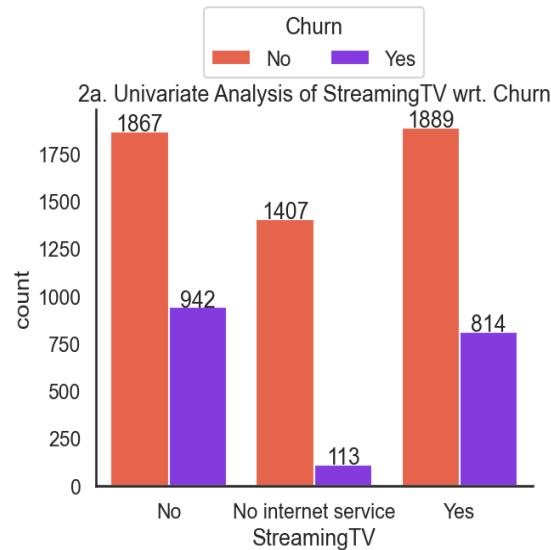


1b. % distribution of StreamingTV



Insight:

1. The number of Customers with no streaming TV or dont have a internet service are likely to churn.
2. Customers with no internet and no streaming tv have a churn rate in 30-35%

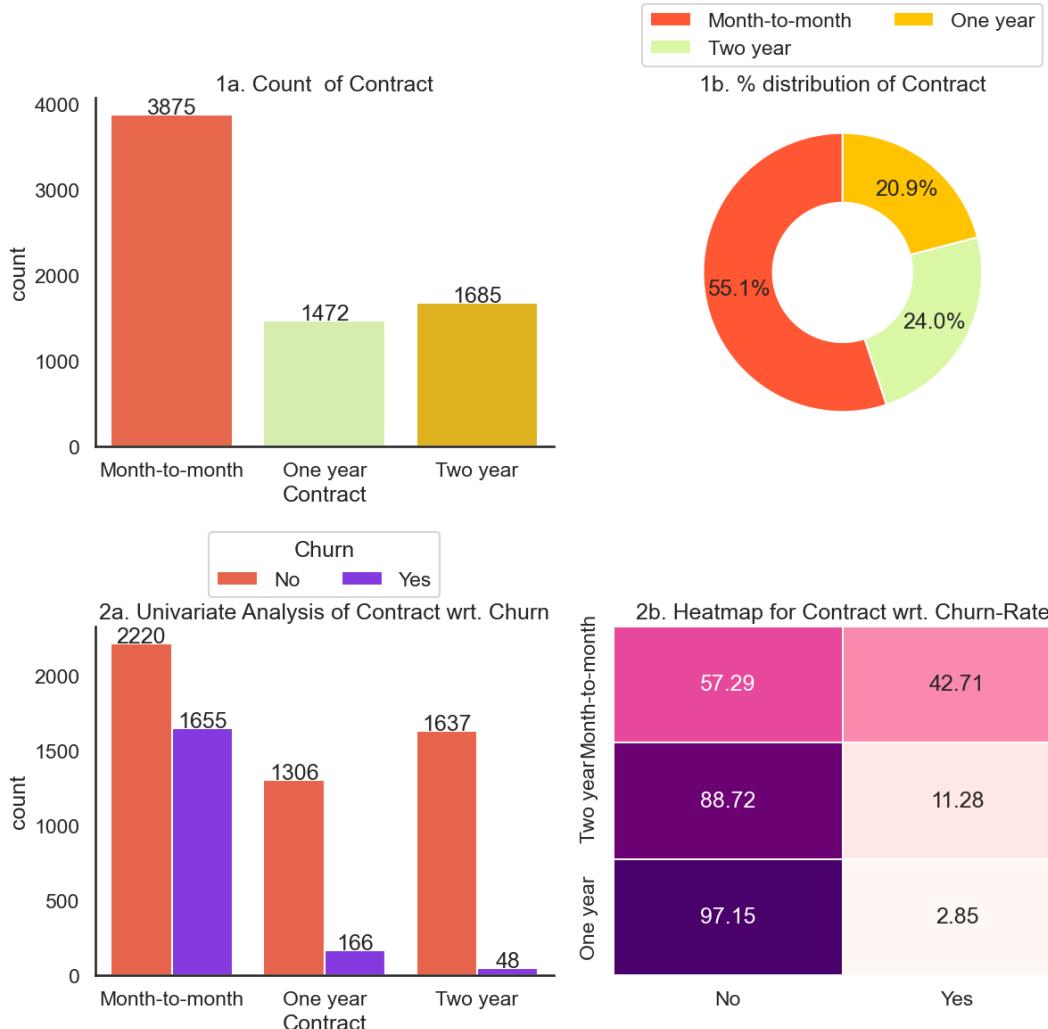


Insight:

1. We have a significantly large portion of the data where the contract is month-to-month 43% compared to either one-year and two-year contracts which are having very lower churn rates

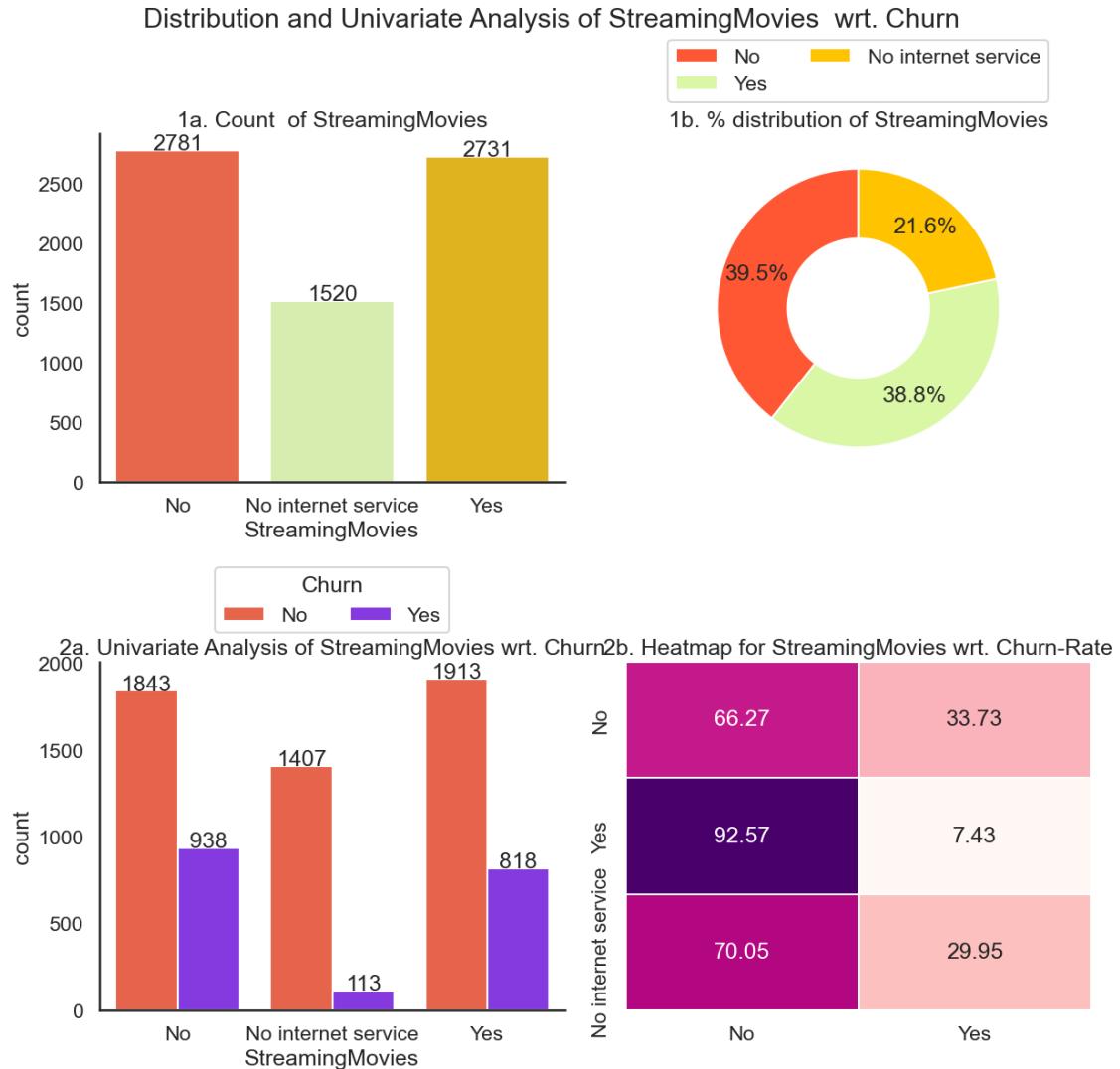
2. This is true in real-life as well because most of the customers prefer to stick with month-to-month contract rather than staying with the same service for a long period of time.

Distribution and Univariate Analysis of Contract wrt. Churn

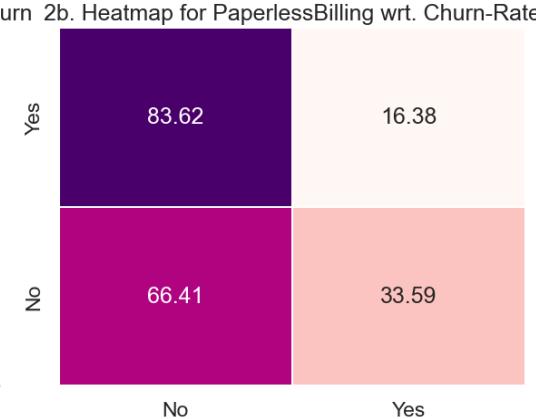
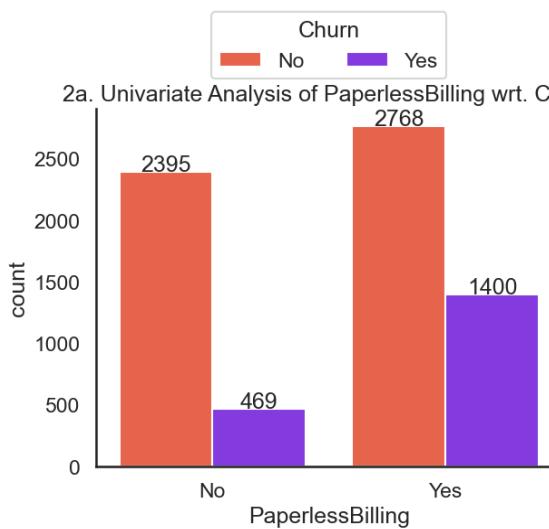
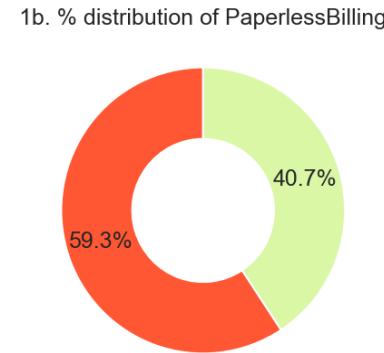
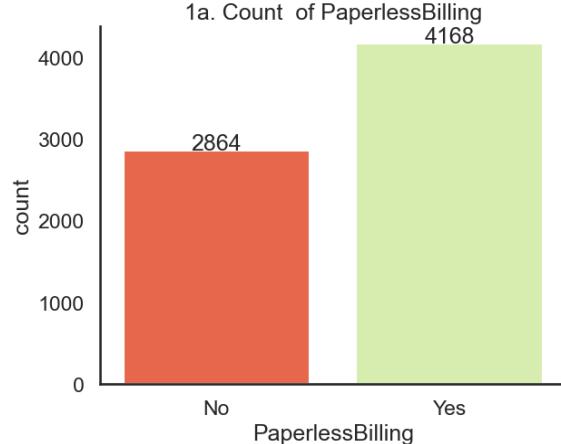


Insight:

1. 39% customers dont have an option for streaming movies and their churn rate is very low.
2. No internet servive and no streaming movies option services have their churn rates in 30~35%



Distribution and Univariate Analysis of PaperlessBilling wrt. Churn

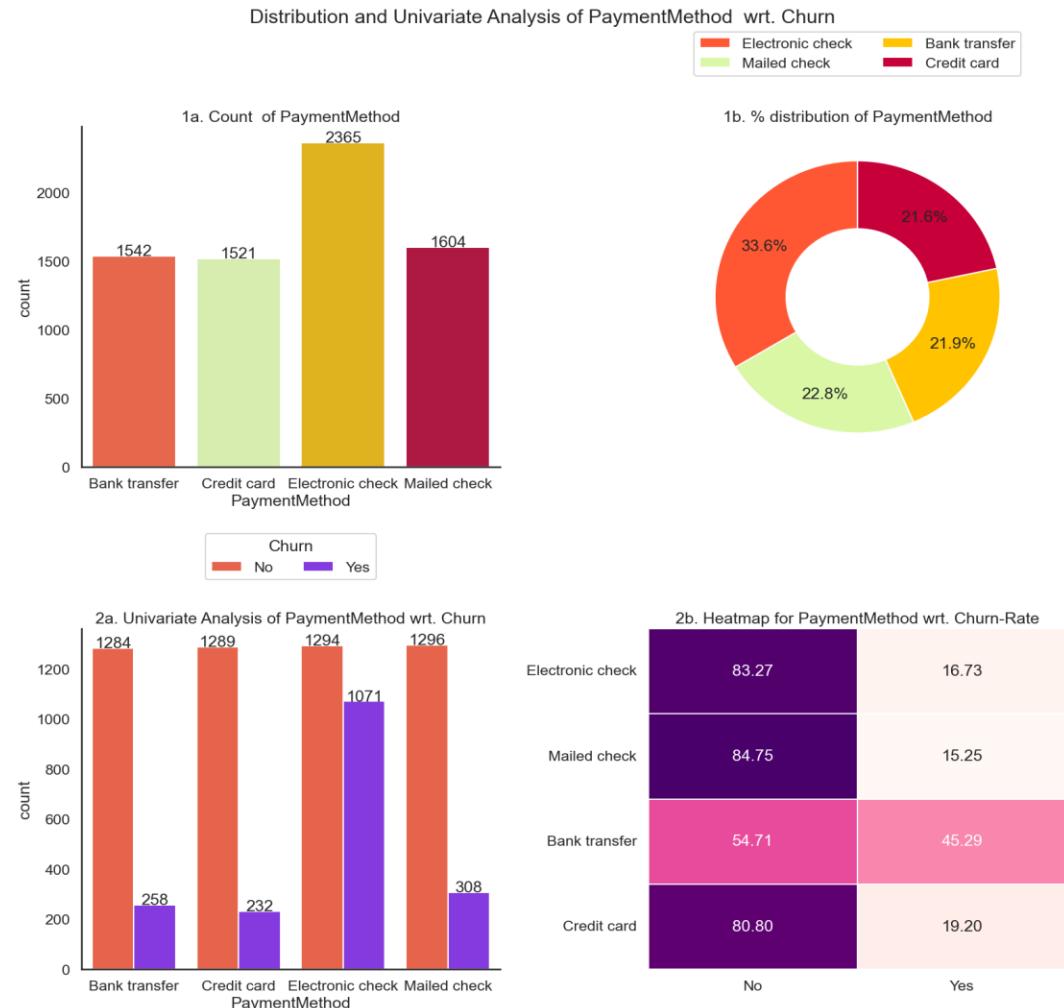


Insight:

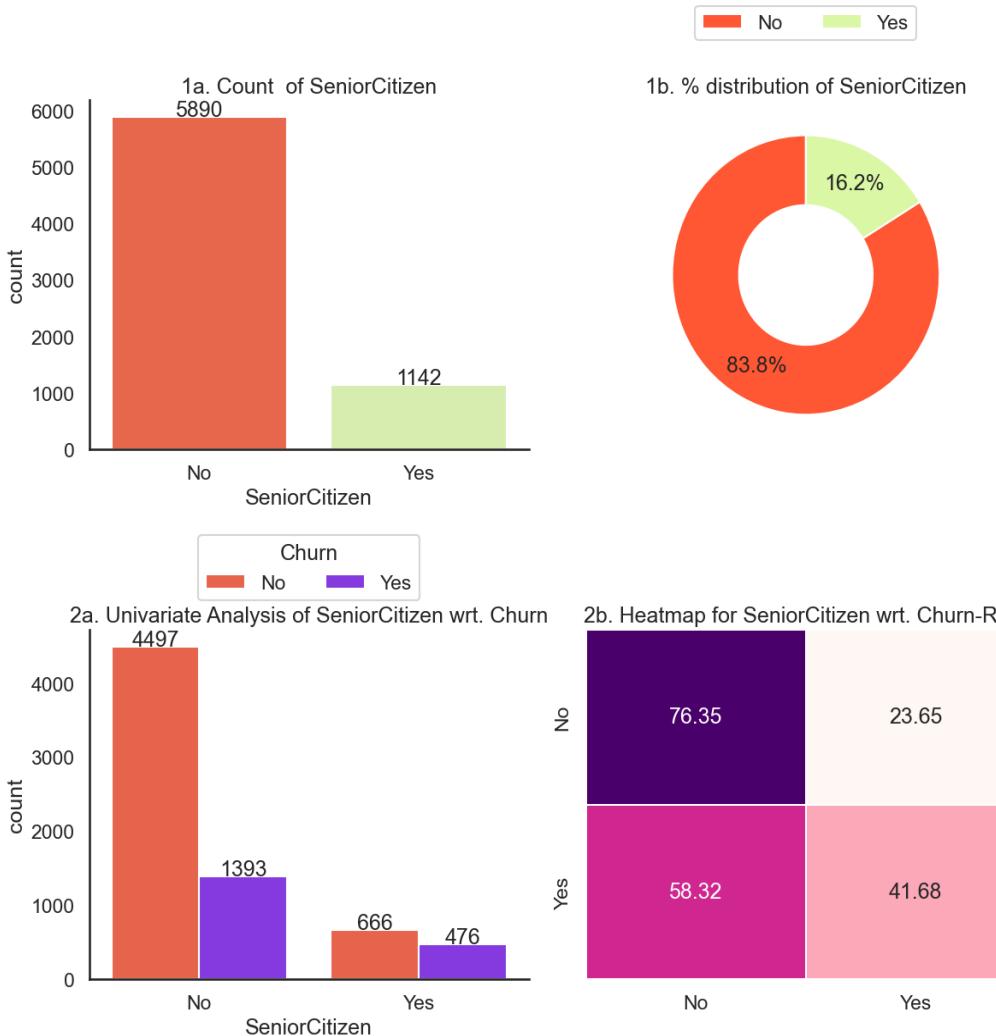
1. 59.3% of Customers prefer paperless billing as an option
2. Customers who preferred paperless bill methods are low churners

Insight:

1. 33.3% of customers from Telco prefer Electronic Check compared to other options.
2. There are other options which are popular among the customers as well such as Mailed check, Bank transfer (automatic) and Credit card (automatic) respectively.
3. Churn rate is highest with Bank Transfers ie 45.29% whereas other methods are likely have lower churn



Distribution and Univariate Analysis of SeniorCitizen wrt. Churn



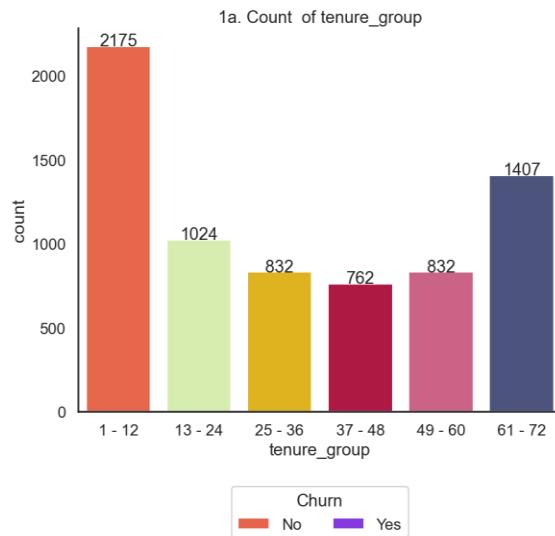
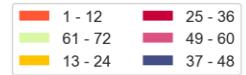
Insight:

1. 83.8% of Customers are young citizens.
2. 41.68% of senior citizens switch their lines frequently.

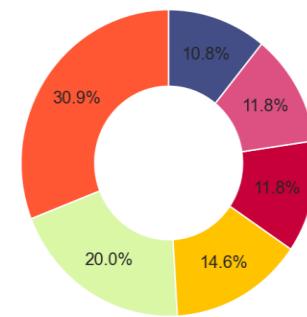
Insight:

1. 30.9% of the Customers are in the 1-12 month group ie are new customers indicating high churn rate at Telco.
2. As the length of tenure group increases, churn rate drops drastically showing loyalty in long term customers.
3. The churn rate of the customers in the first year is 48% whereas in 61-72 group is 7%.

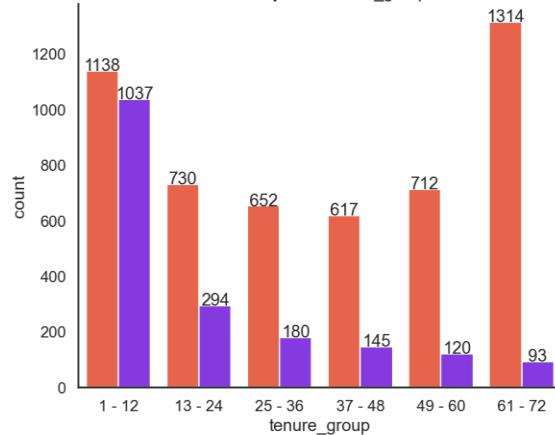
Distribution and Univariate Analysis of tenure_group wrt. Churn



1b. % distribution of tenure_group

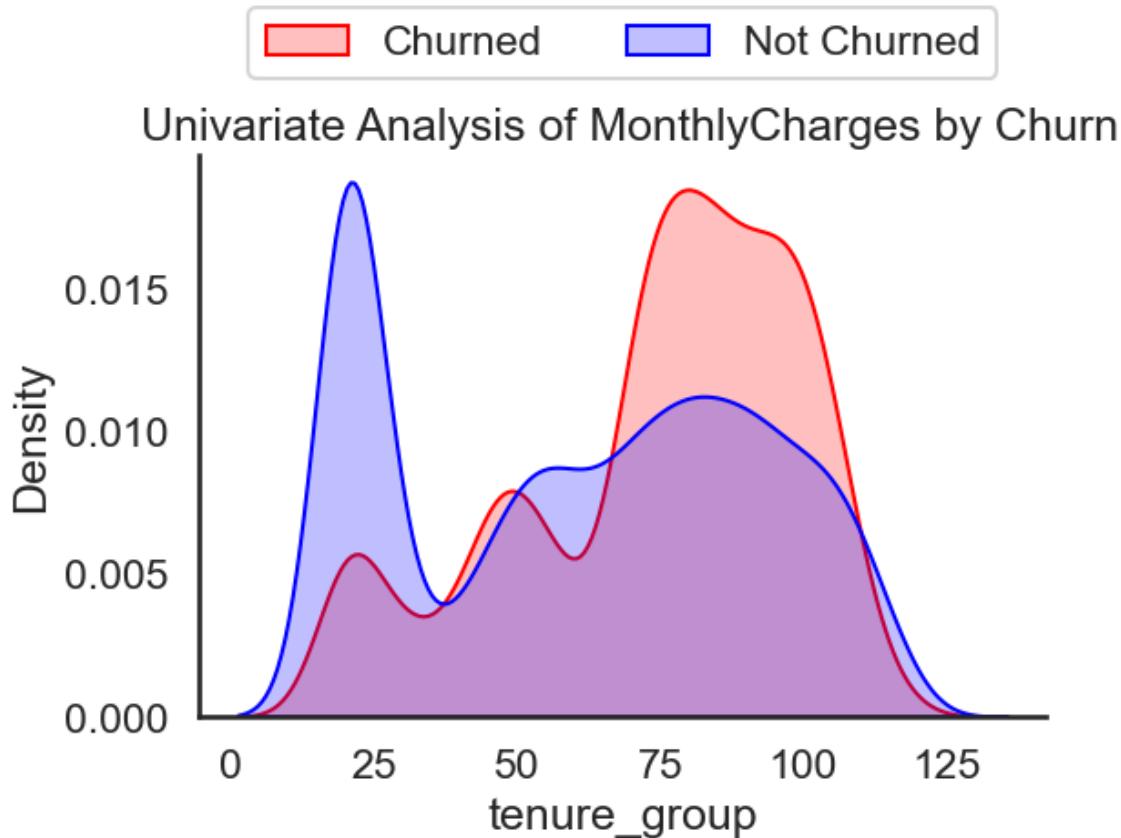


2a. Univariate Analysis of tenure_group wrt. Churn



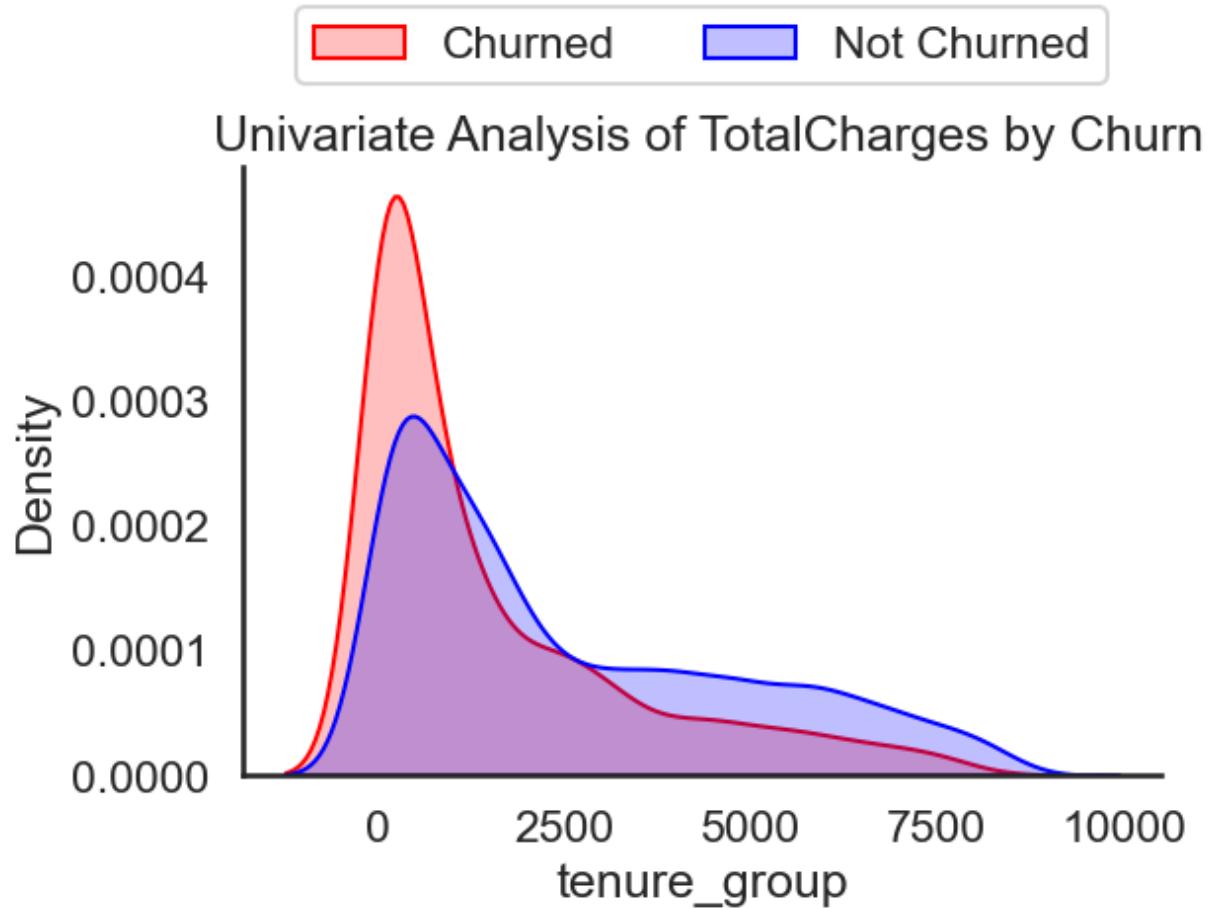
2b. Heatmap for tenure_group wrt. Churn-Rate





Insight from monthly-charges density plot:

1. Churn is high when Monthly Charges ar high



Insight from total-charges density plot:

1. Here we get the surprising insight that as we can see that more churn is there with lower charges. Tenure, Monthly Charges & Total Charges then the picture is bit clear :-
Higher Monthly Charge at lower tenure results into lower Total Charge. Hence, all these 3 factors Higher Monthly Charge ,Lower tenure and Lower Total Charge are linked to **High Churn**.

2. BIVARIATE ANALYSIS

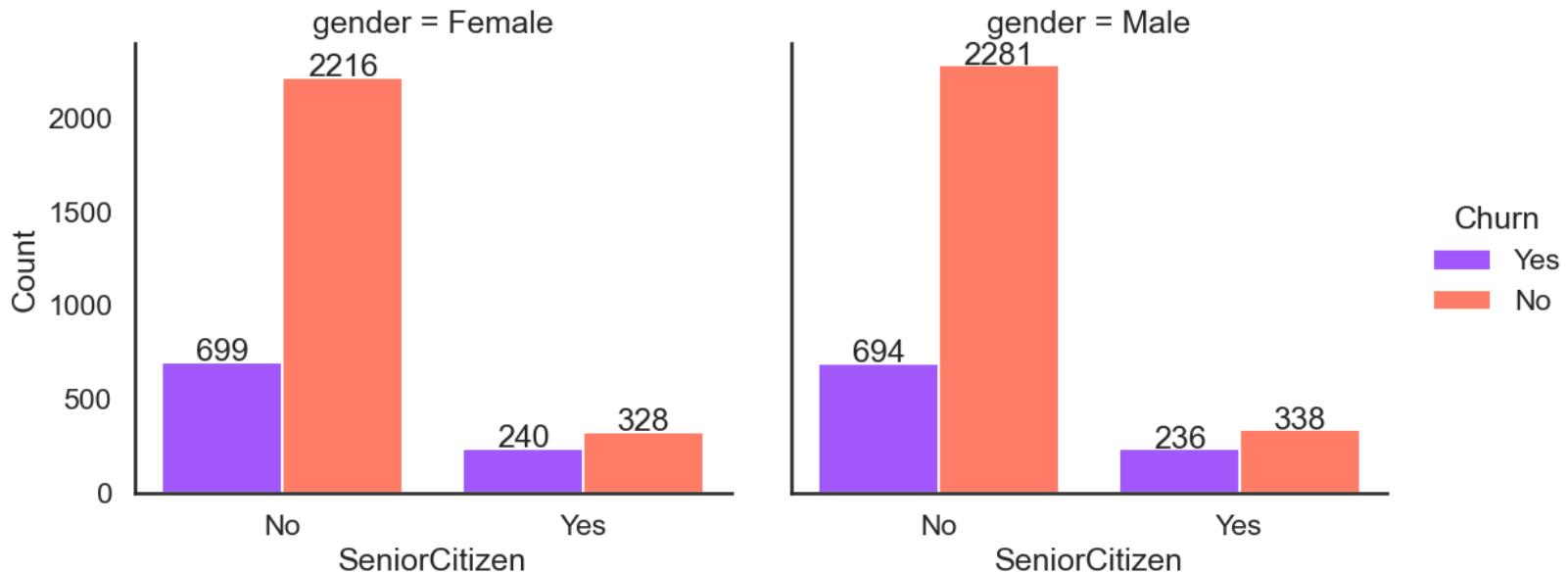
**2A. BIVARIATE ANALYSIS BETWEEN
CATEGORICAL COLUMNS**

**2B. BIVARIATE ANALYSIS BETWEEN
CATEGORICAL AND NUMERICAL
COLUMNS**

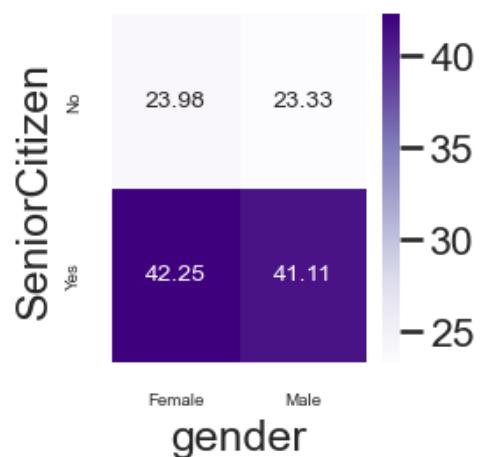
**2C. BIVARIATE ANALYSIS BETWEEN
NUMERICAL COLUMNS**

2 A. BIVARIATE ANALYSIS BETWEEN CATEGORICAL COLUMNS

1. Bivariate Analysis of SeniorCitizen vs gender with Churn as Hue

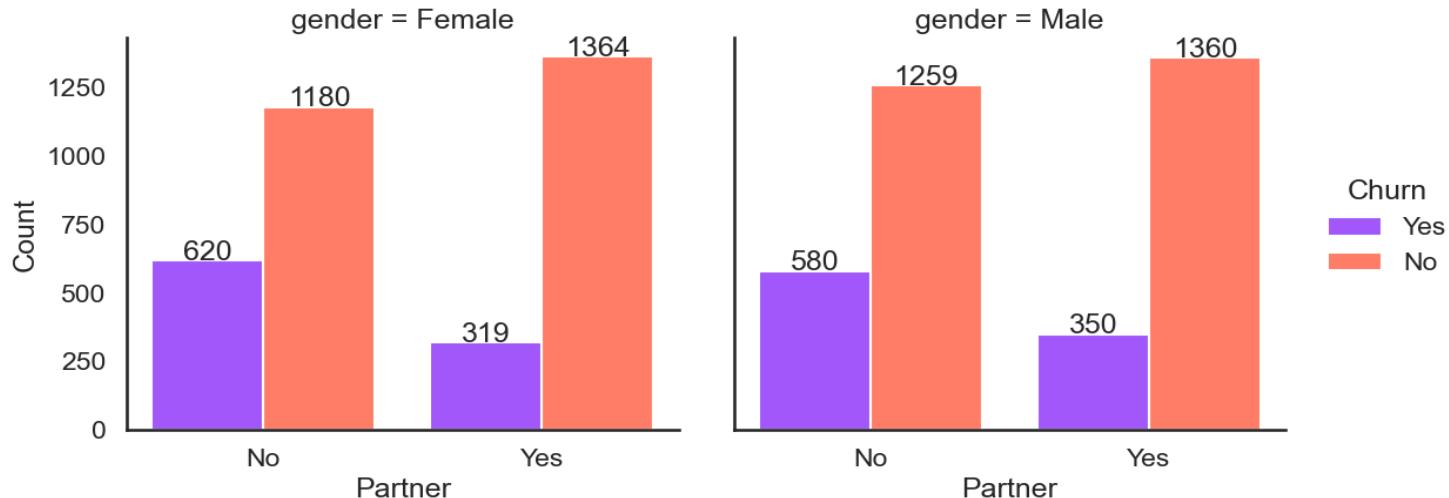


heatmap of Churn-rate for SeniorCitizen and gender



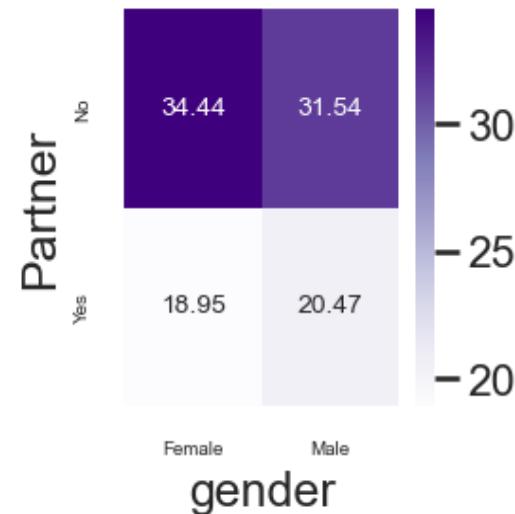
Insight: senior citizens are high churners at 23% .
gender has no impact on the churn rate.

2. Bivariate Analysis of Partner vs gender with Churn as Hue

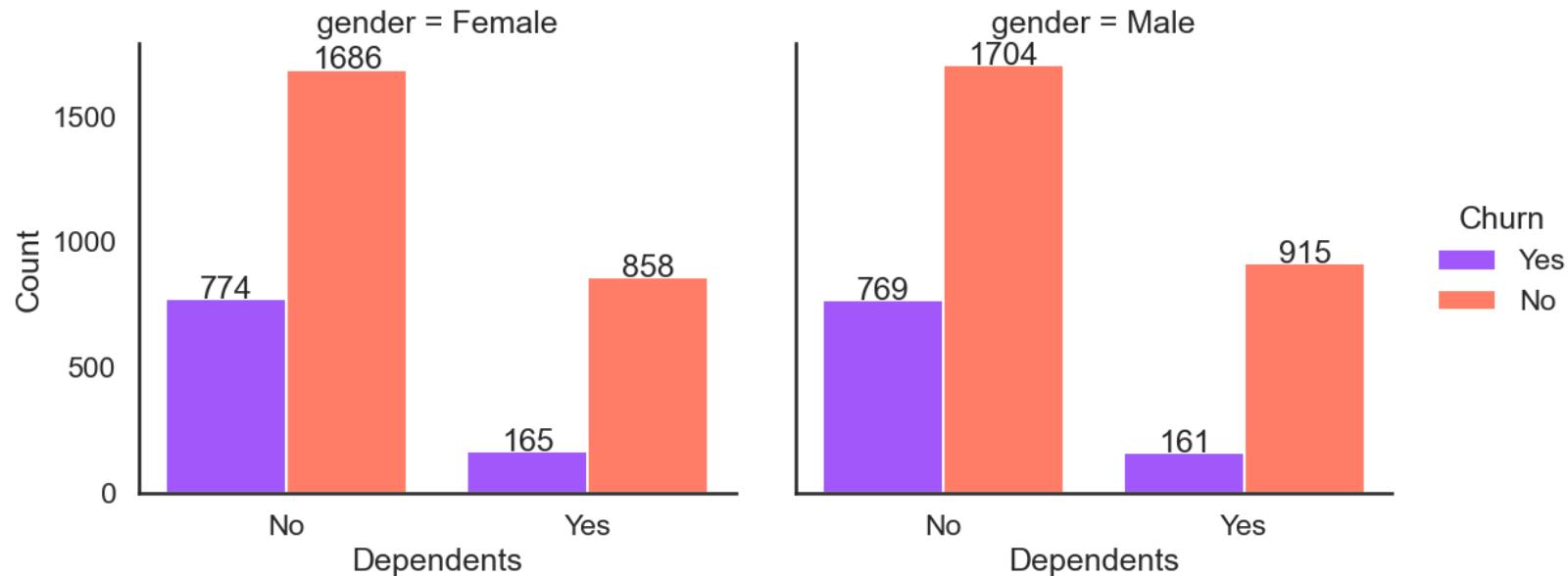


heatmap of Churn-rate for Partner and gender

Insight: Female without partners are more churners at 34% and male without a partner are churning at 31%. Female with partners are low churners at 18%.

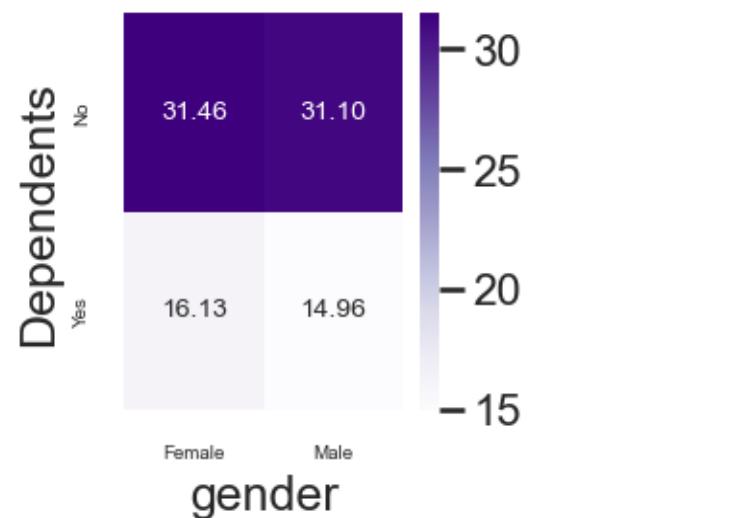


3. Bivariate Analysis of Dependents vs gender with Churn as Hue

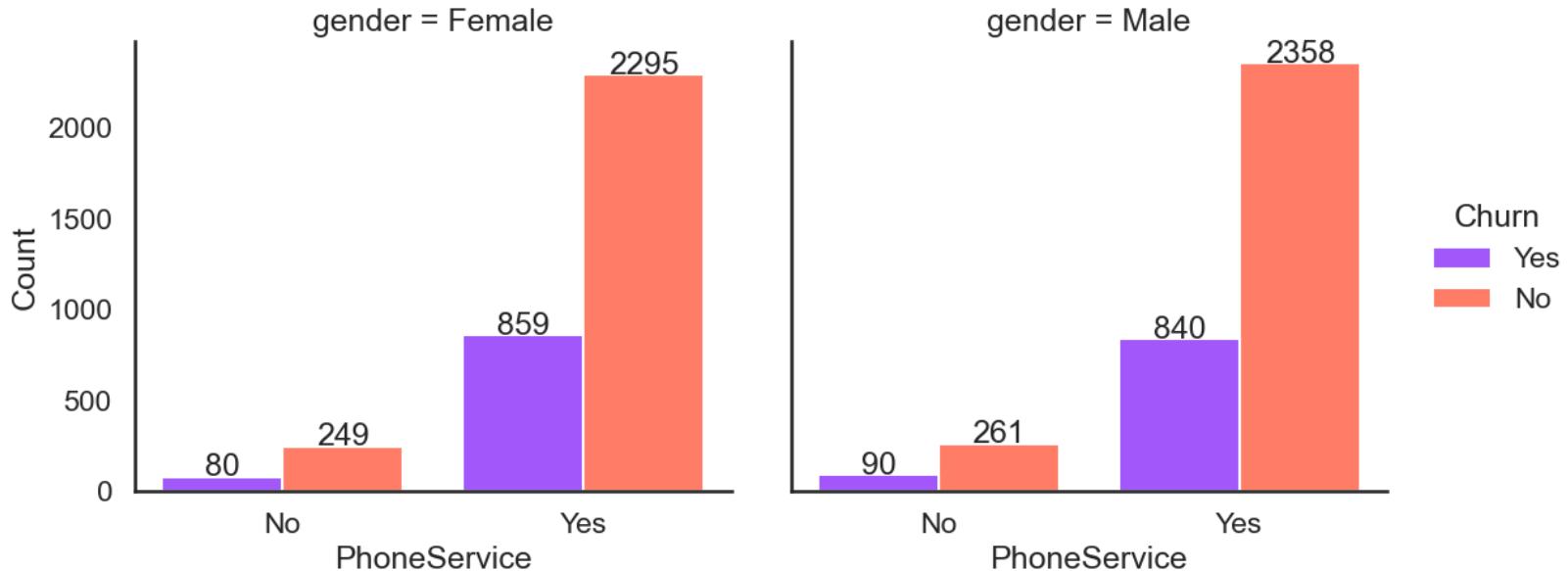


heatmap of Churn-rate for Dependents and gender

Insight: Customers without dependents are high churners irrespective of gender.
Male Customers with dependents are low churners at 15%.



4. Bivariate Analysis of PhoneService vs gender with Churn as Hue

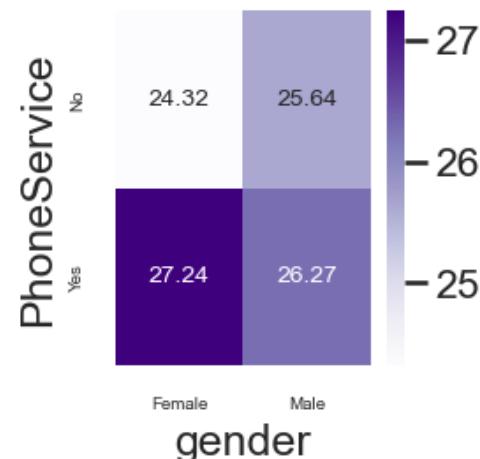


Insight:

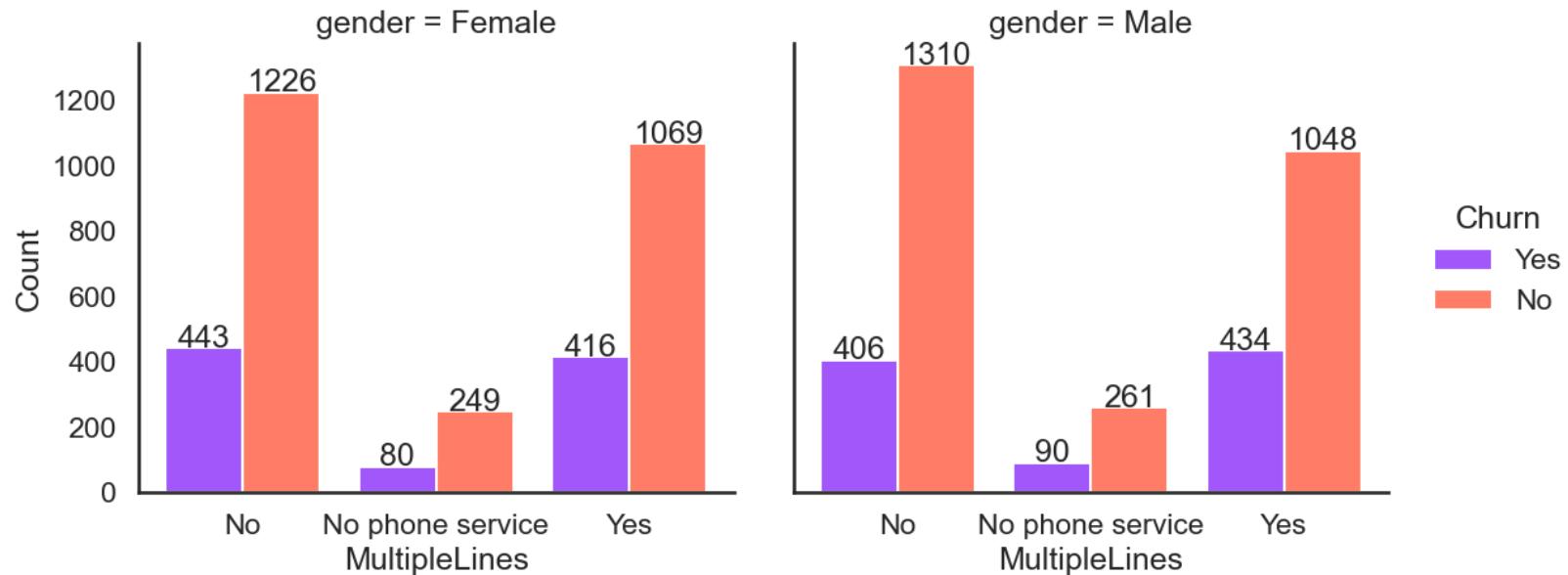
Female customers with Phone service churn at 27.2%, whereas males at 26%.

Phone service churn rate is not dependent on gender.

heatmap of Churn-rate for PhoneService and gender



5. Bivariate Analysis of MultipleLines vs gender with Churn as Hue

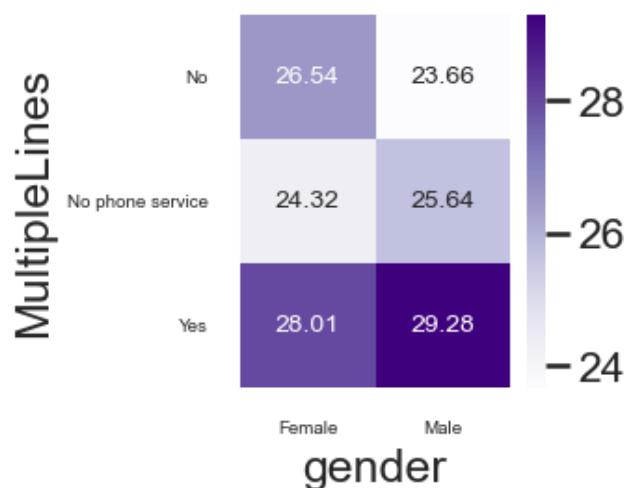


Insight:

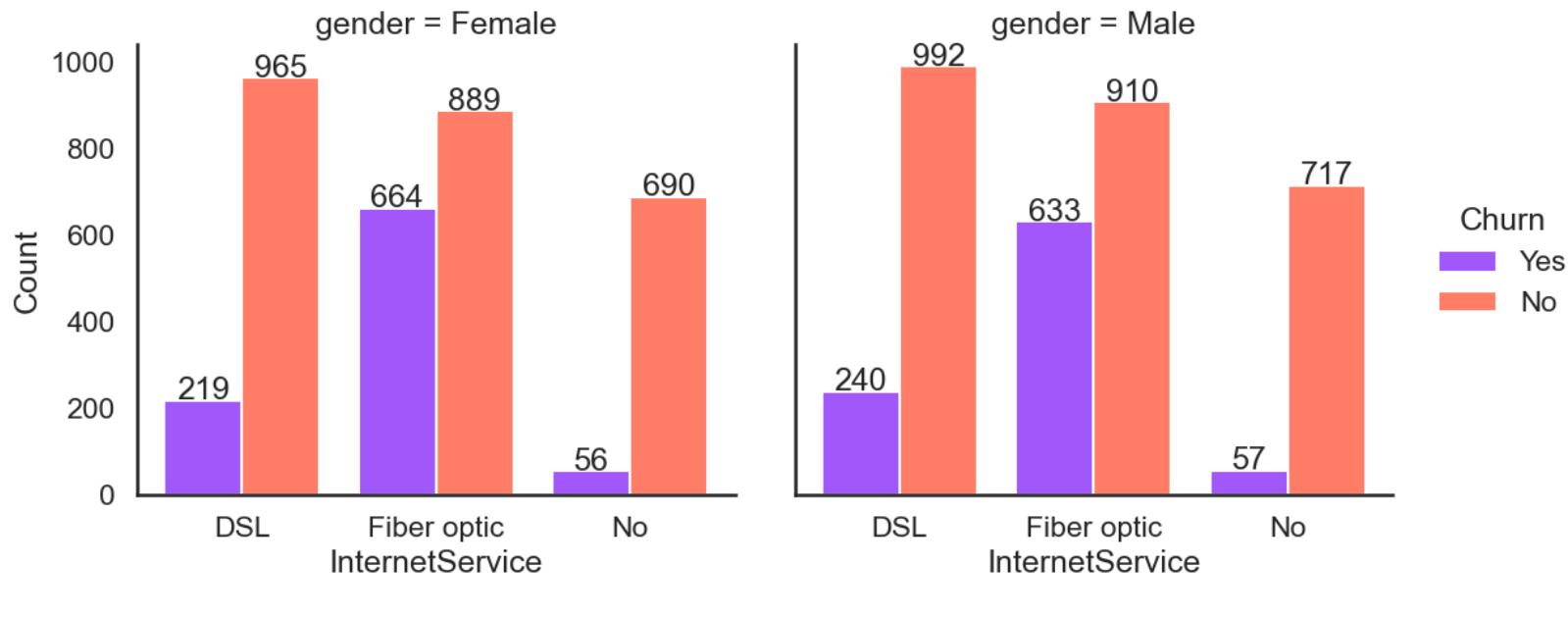
Male customers with multiple lines are high churners at 29%.

Female customers with and without service churn at 28% and 26.5%.

heatmap of Churn-rate for MultipleLines and gender



6. Bivariate Analysis of InternetService vs gender with Churn as Hue

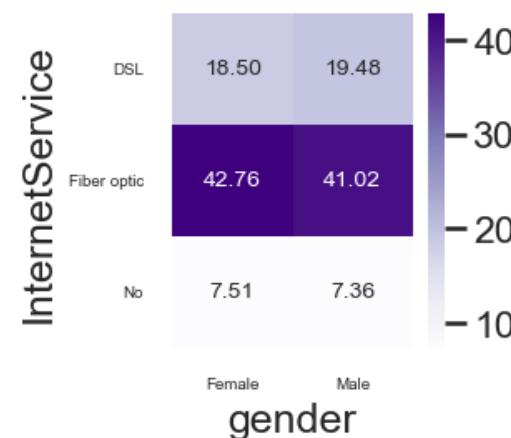


Insight:

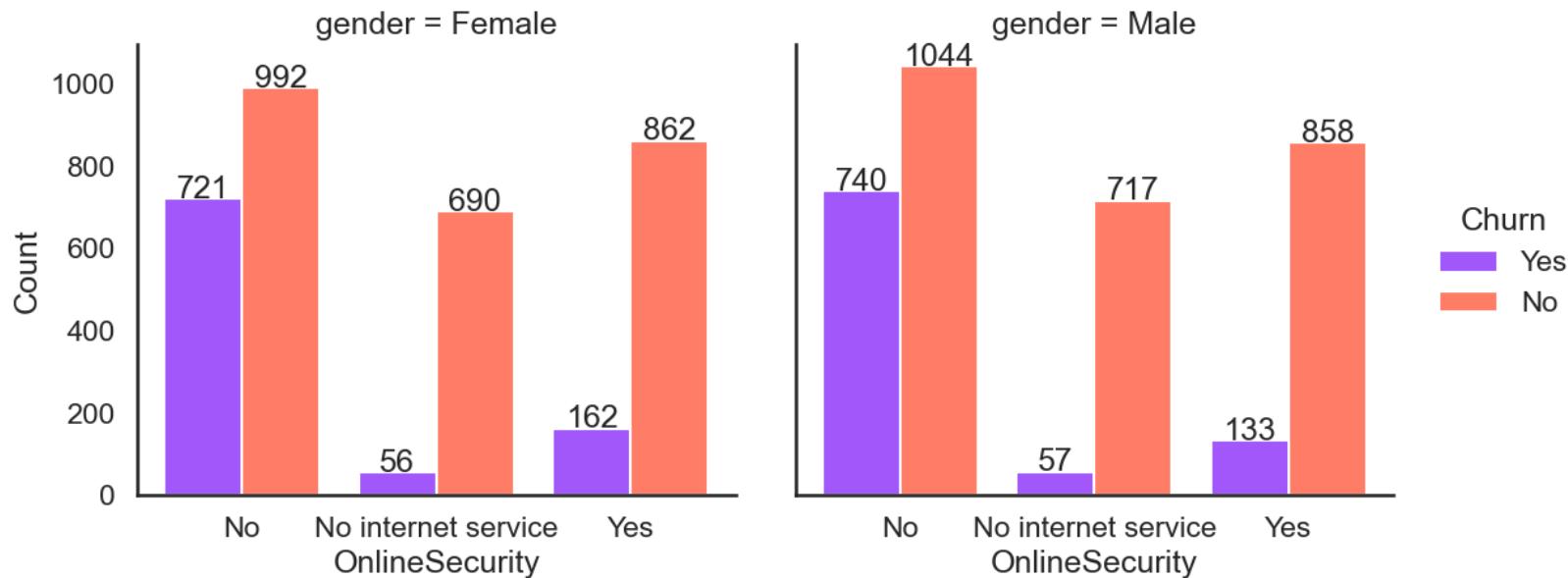
Female users with fiber optic internet are high churners at 42.7% and male are high churners too at 41%.

Customers with No internet service are low churners.

heatmap of Churn-rate for InternetService and gender



7. Bivariate Analysis of OnlineSecurity vs gender with Churn as Hue



Insight:

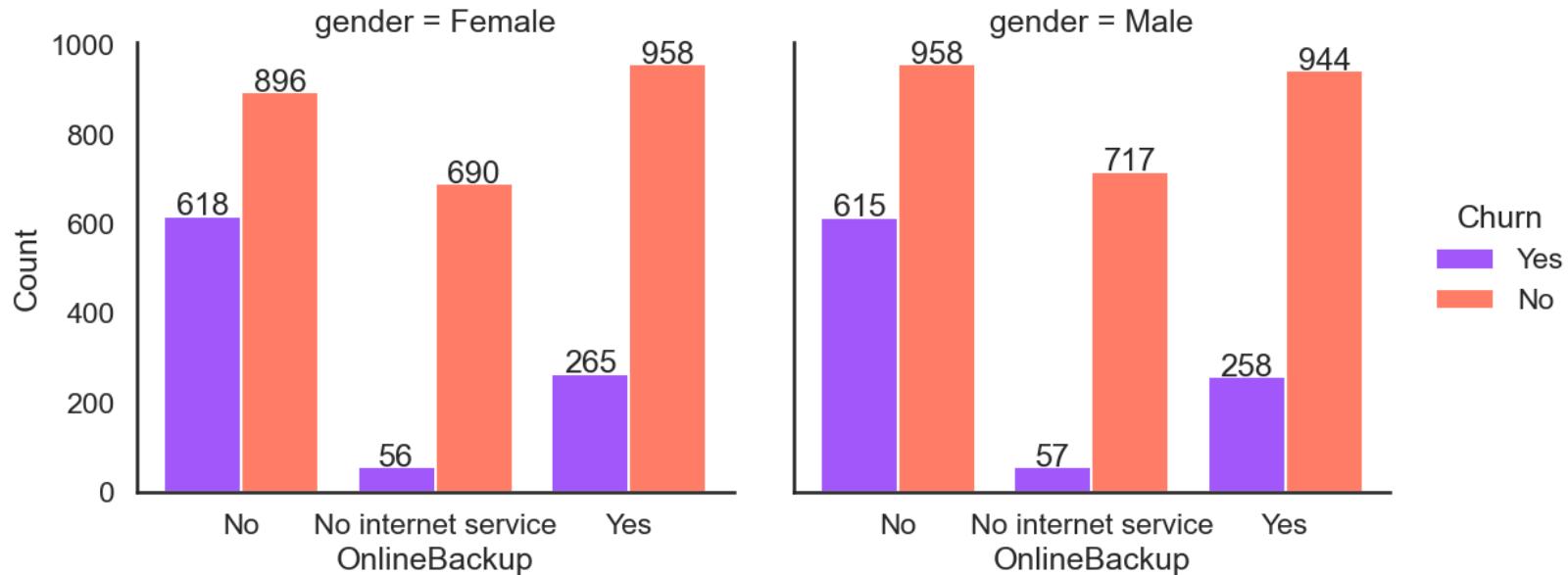
Female customers with No online security are high churners at 42.1% whereas male at 41.5%.

Customers with no internet service are low churners.

heatmap of Churn-rate for OnlineSecurity and gender



8. Bivariate Analysis of OnlineBackup vs gender with Churn as Hue

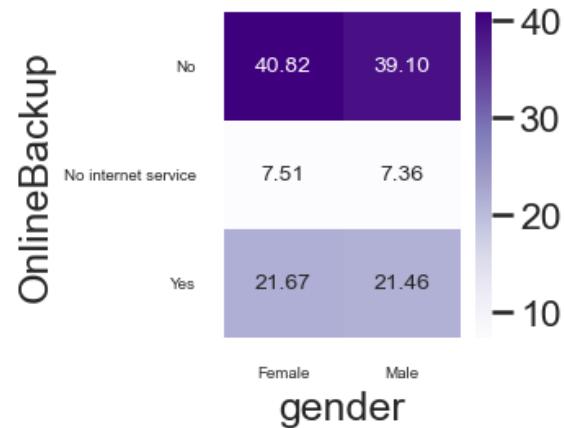


Insight:

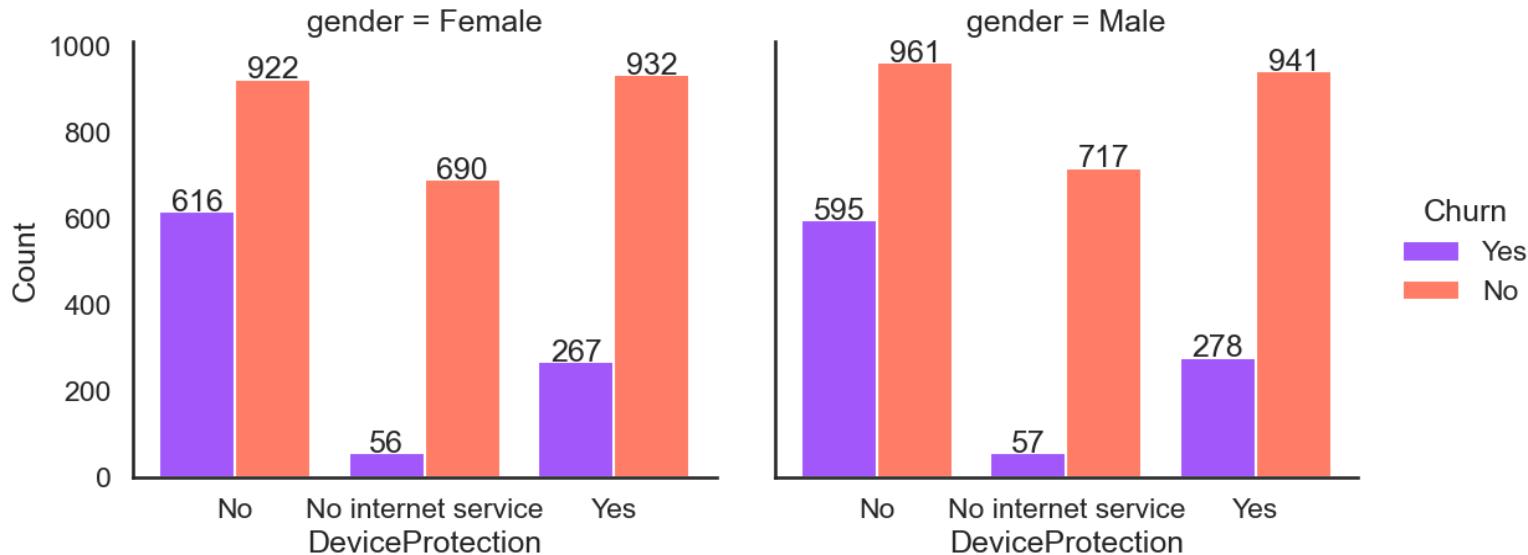
Female with no online backup are high churners at 40.8% and male at 39.8%.

gender has no effect on online backup.

heatmap of Churn-rate for OnlineBackup and gender



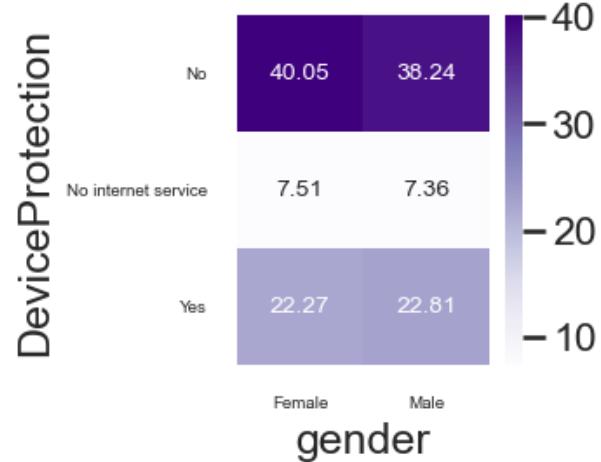
9. Bivariate Analysis of DeviceProtection vs gender with Churn as Hue



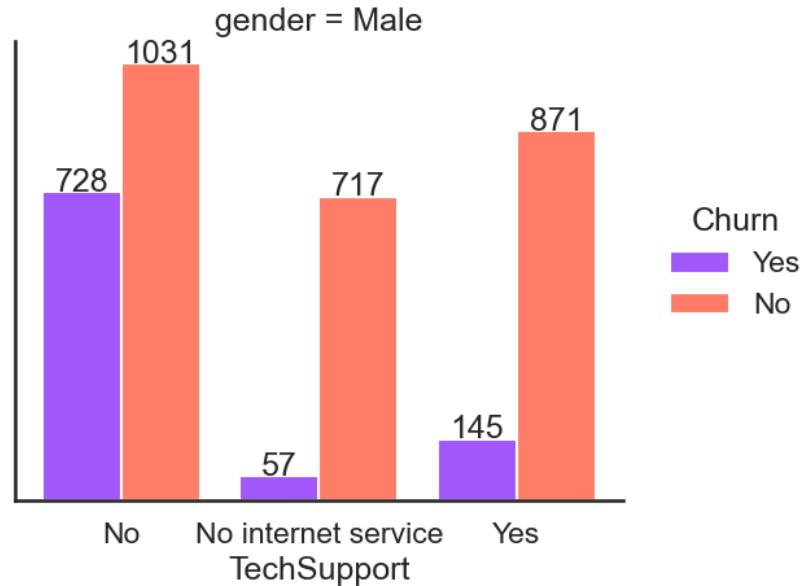
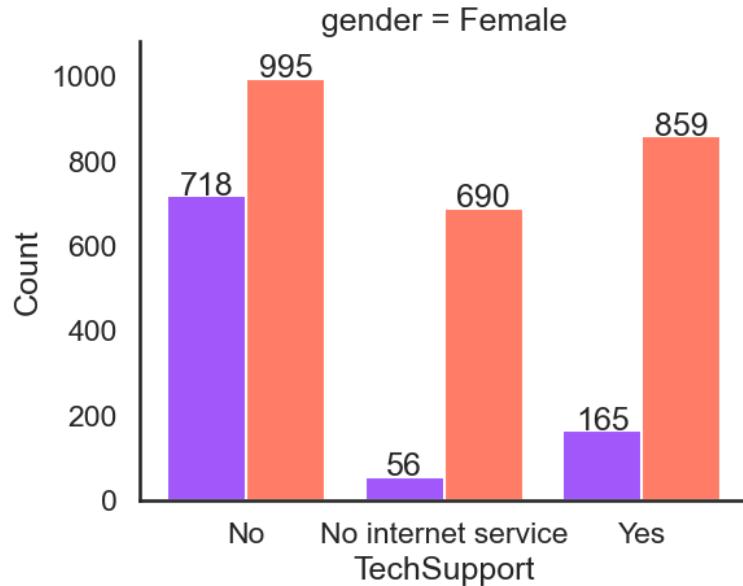
Insight:

Female with no device protection are high chuners at 40% whereas men at 38.2%.

heatmap of Churn-rate for DeviceProtection and gender

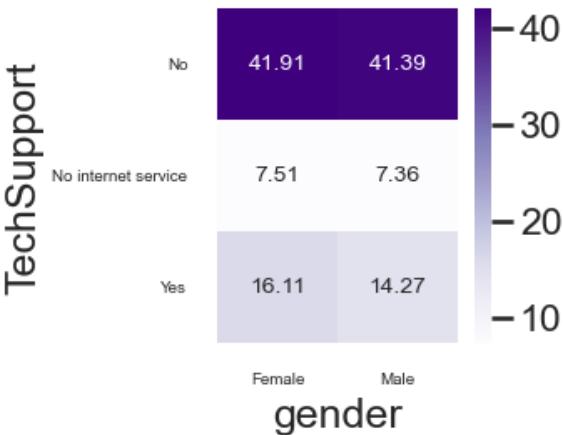


10. Bivariate Analysis of TechSupport vs gender with Churn as Hue

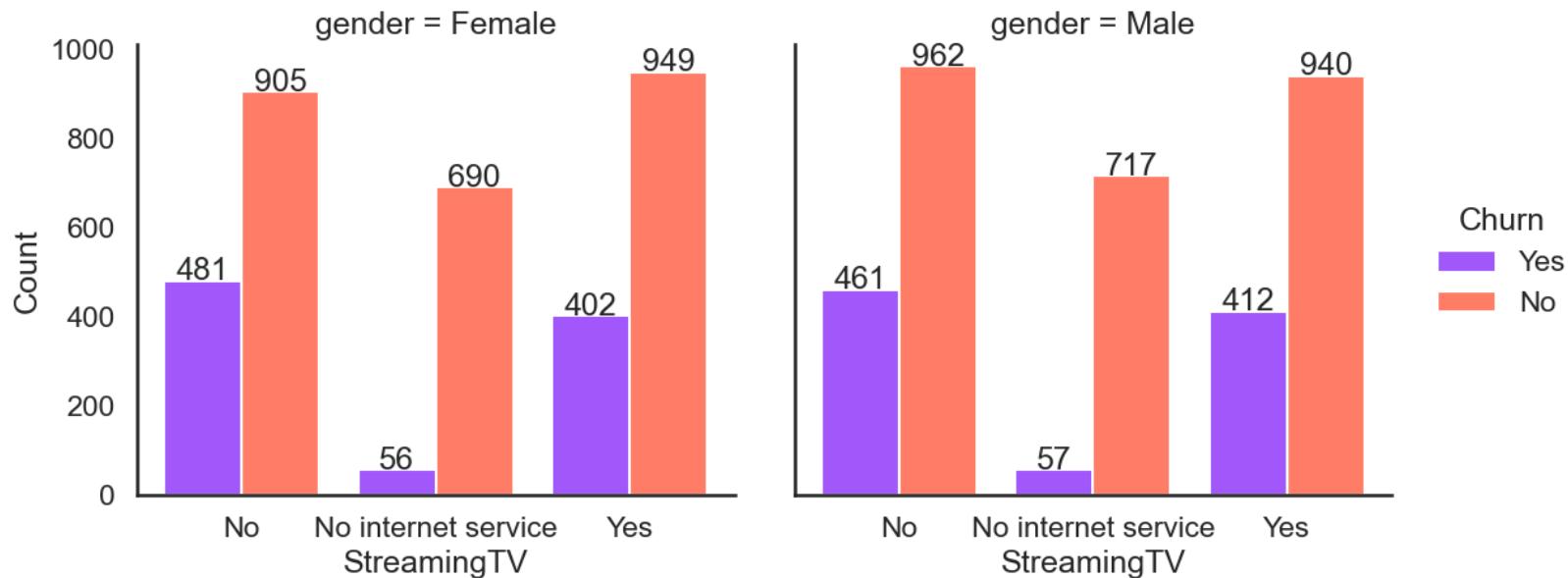


Insight:
Male with no tech
support are low
churners at 14%.

heatmap of Churn-rate for TechSupport and gender



11. Bivariate Analysis of StreamingTV vs gender with Churn as Hue

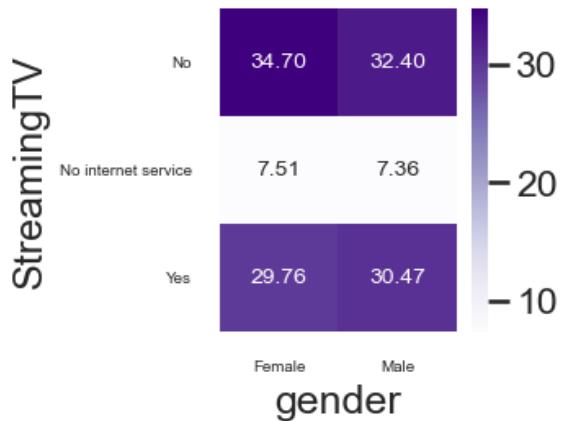


Insight:

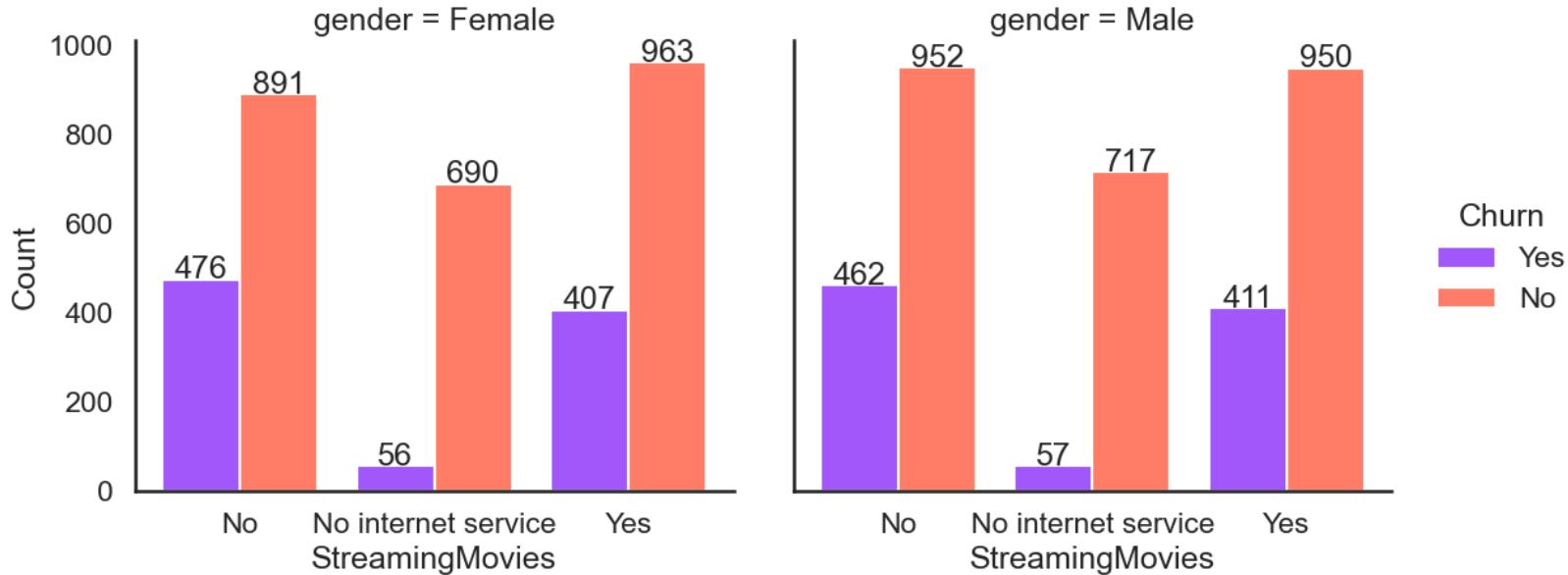
Female with No streaming tv service are high churners at 34.7% where as men at 32.4%.

customers with no internet service are low churners are low churners at 7%..

heatmap of Churn-rate for StreamingTV and gender



12. Bivariate Analysis of StreamingMovies vs gender with Churn as Hue



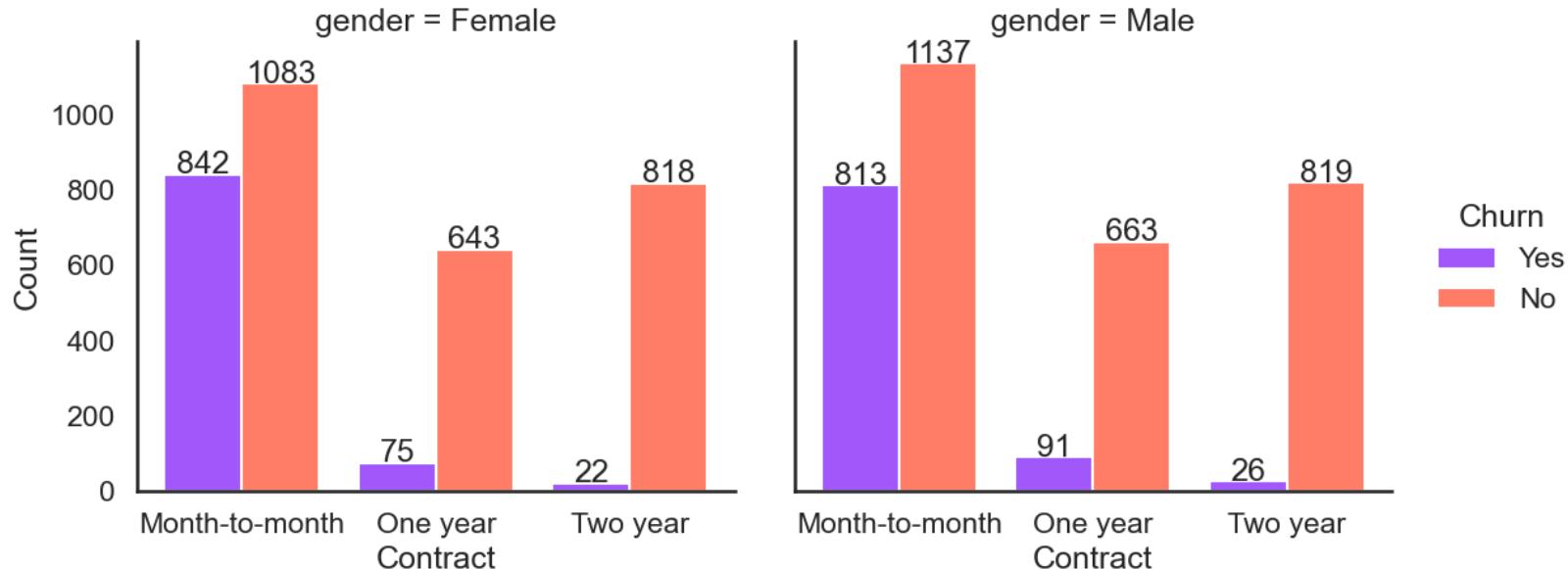
heatmap of Churn-rate for StreamingMovies and gender

Insight:

Female with No streaming movies service are high churners at 34.8% where as men at 32.6%
 customers with no internet service are low churners at 7%..



13. Bivariate Analysis of Contract vs gender with Churn as Hue

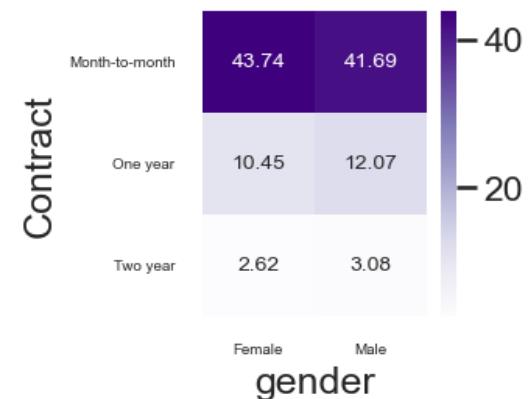


Insight:

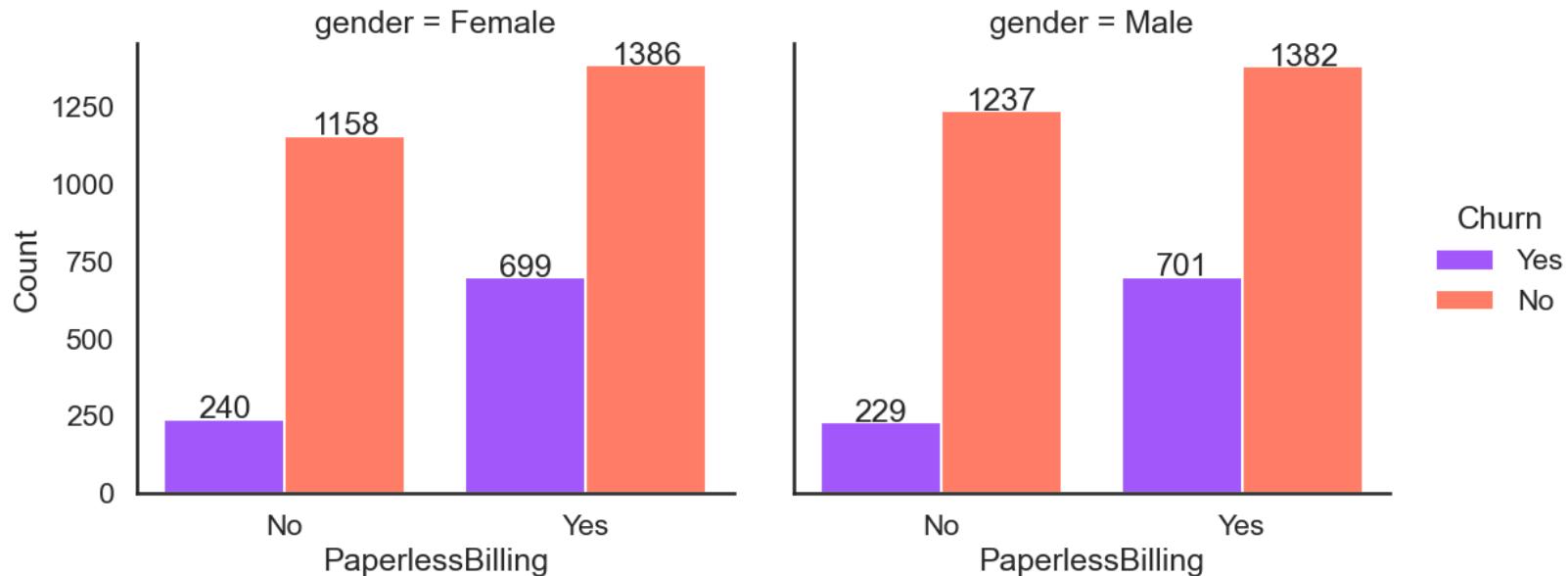
Female with month to month contracts are high chunner st at 43.74% where as men at 41.60.

in one year and two year contract, the churn rate of female is lower than that of men..

heatmap of Churn-rate for Contract and gender



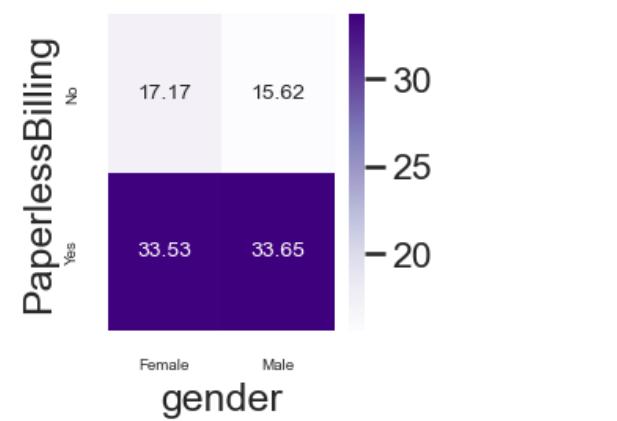
14. Bivariate Analysis of PaperlessBilling vs gender with Churn as Hue



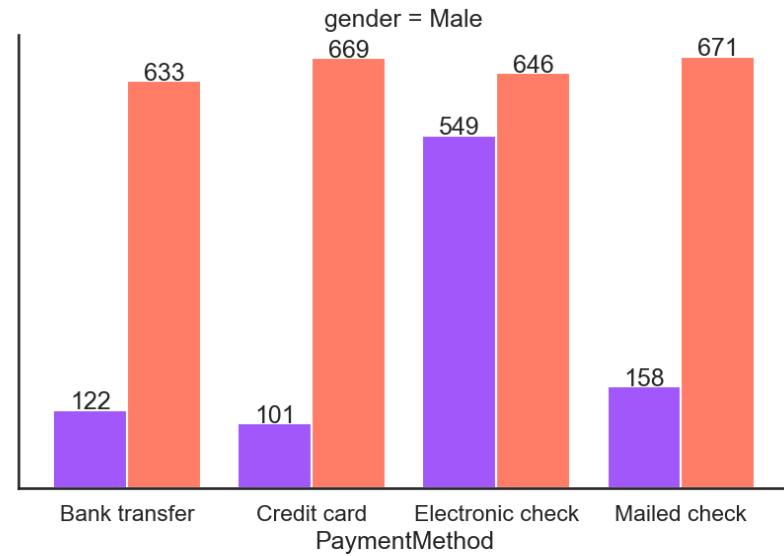
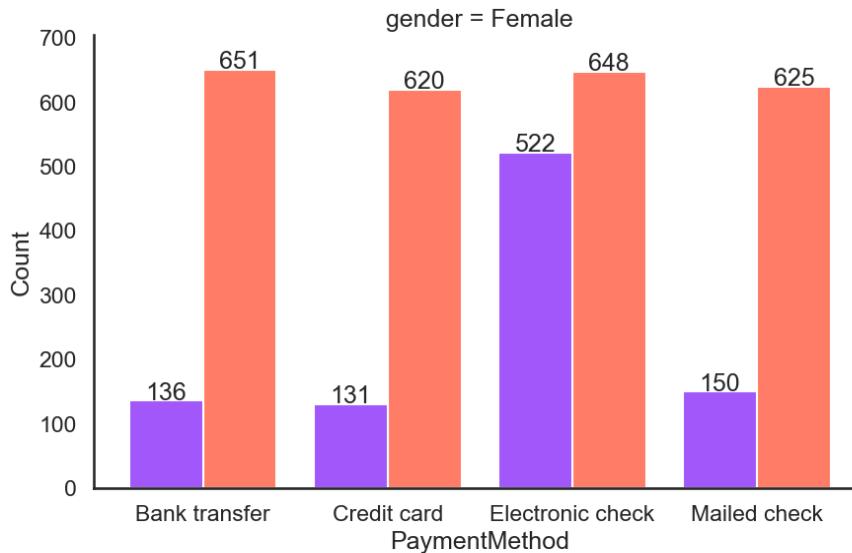
Insight:

Male without paperless billing are low churners at 15.5.where as no paperlessbilling have no affect on gender.

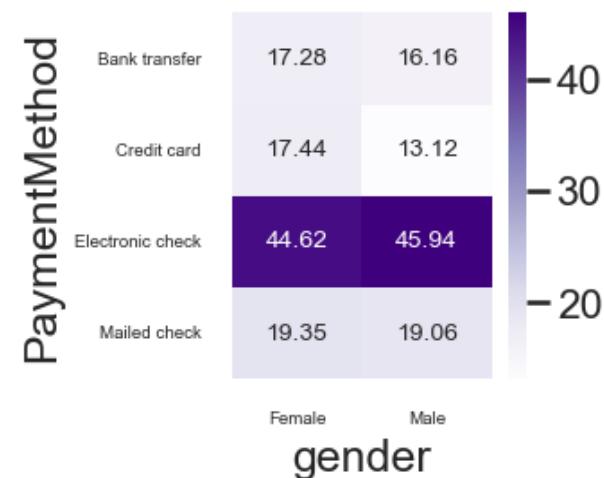
heatmap of Churn-rate for PaperlessBilling and gender



15. Bivariate Analysis of PaymentMethod vs gender with Churn as Hue

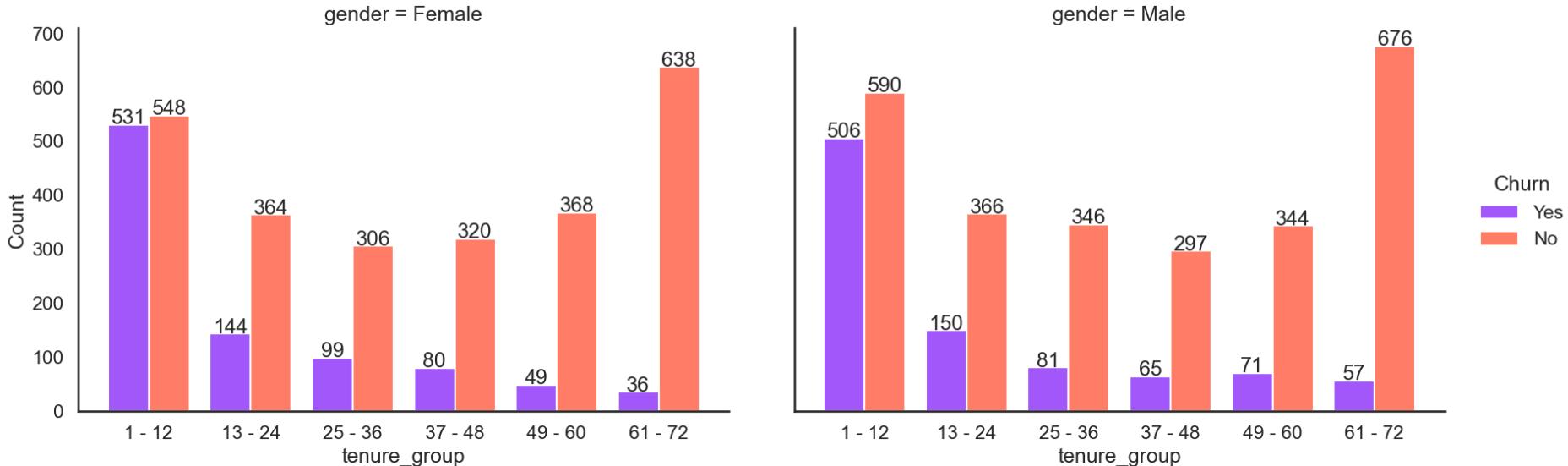


heatmap of Churn-rate for PaymentMethod and gender



Insight:
Customers with payment as electronic check are high customers.

16. Bivariate Analysis of tenure_group vs gender with Churn as Hue



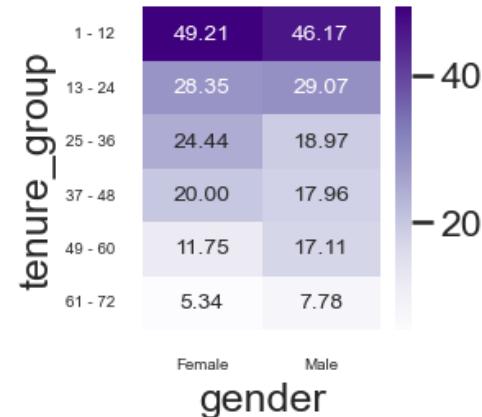
Insight:

Female customers are high chuners in 1-12 yr group 49.2%.

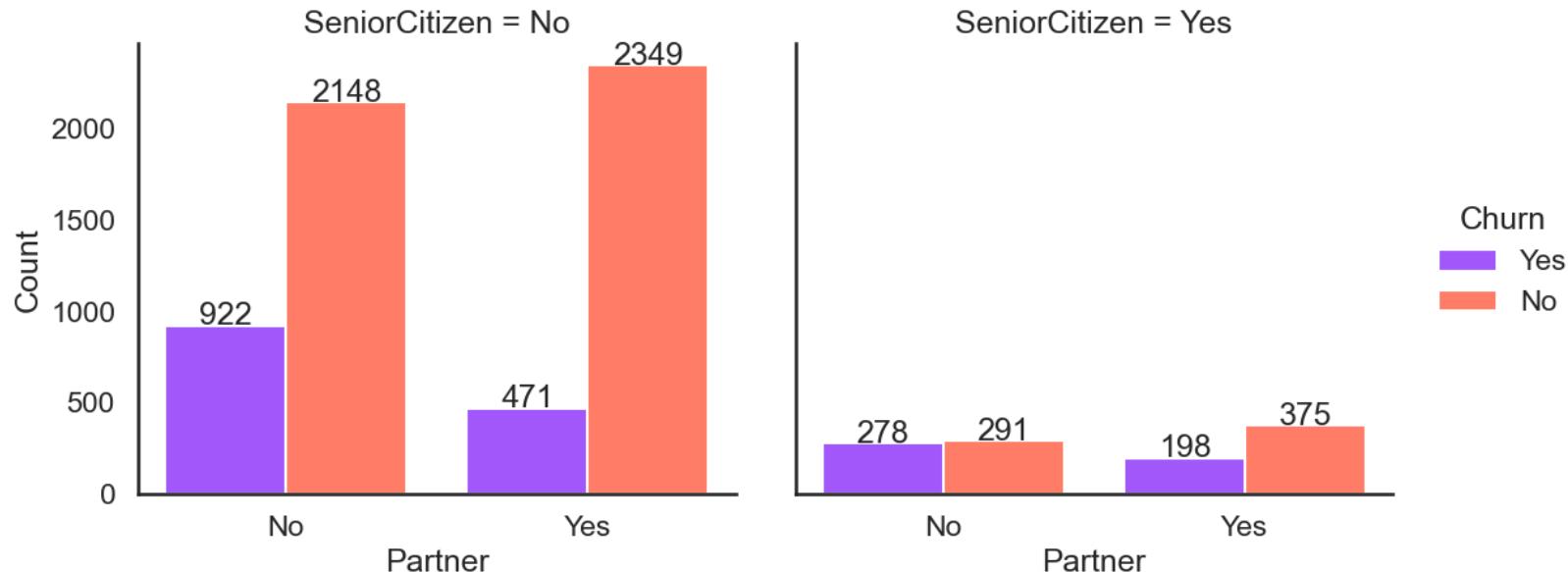
Female citizens in the tenure range..25-36,37-48 are high chuners when compared to males.

Females in 61-72 are lowest chuners at 5%.

heatmap of Churn-rate for tenure_group and gender



1. Bivariate Analysis of Partner vs SeniorCitizen with Churn as Hue

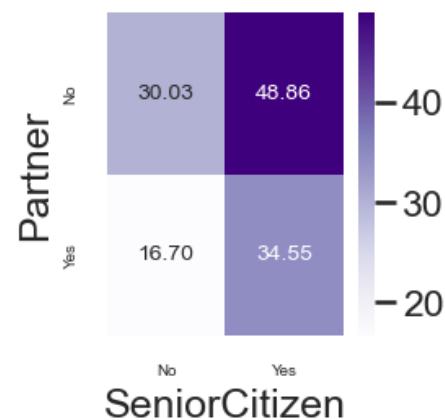


Insight:

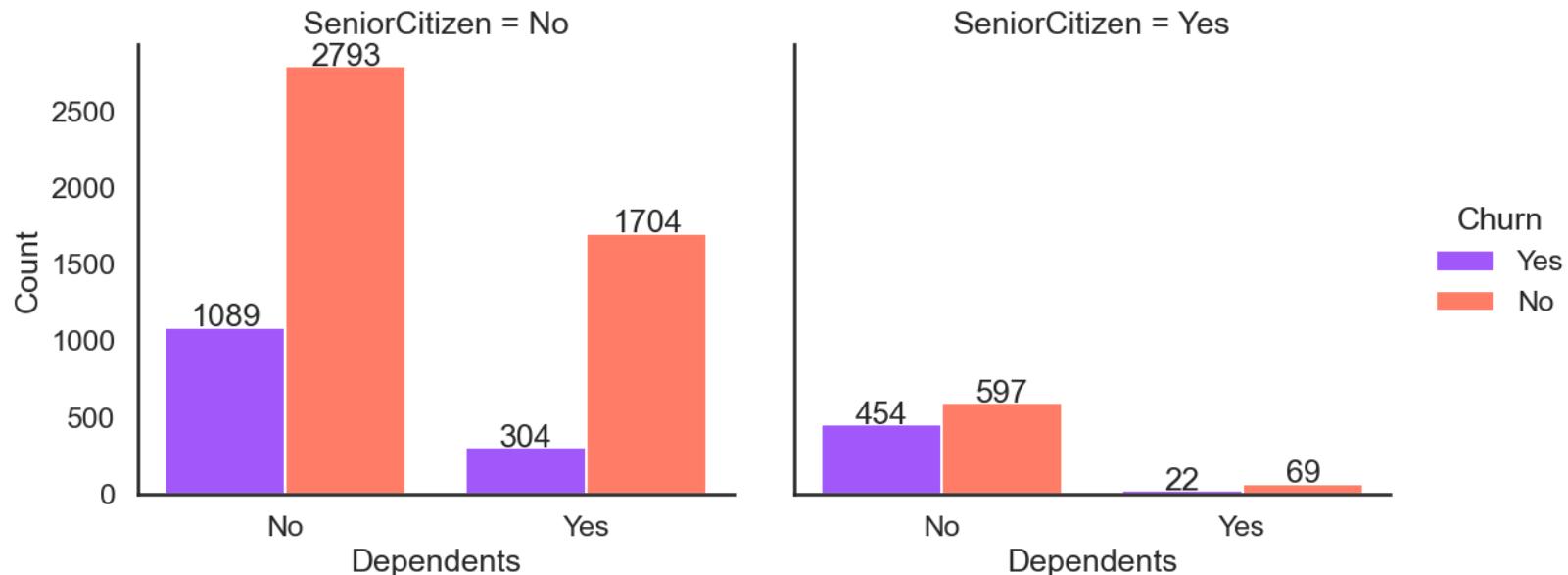
Senior citizens with no partners are high churners with 48.8%.

Non-senior customers with partners are low churners at 16.7% .

heatmap of Churn-rate for Partner and SeniorCitizen



2. Bivariate Analysis of Dependents vs SeniorCitizen with Churn as Hue

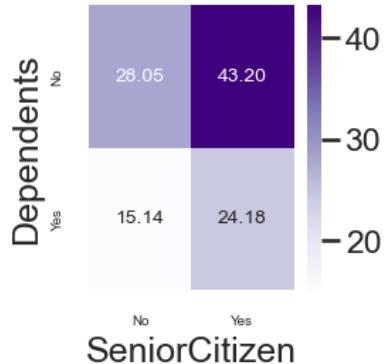


heatmap of Churn-rate for Dependents and SeniorCitizen

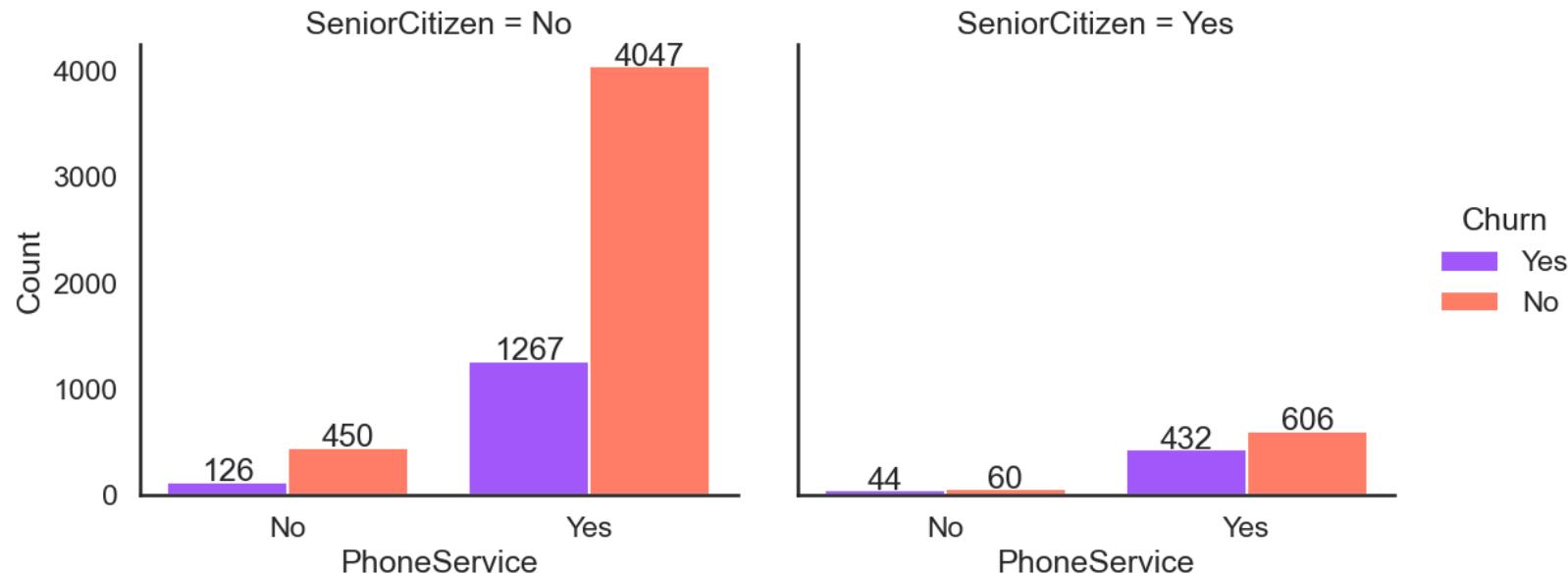
Insight:

Senior citizens with no dependents are high churners at 43.2%..

Non senior citizens with dependents are low churners at 15%.



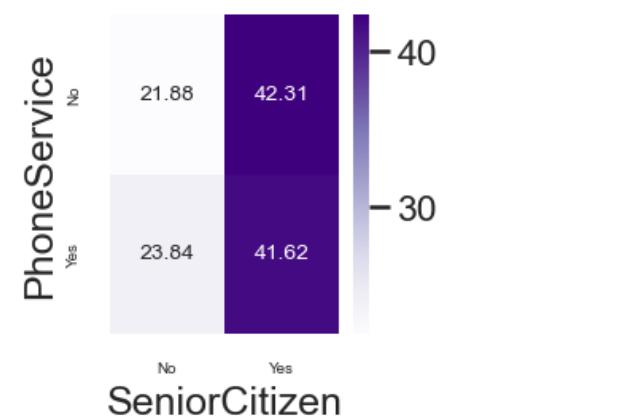
3. Bivariate Analysis of PhoneService vs SeniorCitizen with Churn as Hue



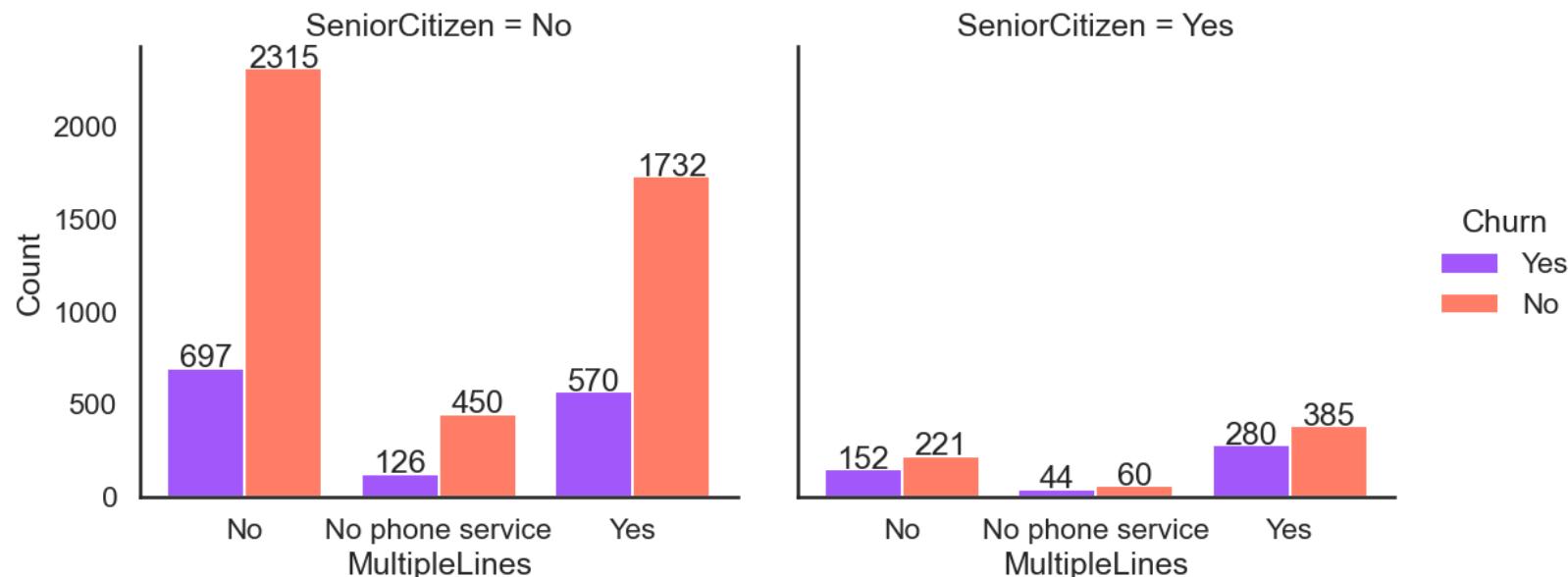
heatmap of Churn-rate for PhoneService and SeniorCitizen

Insight:

Senior citizens irrespective of their phone service are high churners with 42%.



4. Bivariate Analysis of MultipleLines vs SeniorCitizen with Churn as Hue

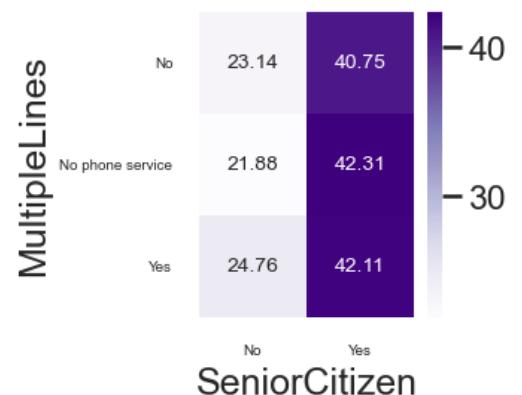


Insight:

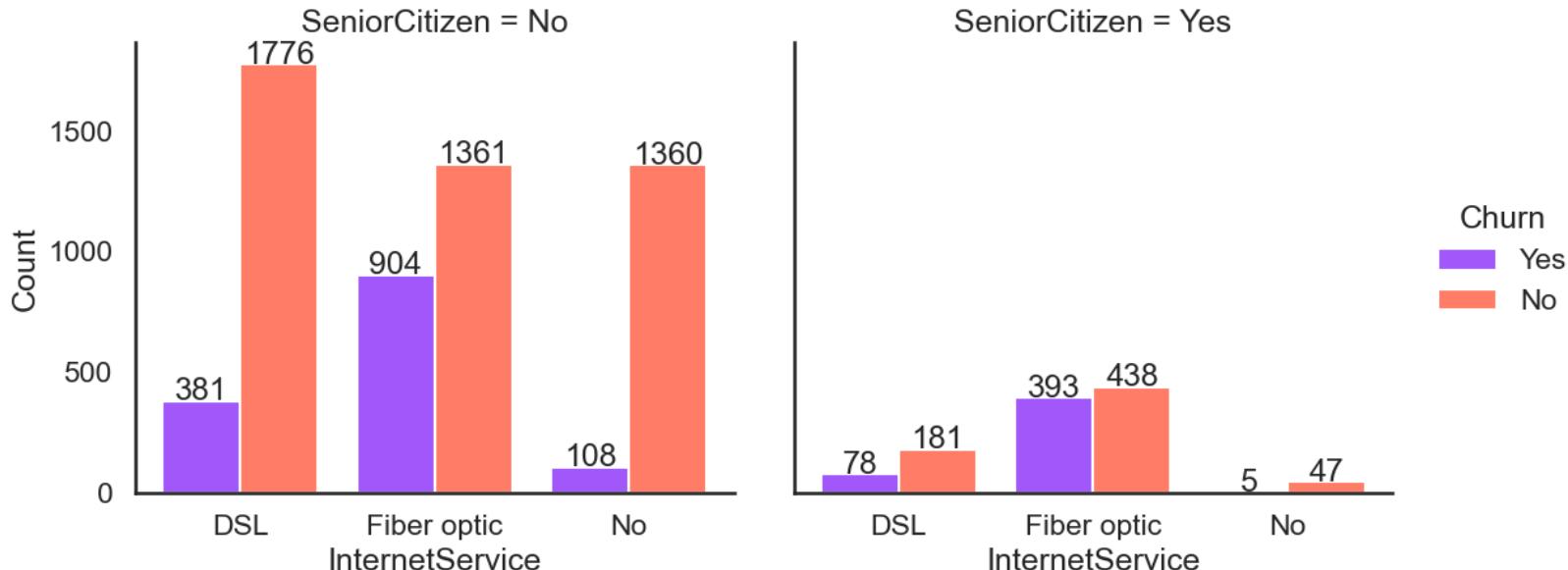
Senior citizens with no service are high churners at 42.3%.

Senior citizens have no impact of multiple lines on them.

heatmap of Churn-rate for MultipleLines and SeniorCitizen



5. Bivariate Analysis of InternetService vs SeniorCitizen with Churn as Hue

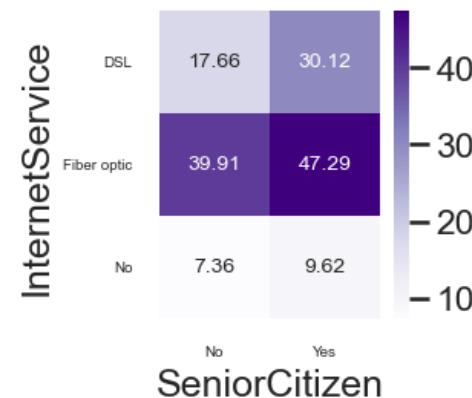


Insight:

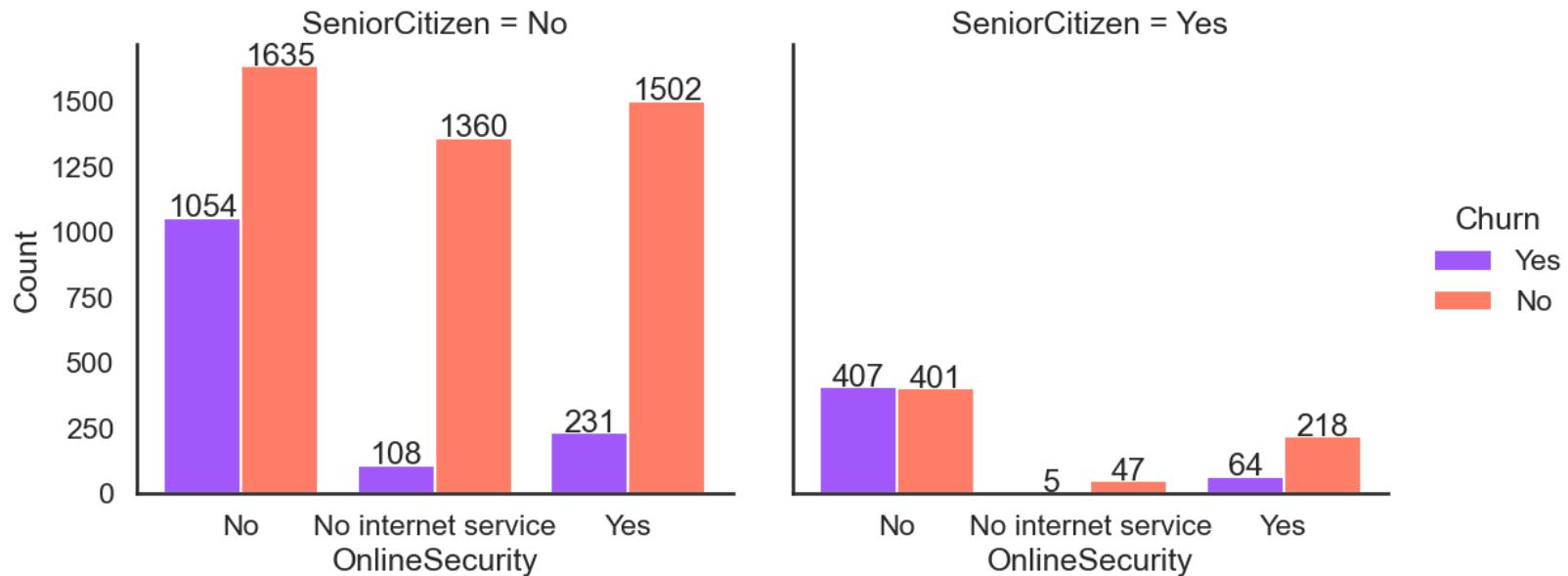
Senior citizen with fiber optic internet service are high churners at 47.2%.

Non senior citizens without internet service are low churners at 7.3%.

heatmap of Churn-rate for InternetService and SeniorCitizen



6. Bivariate Analysis of OnlineSecurity vs SeniorCitizen with Churn as Hue

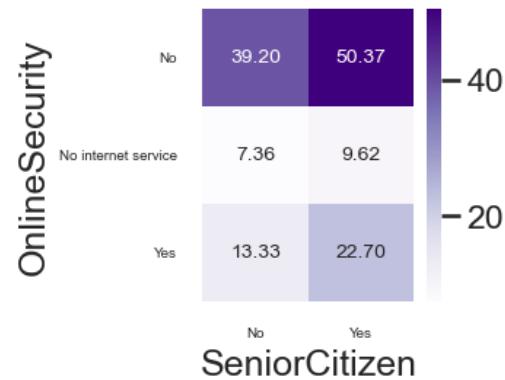


Insight:

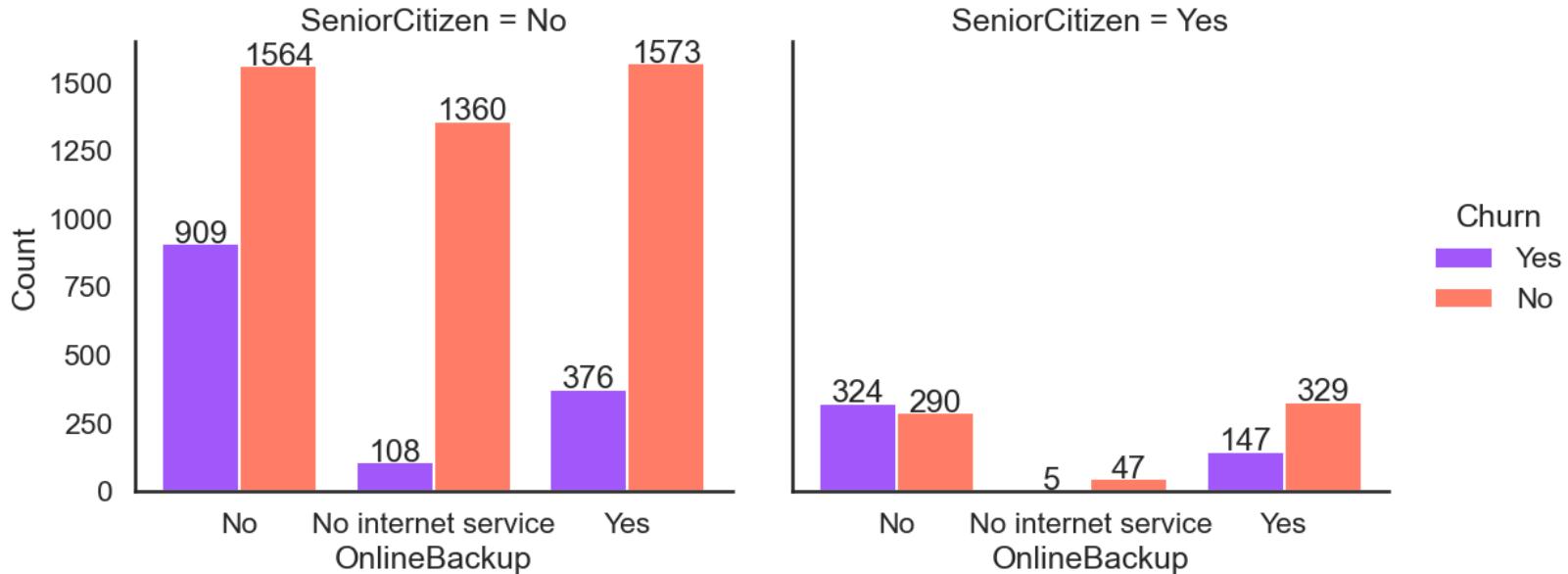
Senior citizens with no online security are high churners at 50.3%.

Non-Senior citizens who have no internet connections are low churners at 7.3%.

heatmap of Churn-rate for OnlineSecurity and SeniorCitizen



7. Bivariate Analysis of OnlineBackup vs SeniorCitizen with Churn as Hue

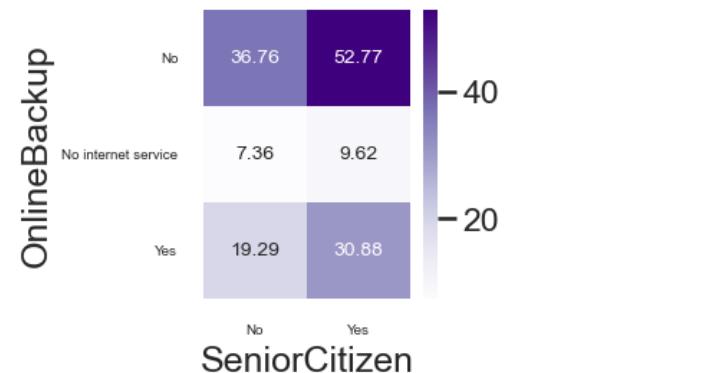


Insight:

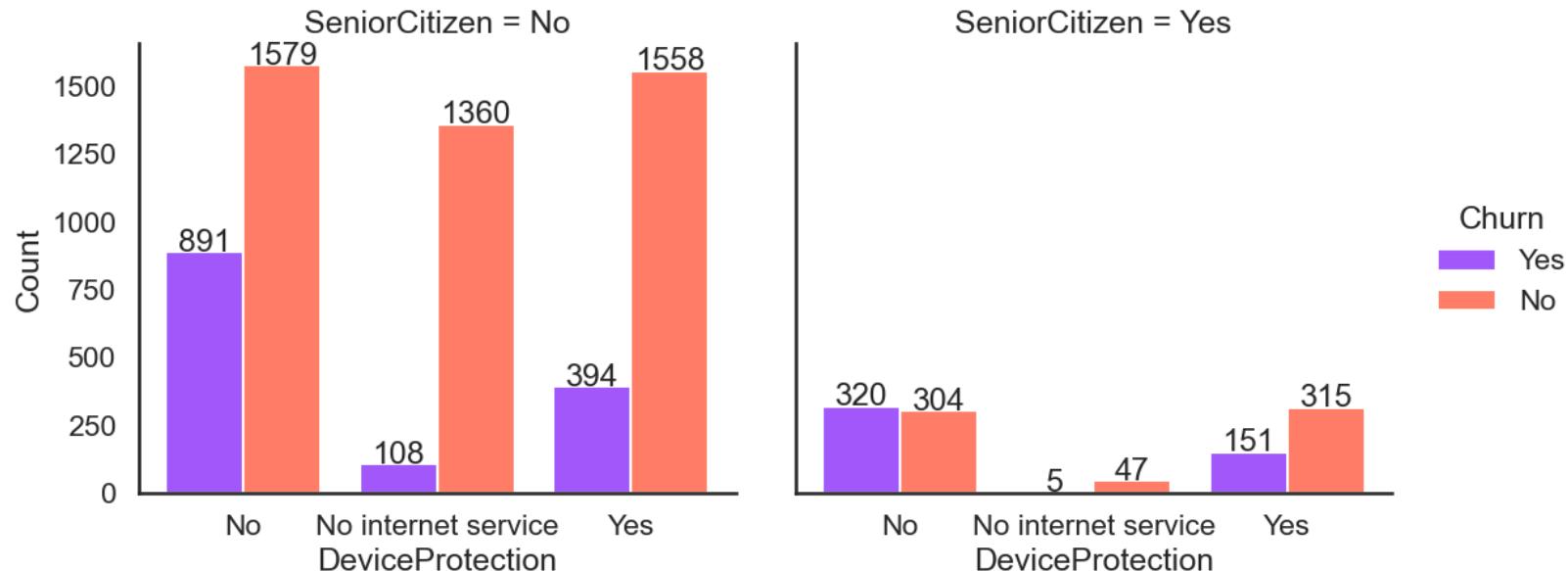
Senior citizens with no online backup are high churners at 52.7%.

Non-Senior citizens who have no internet connections are low churners at 7.3%.

heatmap of Churn-rate for OnlineBackup and SeniorCitizen



8. Bivariate Analysis of DeviceProtection vs SeniorCitizen with Churn as Hue

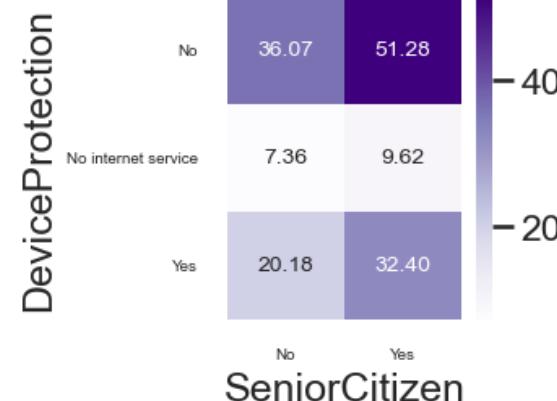


heatmap of Churn-rate for DeviceProtection and SeniorCitizen

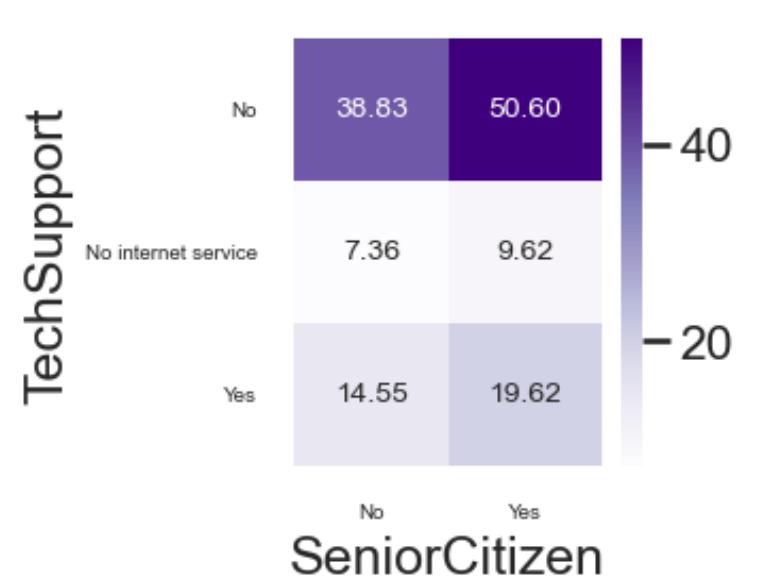
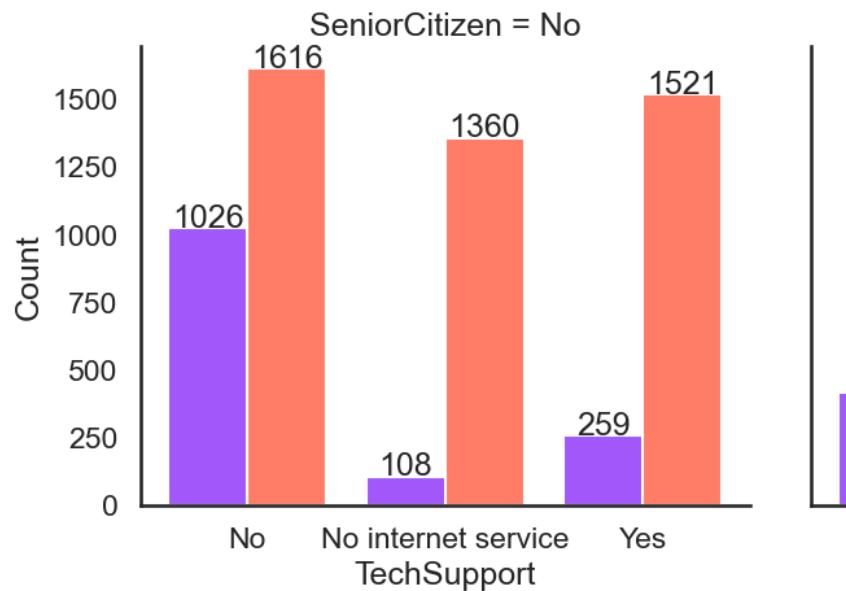
Insight:

Senior citizens with no Tech support are high churners at 50.6%.

Non-Senior citizens who have no internet connections are low churners at 7.3%.

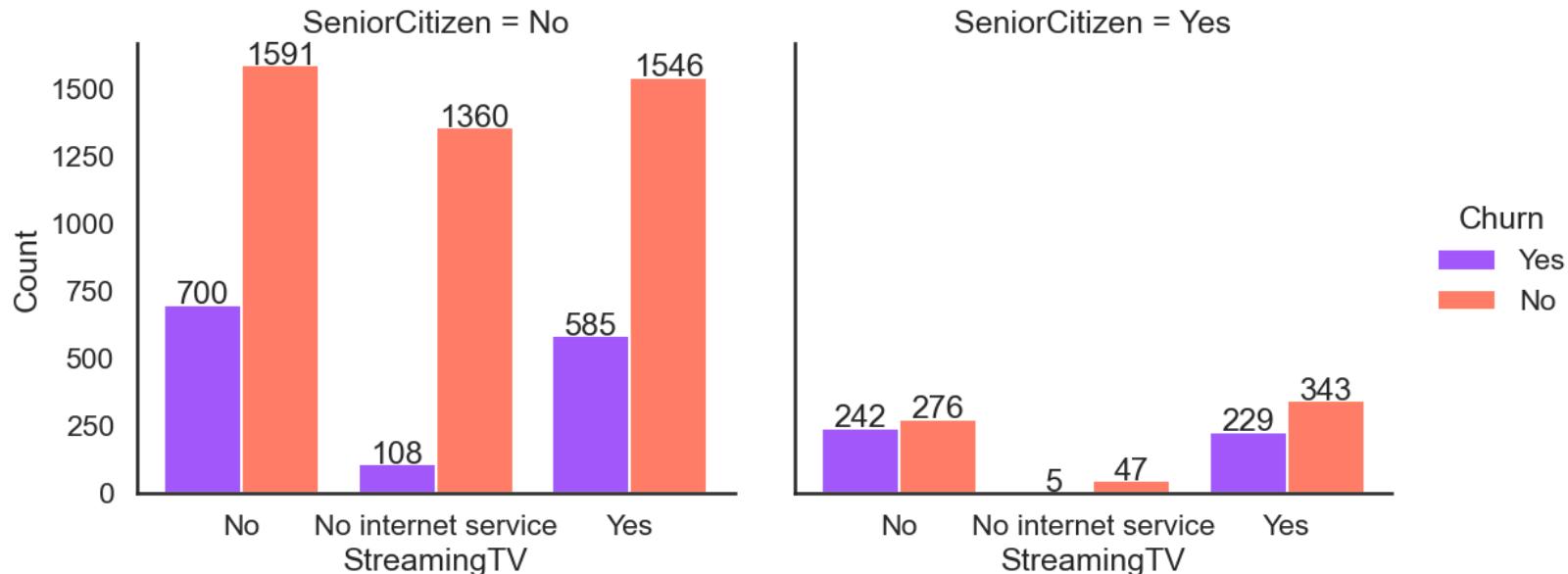


9. Bivariate Analysis of TechSupport vs SeniorCitizen



Insight: Senior citizens with no Device Protection are high churners at 51.3%. Non-senior citizens with no Device Protection are also high churners at 38.83%.

10. Bivariate Analysis of StreamingTV vs SeniorCitizen with Churn as Hue

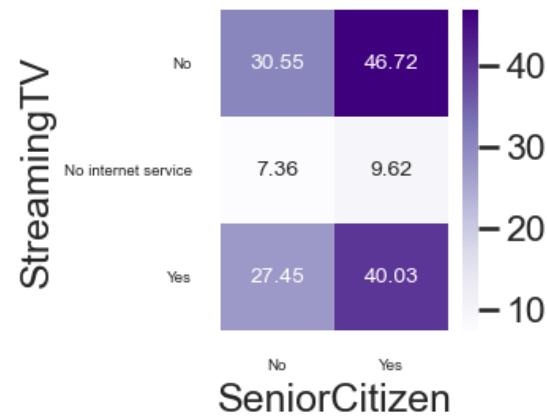


Insight:

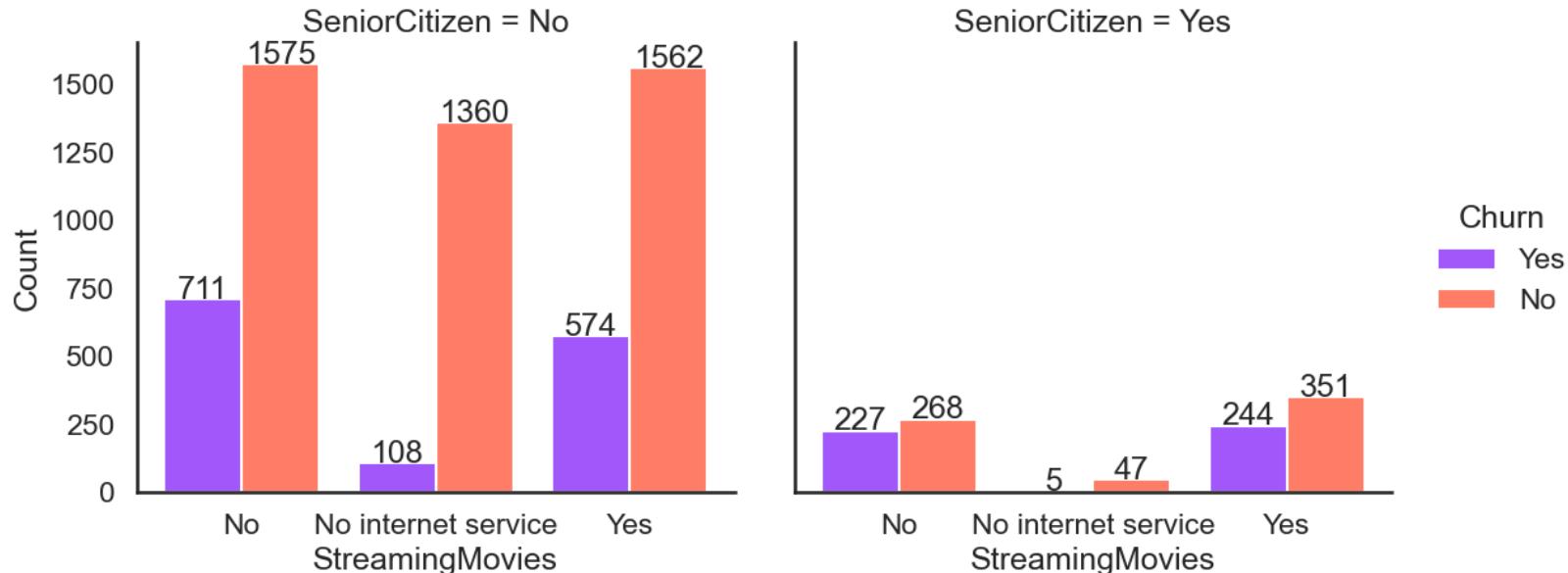
Senior citizens with no Streaming TV service are high churners at 46.7%.

Non-Senior citizens who have no internet connections are low churners at 7.3%.

heatmap of Churn-rate for StreamingTV and SeniorCitizen



11. Bivariate Analysis of StreamingMovies vs SeniorCitizen with Churn as Hue

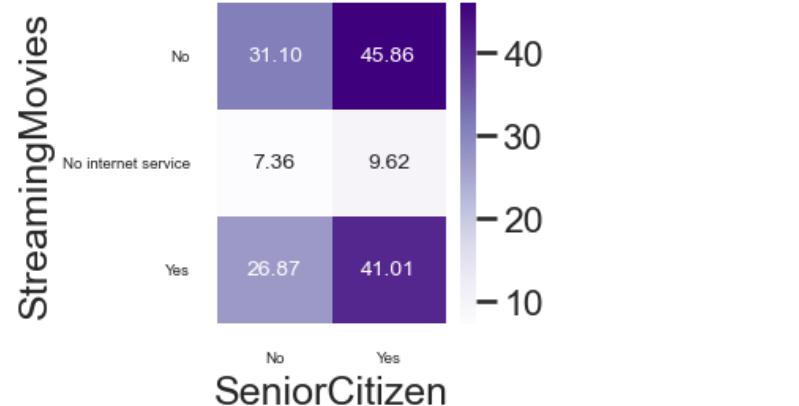


Insight:

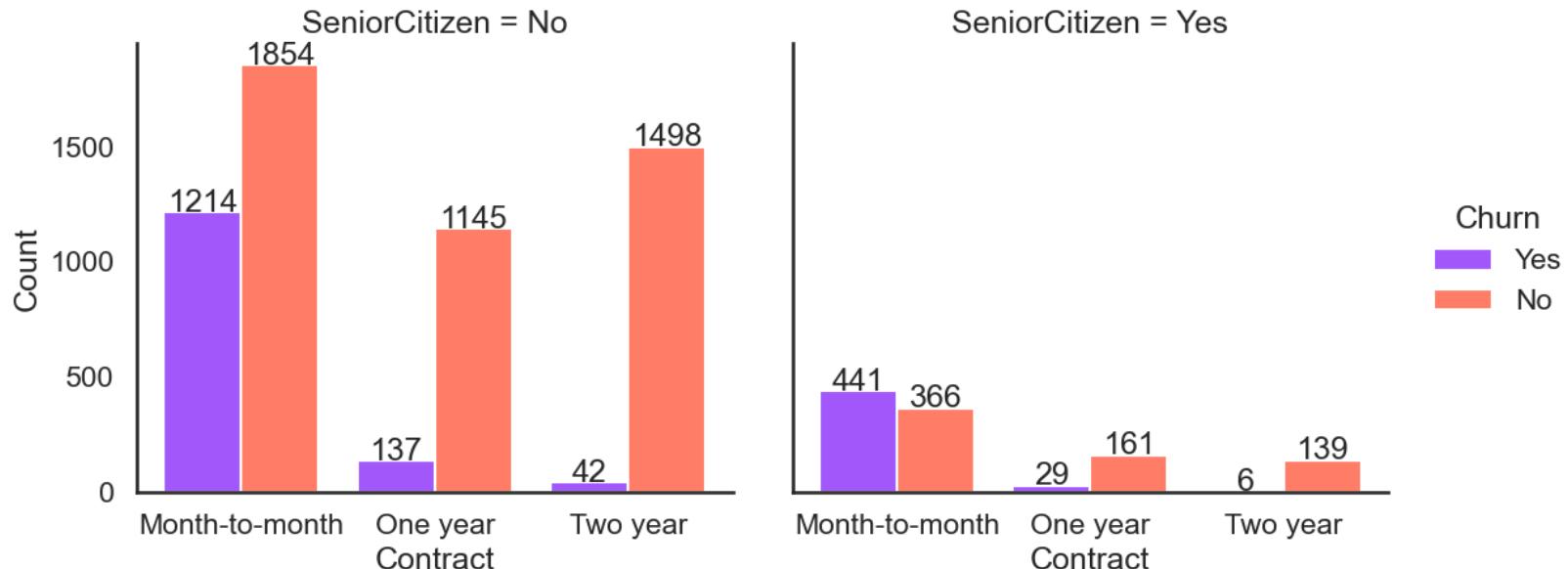
Senior citizens with no Streaming Movies service are high churners at 46.7%.

Non-Senior citizens who have no internet connections are low churners at 7.3%.

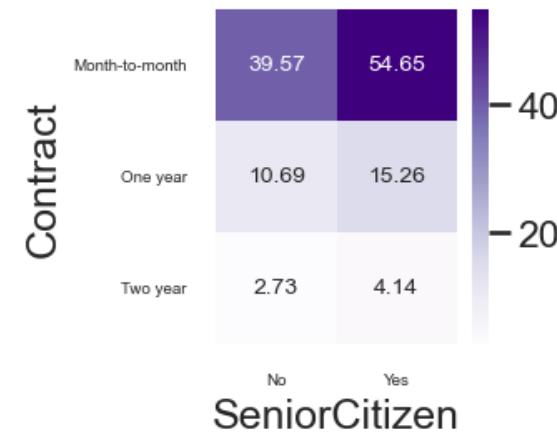
heatmap of Churn-rate for StreamingMovies and SeniorCitizen



12. Bivariate Analysis of Contract vs SeniorCitizen with Churn as Hue



heatmap of Churn-rate for Contract and SeniorCitizen



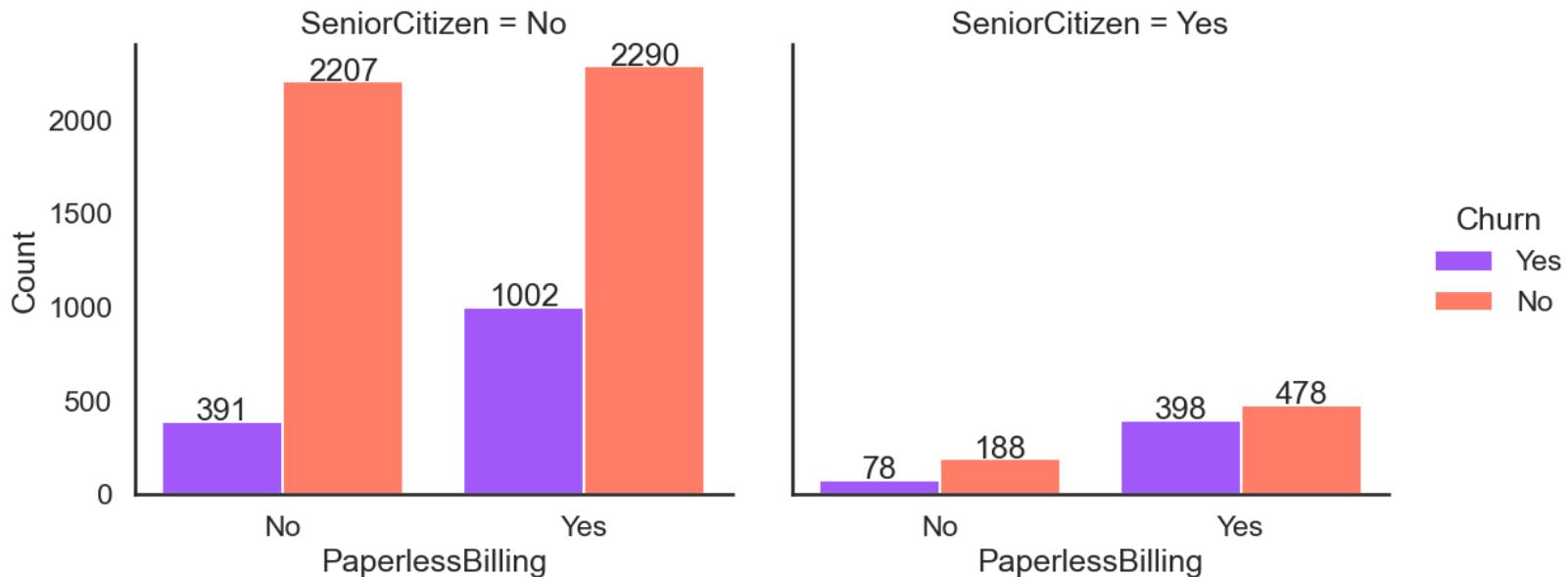
Insight:

Senior citizens with month-to-month contract are high churners at 54.6%.

As the length of contract customers increases, the churn rate decreases.

Non senior citizens have the lowest churn rate of 2.7% in 2 year contract.

13. Bivariate Analysis of PaperlessBilling vs SeniorCitizen with Churn as Hue

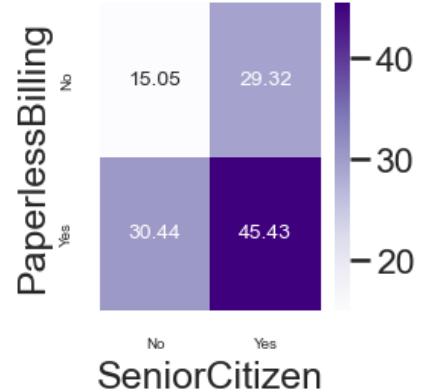


Insight:

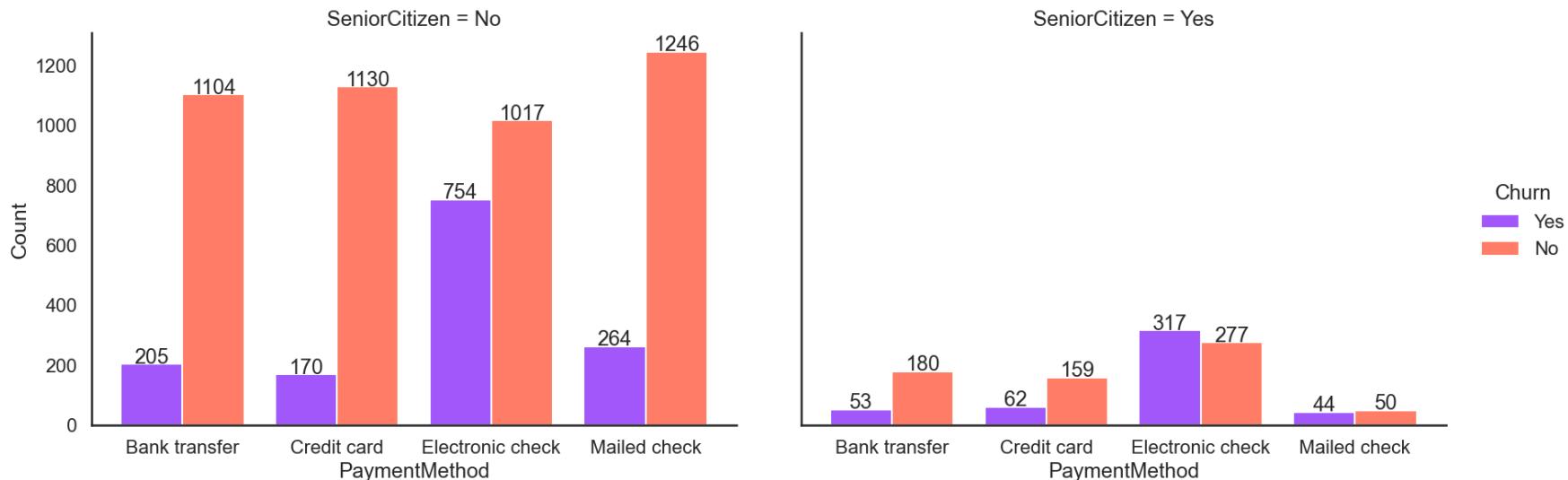
Senior citizens with Paperless Billing option are high churners at 45.43%.

Non seniors without Paperless billing option are low churners at 15%.

heatmap of Churn-rate for PaperlessBilling and SeniorCitizen



14. Bivariate Analysis of PaymentMethod vs SeniorCitizen with Churn as Hue



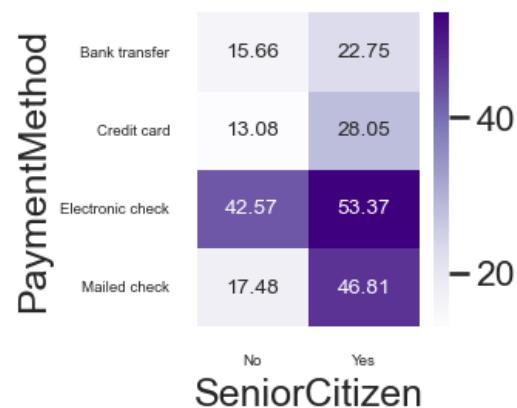
Insight:

Customers with Electronic check payment method are high churners.

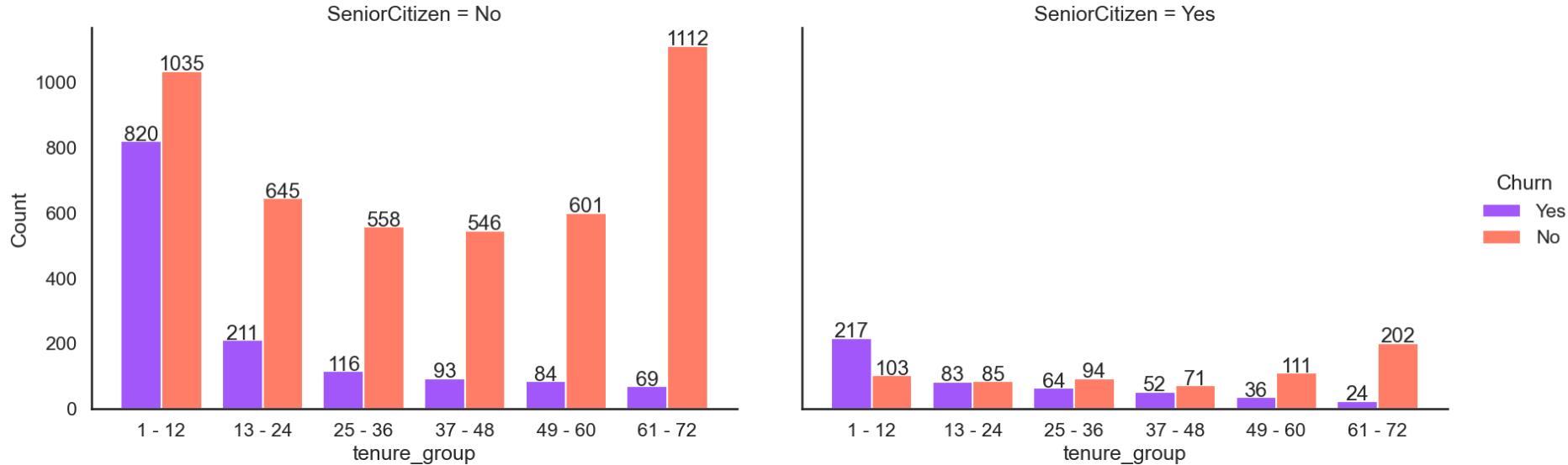
Senior citizens with payment method as electronic check and mailed check are high chuners at 53.37% and 46.81%.

Non senior citizens with automatic credit card payment are low chuners at 13%.

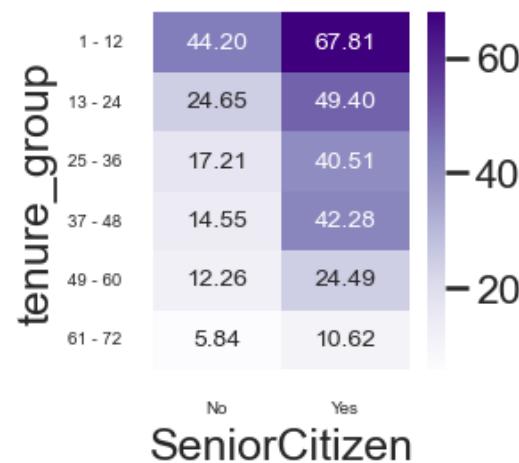
heatmap of Churn-rate for PaymentMethod and SeniorCitizen



15. Bivariate Analysis of tenure_group vs SeniorCitizen with Churn as Hue



heatmap of Churn-rate for tenure_group and SeniorCitizen

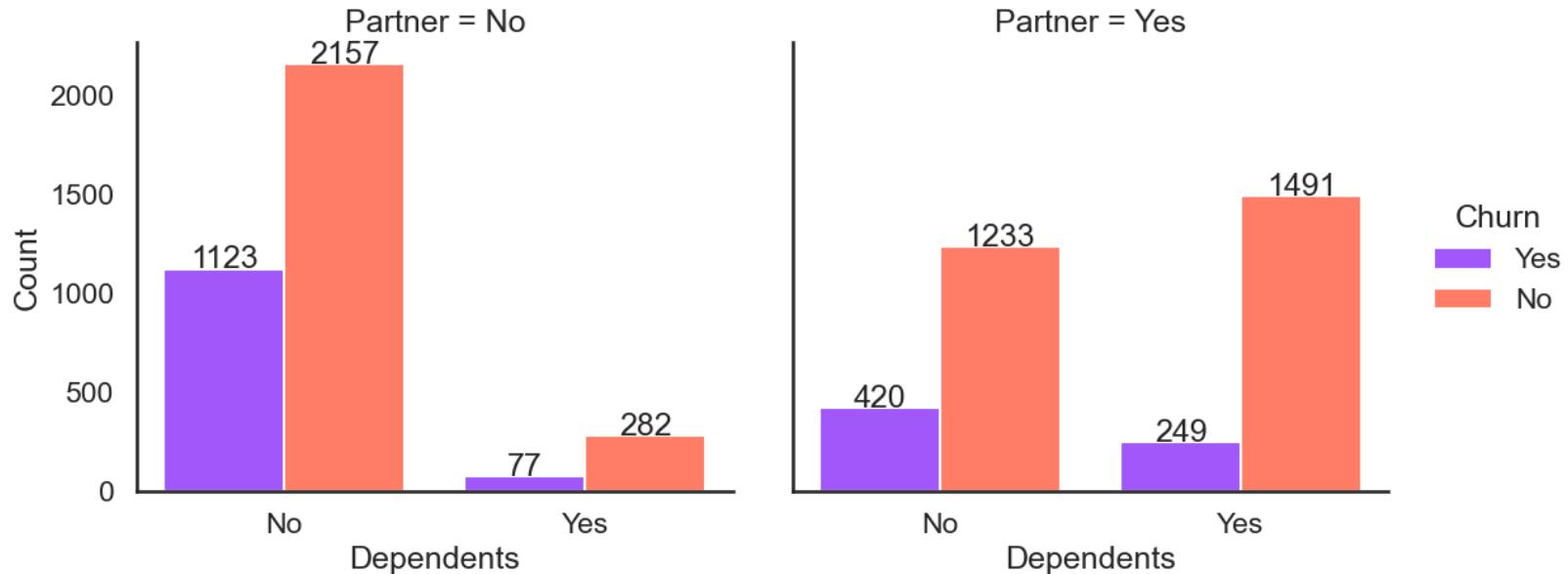


Insight:

Customers in 1-12 months tenure are high churers. Senior citizens are high churers in each tenure group.

As tenure increases the churn rate of customers decreases with lowest churn rate of 5.84% being non senior citizens in 61-72 months tenure group..

1. Bivariate Analysis of Dependents vs Partner with Churn as Hue

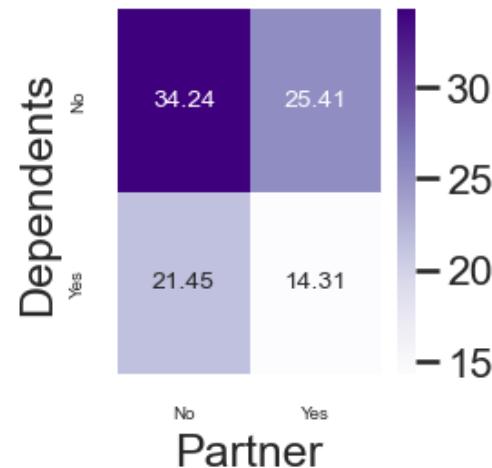


heatmap of Churn-rate for Dependents and Partner

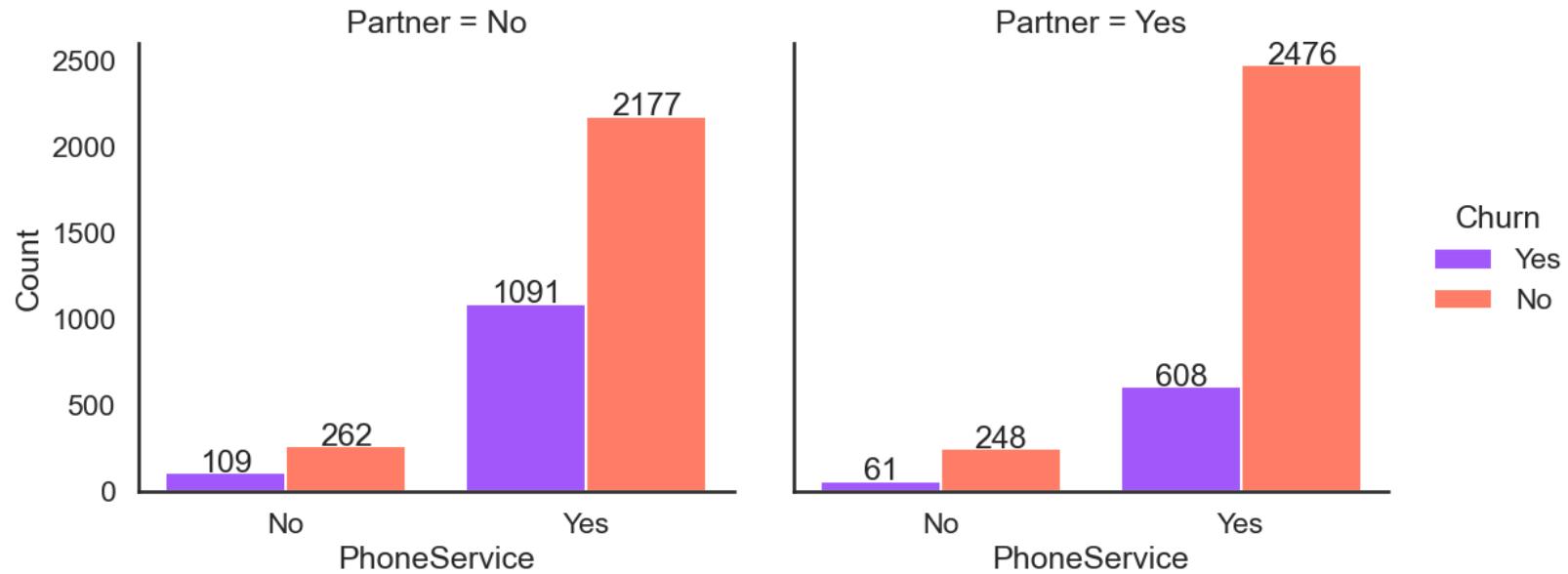
Insight:

Customers with no partners and no dependents are more likely to churn at 34.2%.

Customers with partners and dependents are low churners at 14%.



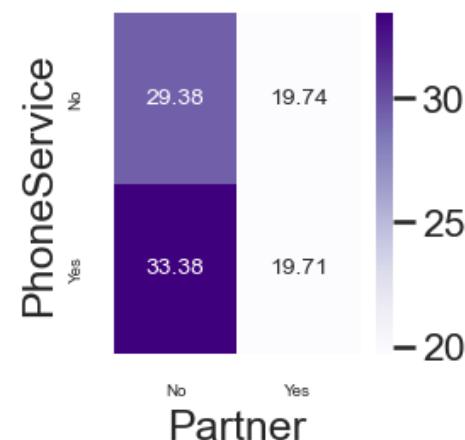
2. Bivariate Analysis of PhoneService vs Partner with Churn as Hue



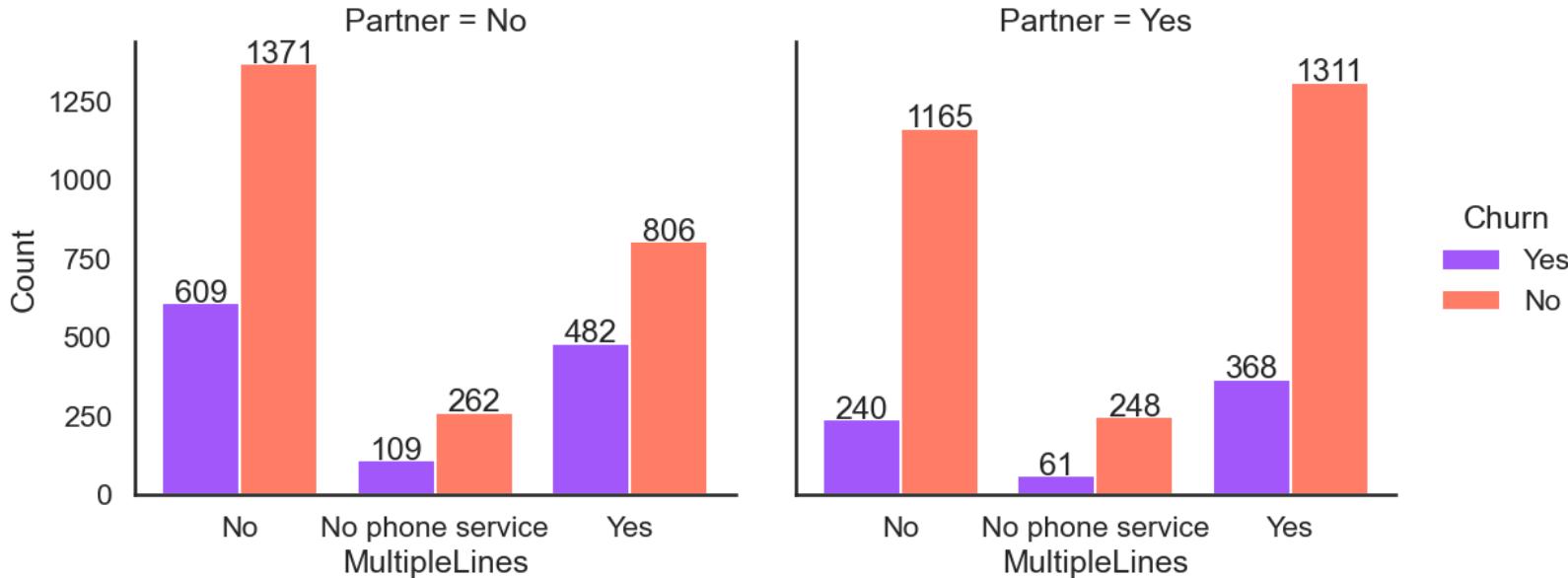
heatmap of Churn-rate for PhoneService and Partner

Insight:

Customers with no partners having a phone service are high churners at 33.3%.



3. Bivariate Analysis of MultipleLines vs Partner with Churn as Hue

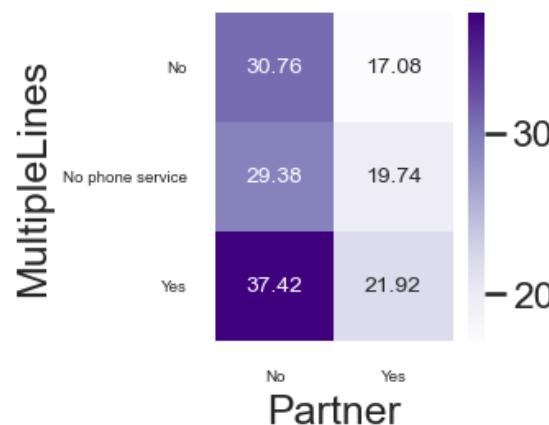


Insight:

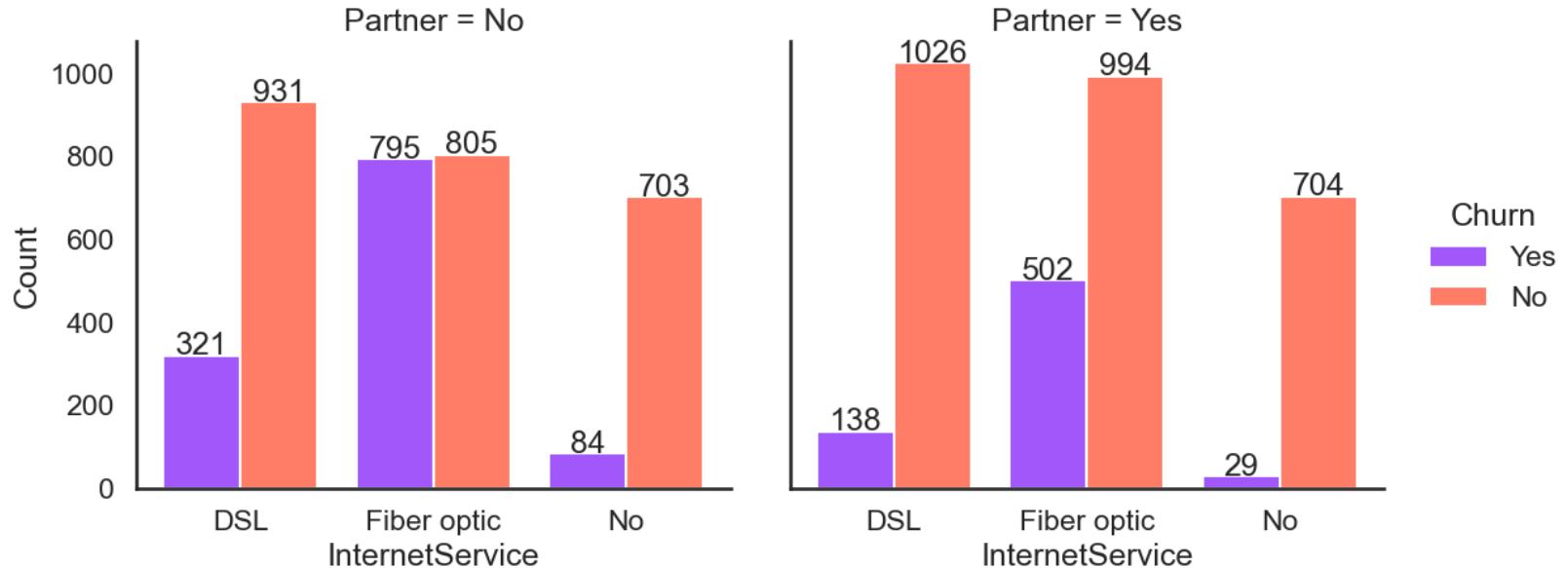
Customers with no partners and multiple lines are high churners with 37.42%.

Customers with partner and no multiple lines are low churners at 17%.

heatmap of Churn-rate for MultipleLines and Partner

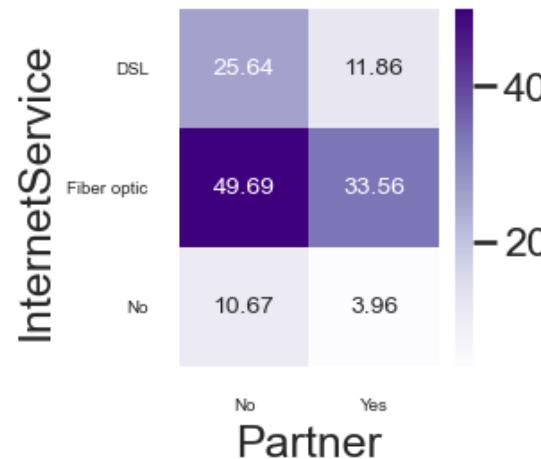


4. Bivariate Analysis of InternetService vs Partner with Churn as Hue

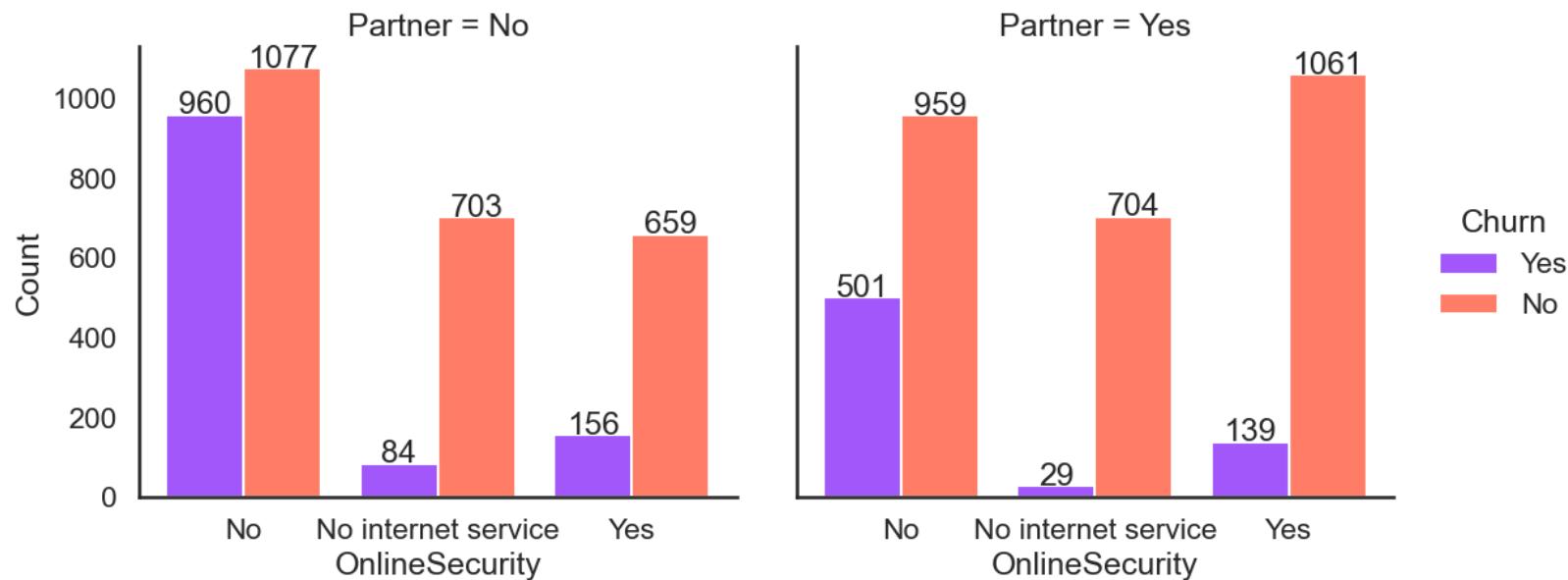


heatmap of Churn-rate for InternetService and Partner

Insight: 4. Customers with Fiber optic internet service are high churners where customers with no partners at 49.6% . Customers with a partner and no internet service are very low churners at 3.9%.



5. Bivariate Analysis of OnlineSecurity vs Partner with Churn as Hue

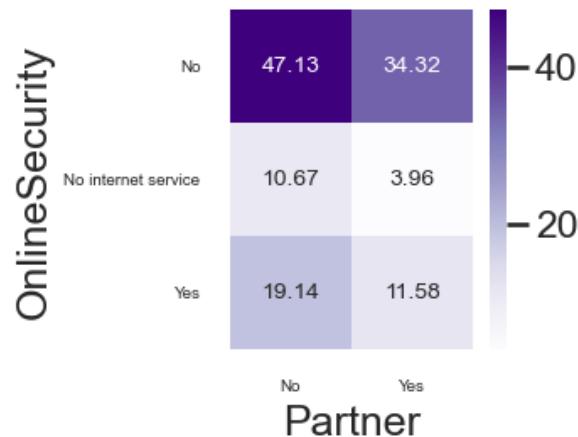


Insight:

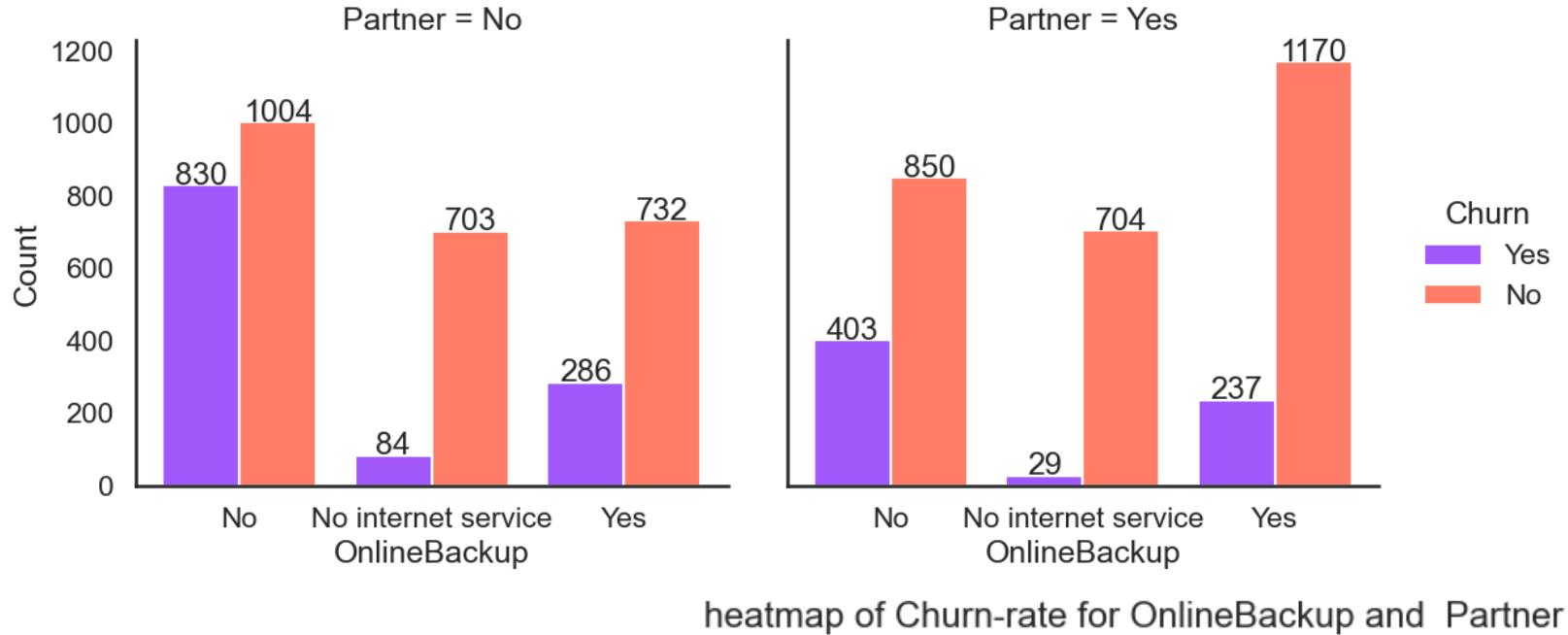
Customers with no partners and no online security are high churners at 47.1%.

Customers with a partner and no internet service available are very low churners at 3.96%.

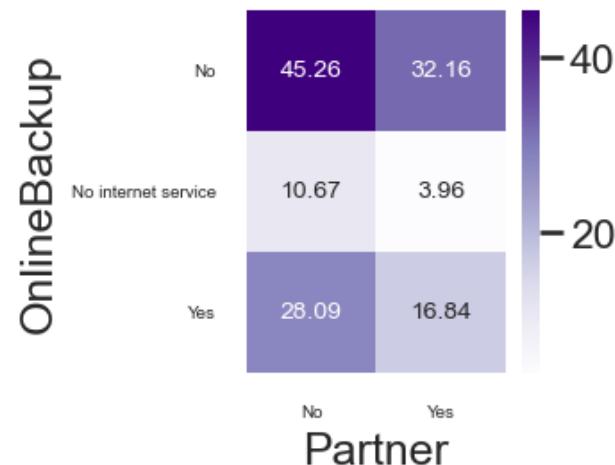
heatmap of Churn-rate for OnlineSecurity and Partner



6. Bivariate Analysis of OnlineBackup vs Partner with Churn as Hue



heatmap of Churn-rate for OnlineBackup and Partner

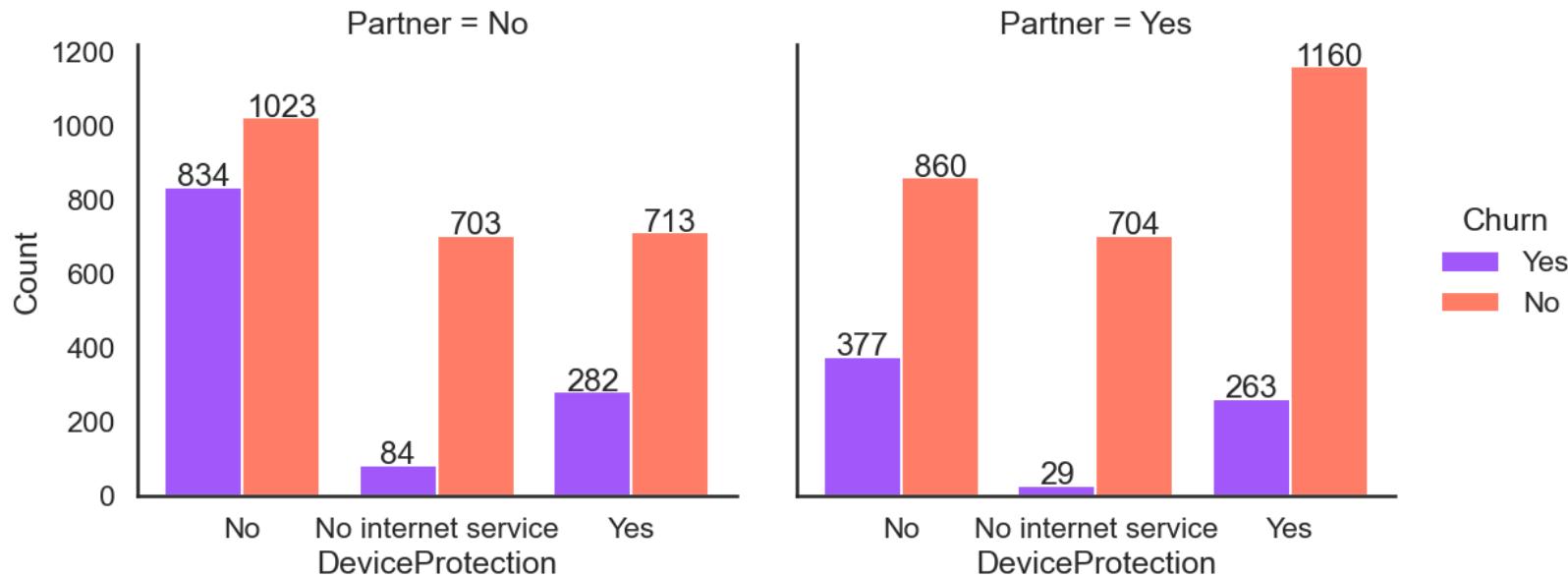


Insight:

Customers with no partners and no online Backup are high churners at 45.2%.

Customers with a partner and no internet service available are very low churners at 3.96%.

7. Bivariate Analysis of DeviceProtection vs Partner with Churn as Hue

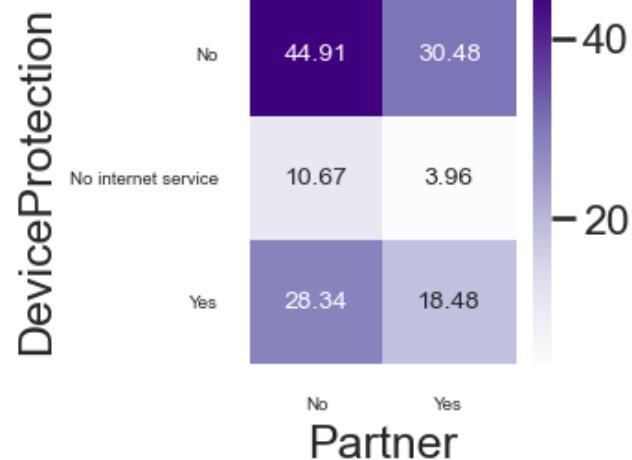


heatmap of Churn-rate for DeviceProtection and Partner

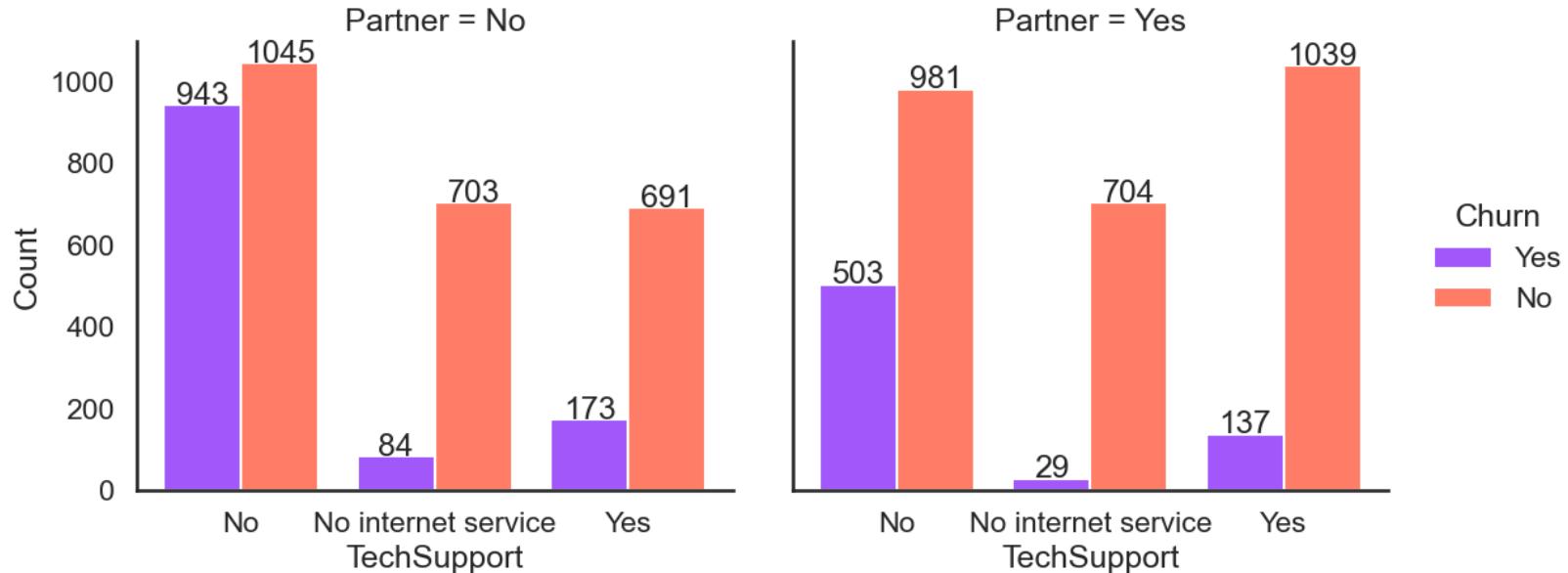
Insight:

Customers with no partners and no Device Protection are high churners at 44.9%.

Customers with a partner and no internet service available are very low churners at 3.96%.



8. Bivariate Analysis of TechSupport vs Partner with Churn as Hue



Insight:

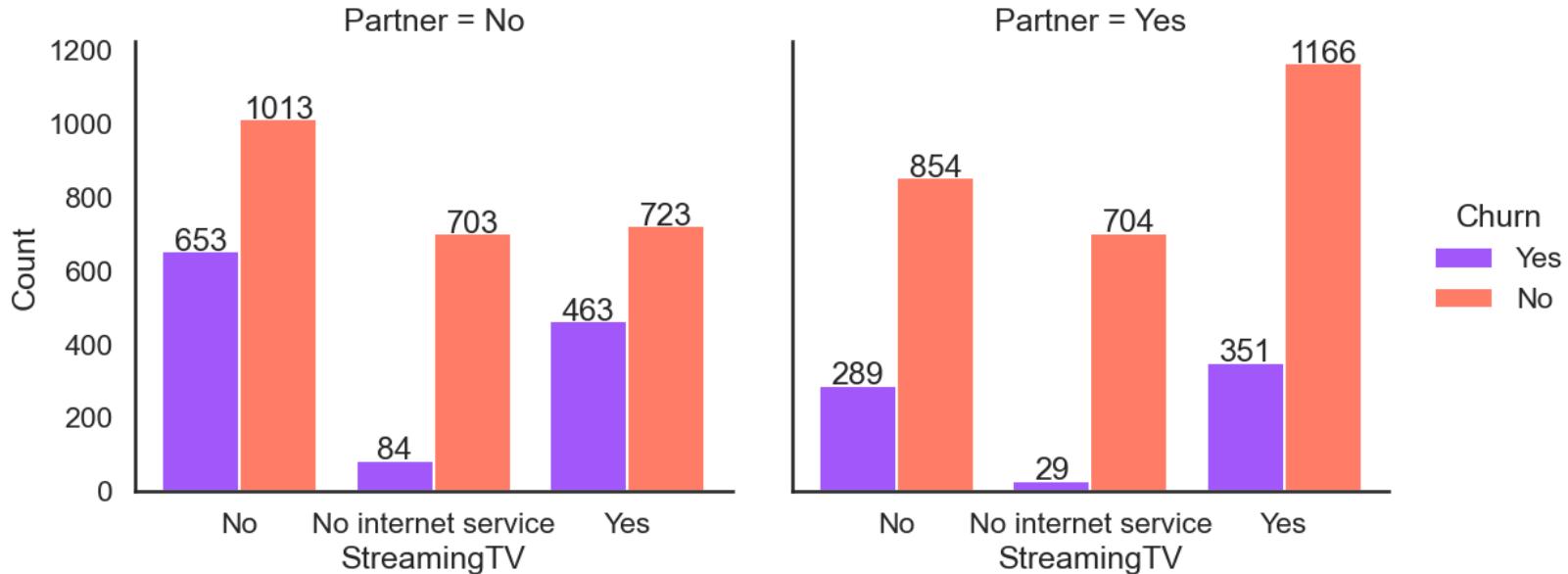
Customers with no partners and no online Tech Support are high churners at 47.4%.

Customers with a partner and no internet service available are very low churners at 3.96%.

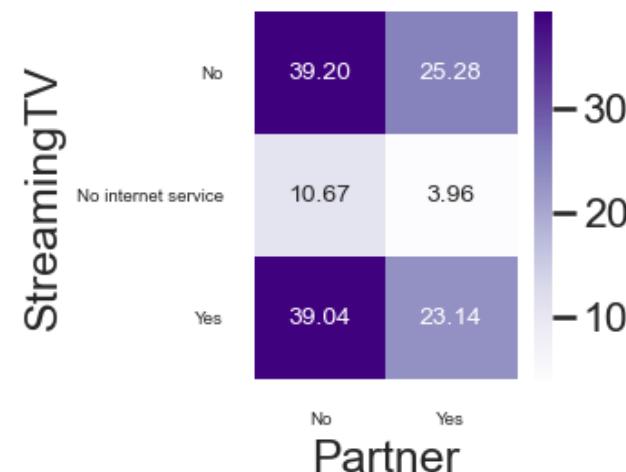
heatmap of Churn-rate for TechSupport and Partner



9. Bivariate Analysis of StreamingTV vs Partner with Churn as Hue



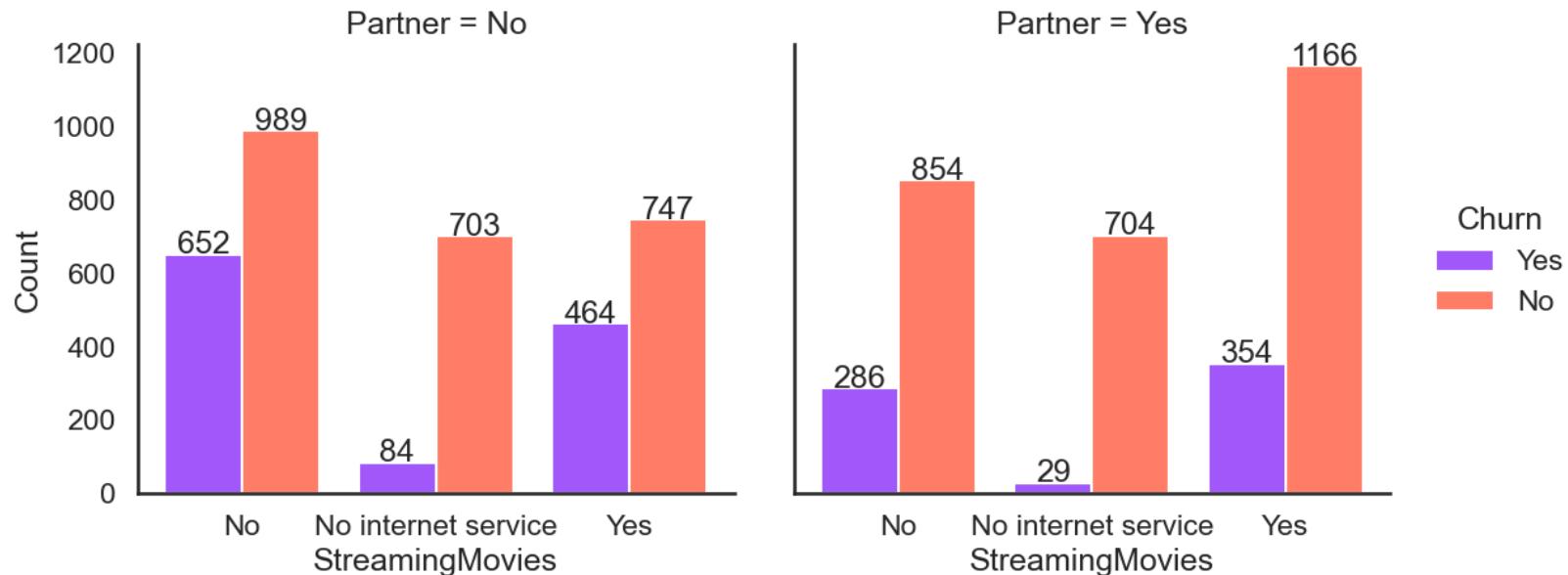
heatmap of Churn-rate for StreamingTV and Partner



Insight:

Customers with no partners and no online StreamingTV are high churners at 39.04%. Customers with a partner and no internet service available are very low churners at 3.96%.

10. Bivariate Analysis of StreamingMovies vs Partner with Churn as Hue



Insight:

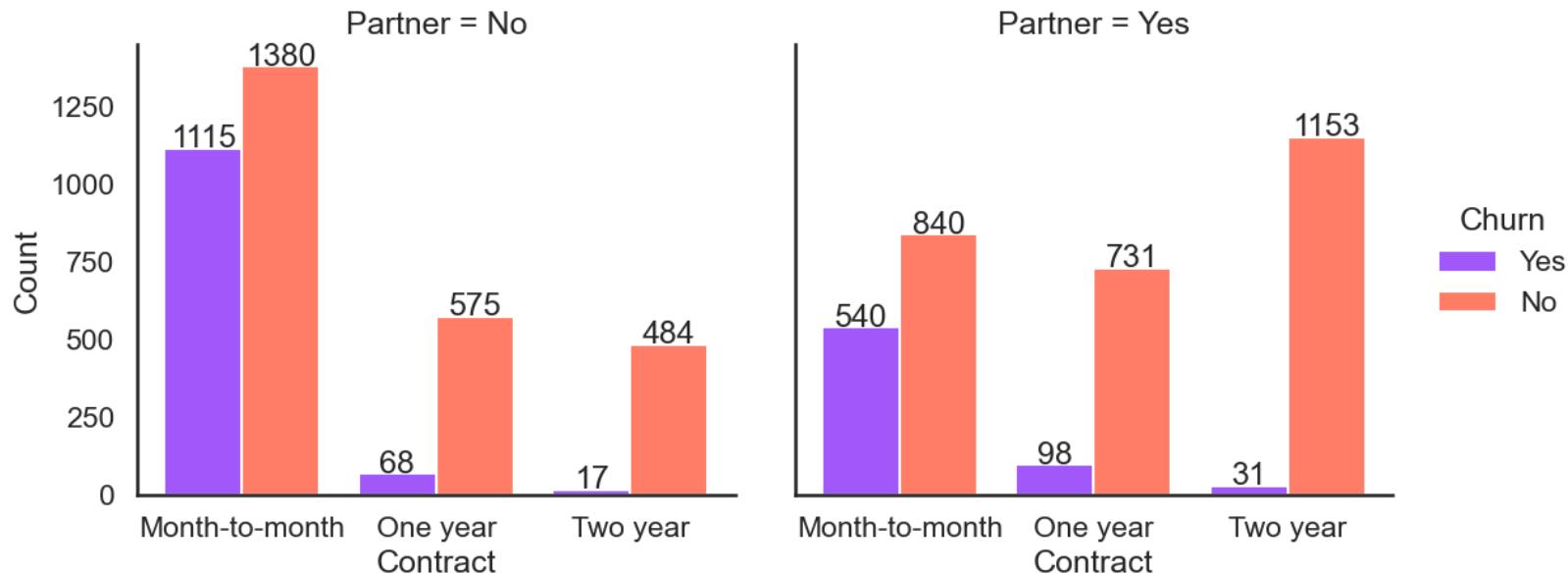
Customers with no partners and no Streaming Movies are high churners at 39.74%.

Customers with a partner and no internet service available are very low churners at 3.96%.

heatmap of Churn-rate for StreamingMovies and Partner



11. Bivariate Analysis of Contract vs Partner with Churn as Hue



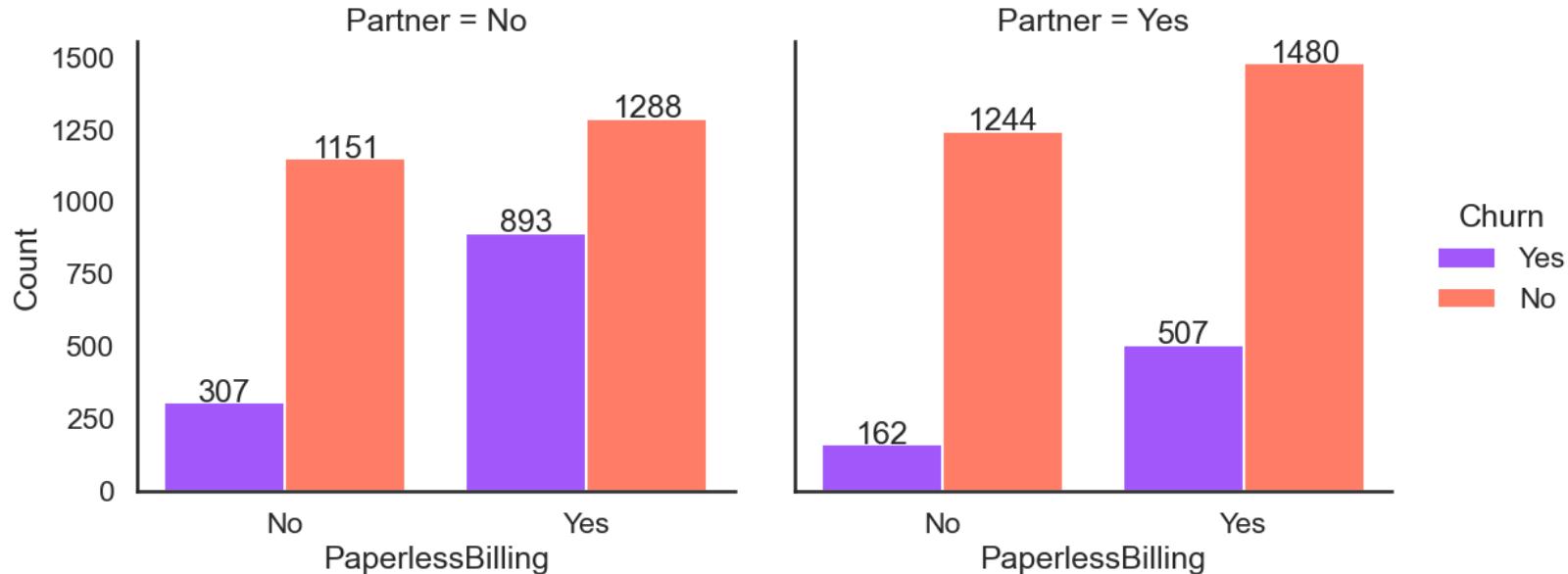
heatmap of Churn-rate for Contract and Partner



Insight:

Customers with no partners and month to month contract are high churners at 44.7%. Customers with a two-year contract are low churers..

12. Bivariate Analysis of PaperlessBilling vs Partner with Churn as Hue

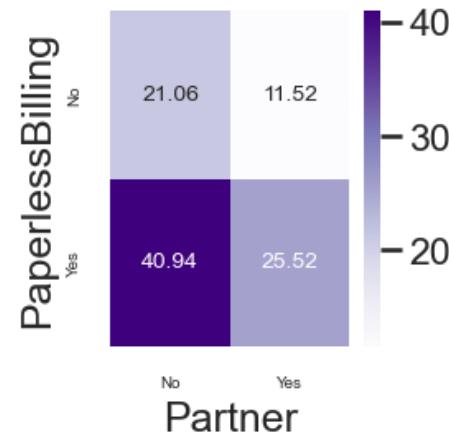


heatmap of Churn-rate for PaperlessBilling and Partner

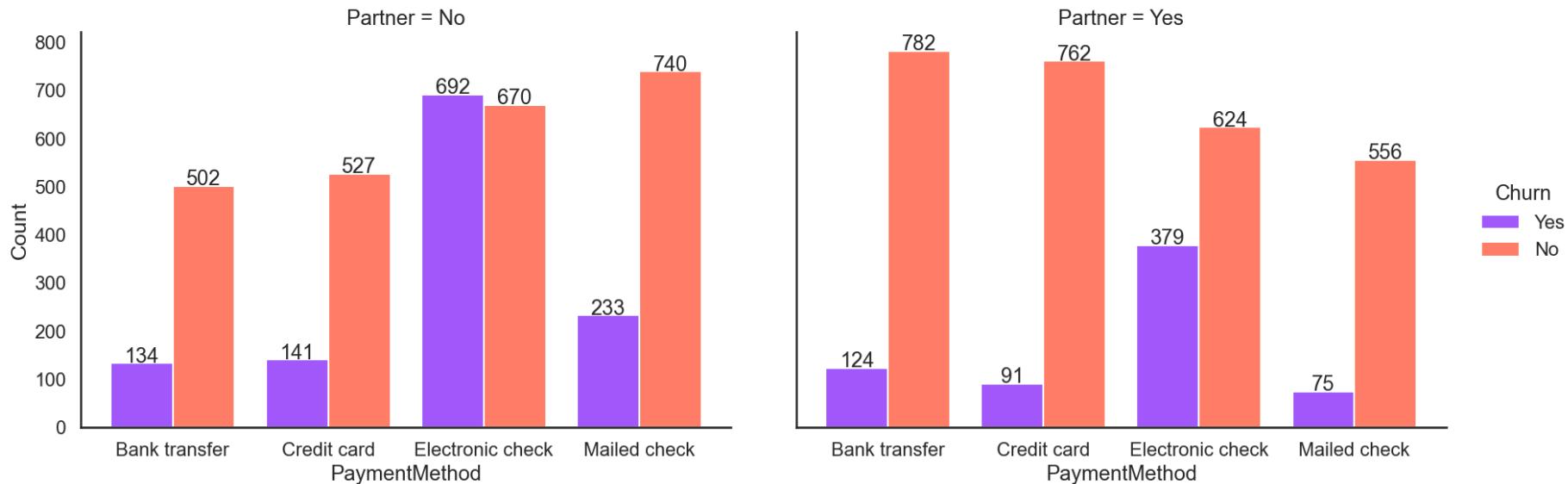
Insight:

12. Customers with no partners and paperless Billing service are high churners at 40.94%.

Customers with a partner and no paperless Billing service are low churners at 11.6%.



13. Bivariate Analysis of PaymentMethod vs Partner with Churn as Hue



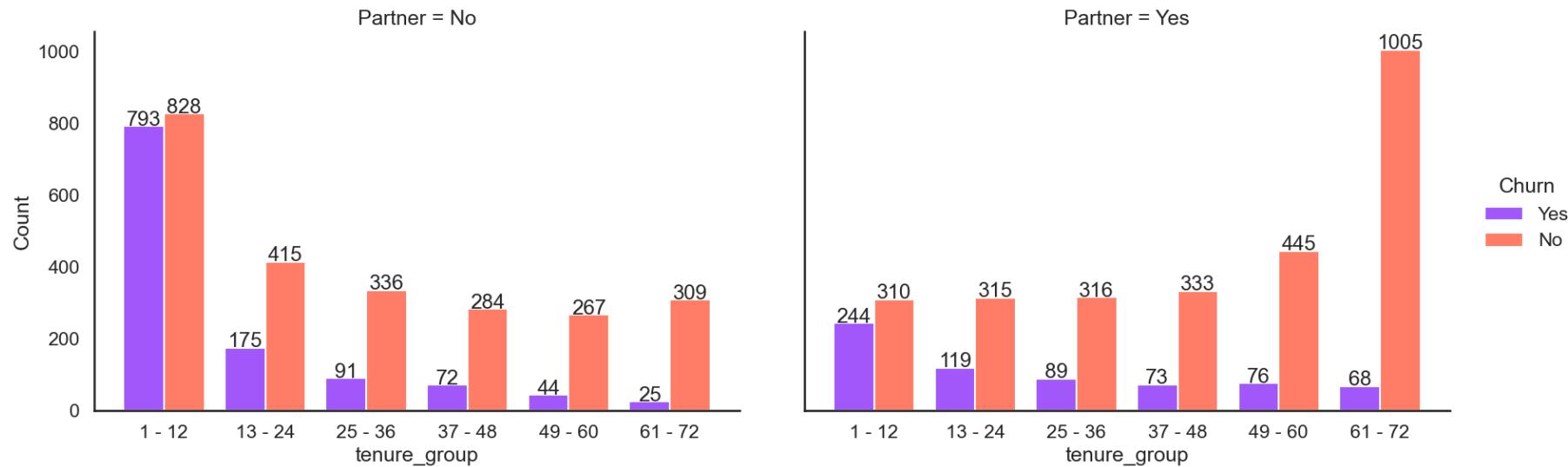
Insight:

Customers with Electronic check service are high churners, with especially no partners at 50.84%.
Customers with a partner and mailed check service are low churners at 11.8%..

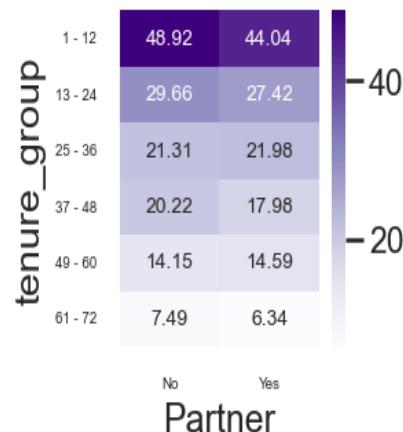
heatmap of Churn-rate for PaymentMethod and Partner



14. Bivariate Analysis of tenure_group vs Partner with Churn as Hue



heatmap of Churn-rate for tenure_group and Partner

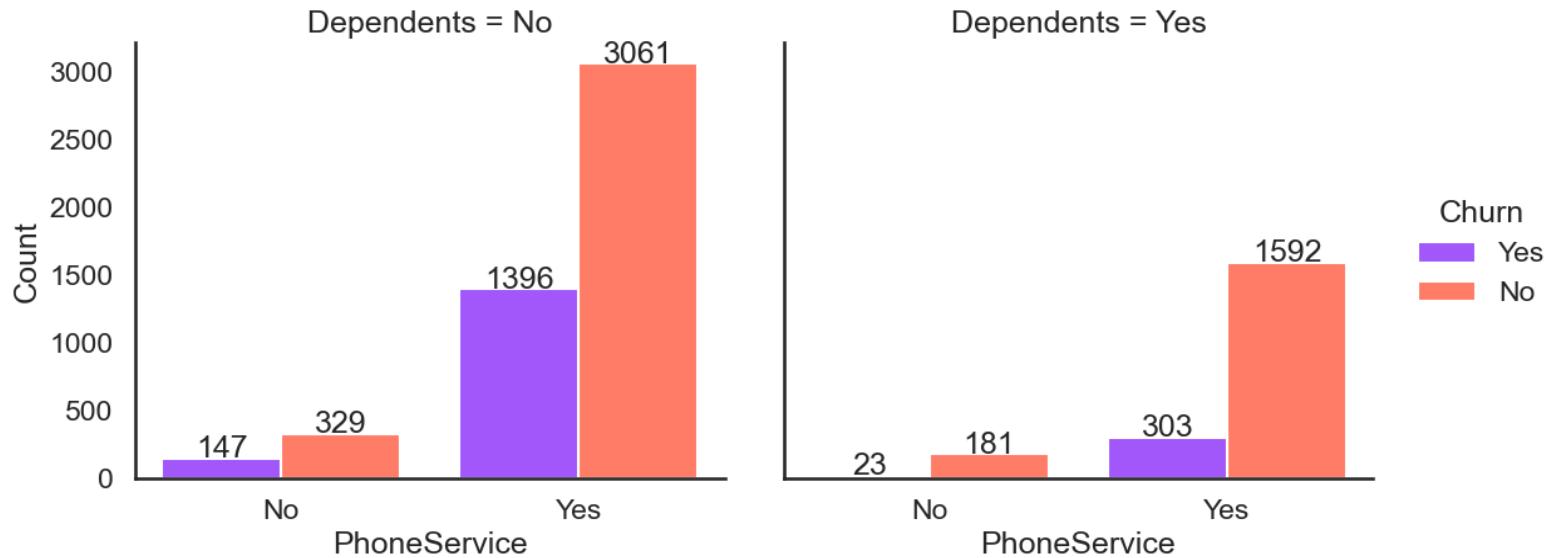


Insight:

Customers in 1-12 tenure group are high churners, especially with no partners at 48.92%.

Customers with a partner and in 61-72 months tenure are low churners at 6.3%.

1. Bivariate Analysis of PhoneService vs Dependents with Churn as Hue

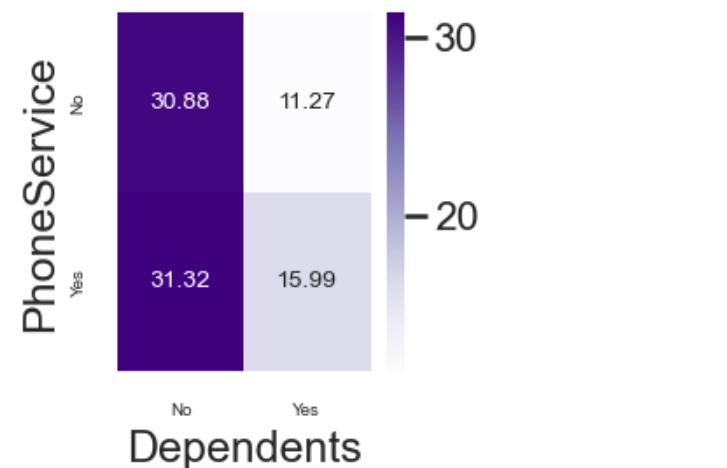


heatmap of Churn-rate for PhoneService and Dependents

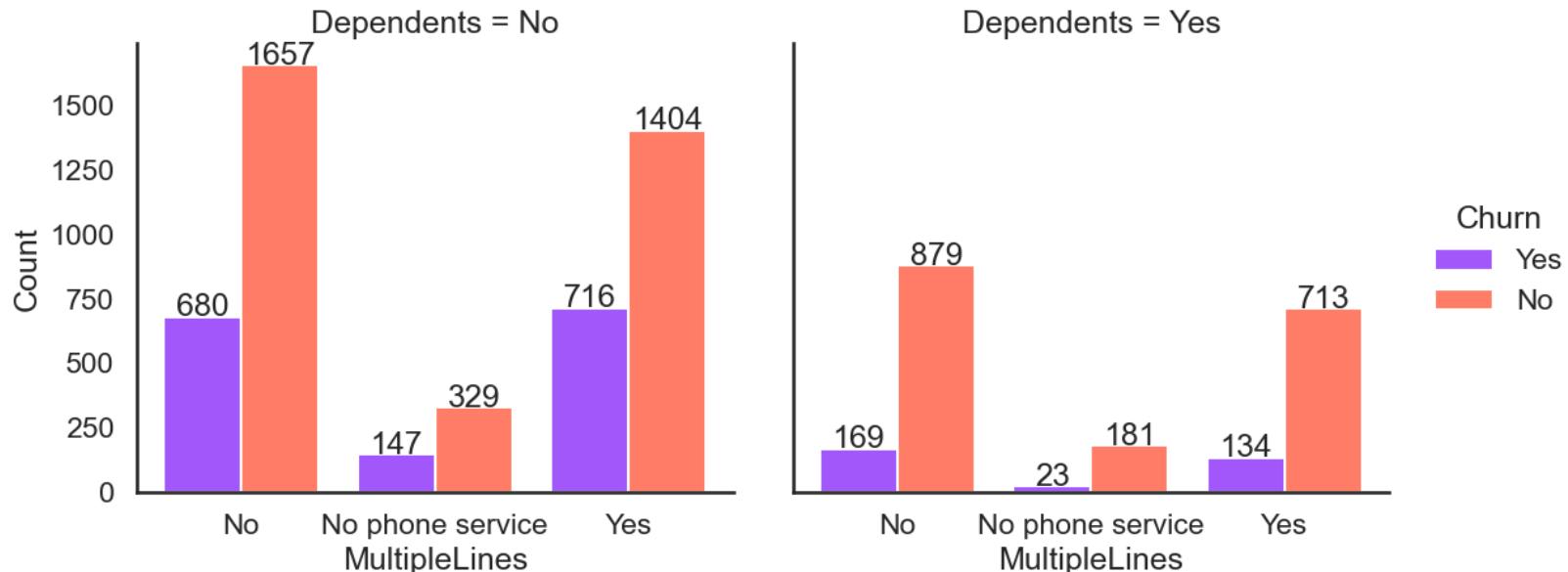
Insight:

Customers with no dependents are high churners.

Customers with a dependent a no phone service are low churners at 11.2%.



2. Bivariate Analysis of MultipleLines vs Dependents with Churn as Hue

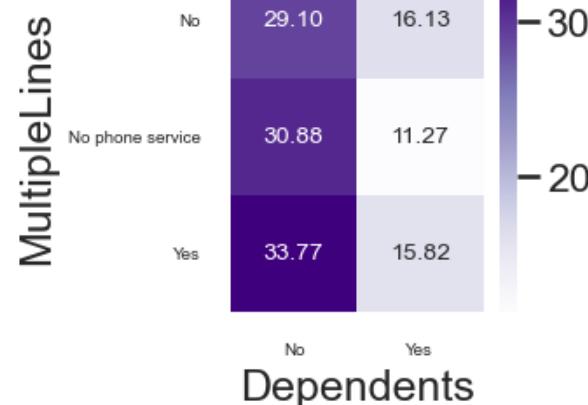


heatmap of Churn-rate for MultipleLines and Dependents

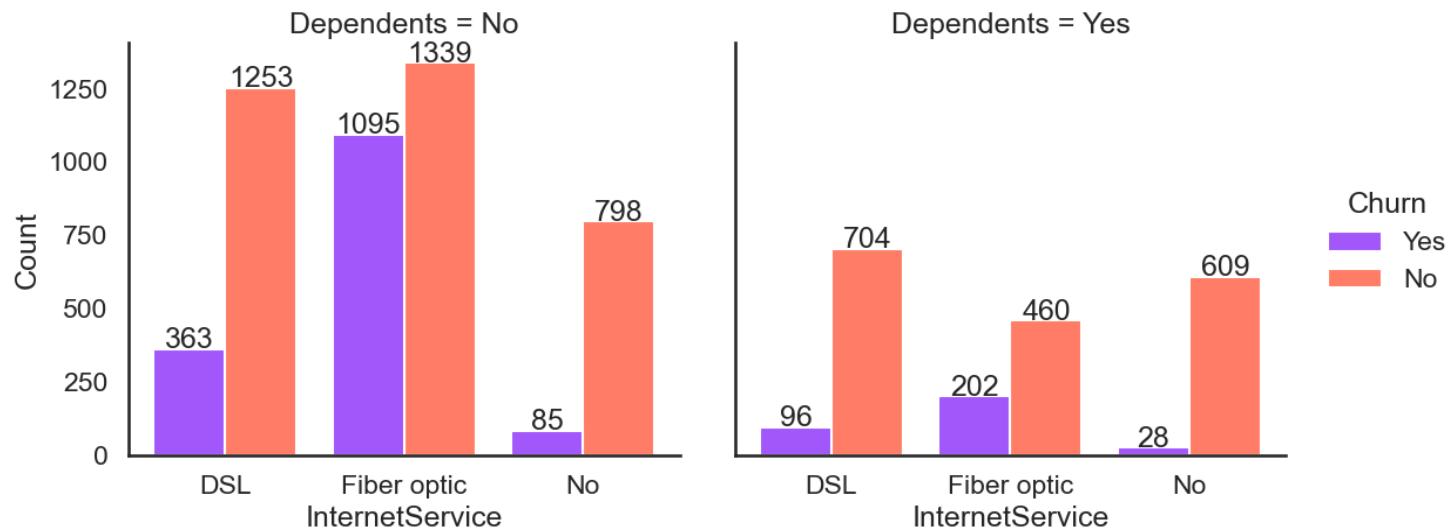
Insight:

Customers with multiple lines and no dependents are high churners at 33.8%.

Customers with dependents and no phone service are low churners at 11.2%.



3. Bivariate Analysis of InternetService vs Dependents with Churn as Hue

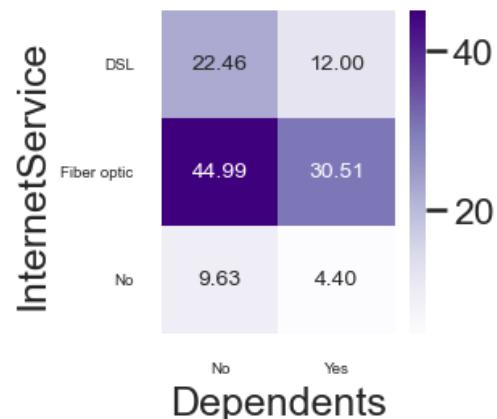


heatmap of Churn-rate for InternetService and Dependents

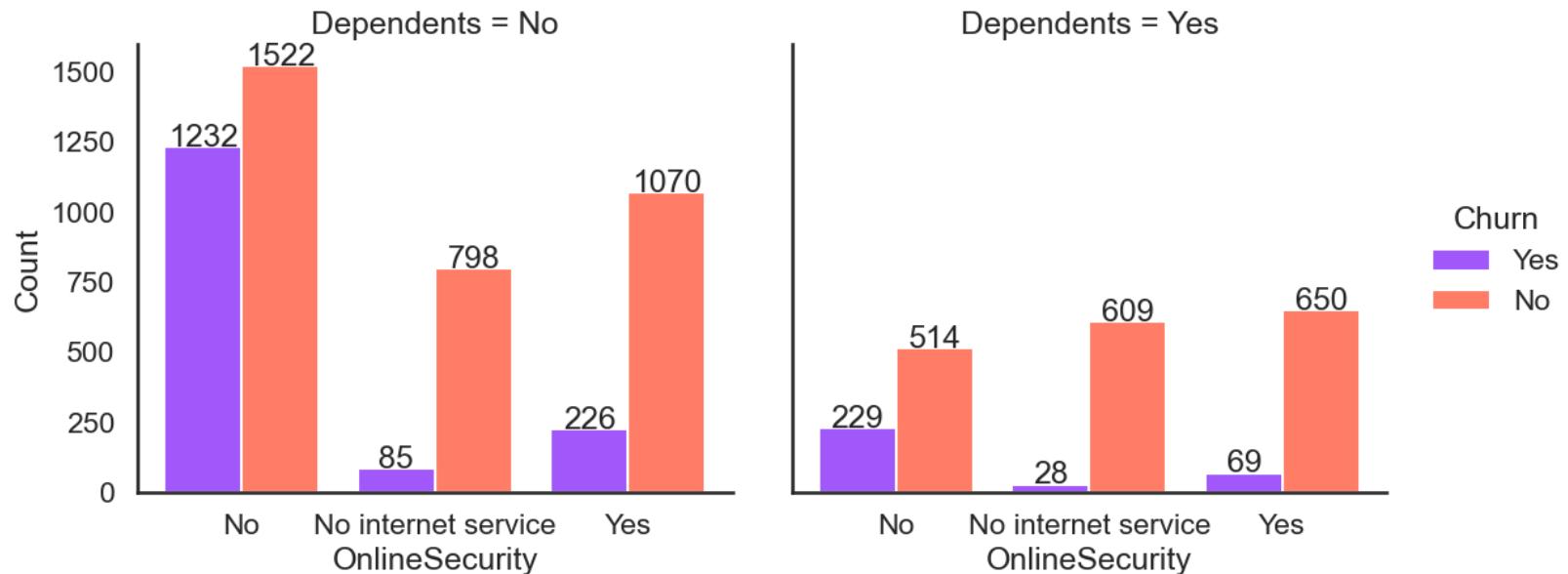
Insight:

Customers with fiber Optic Internet service are high churners, especially with no dependents at 45%.

Customers with a no internet service and dependents are low churners at 4.4%.



4. Bivariate Analysis of OnlineSecurity vs Dependents with Churn as Hue

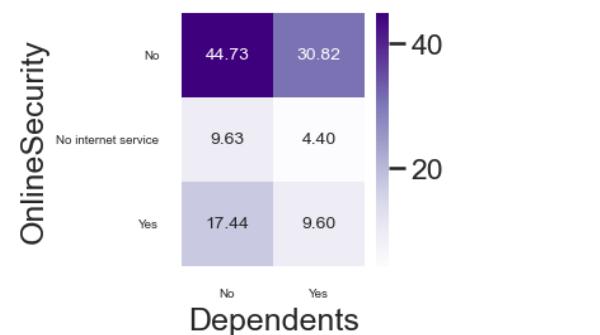


Insight:

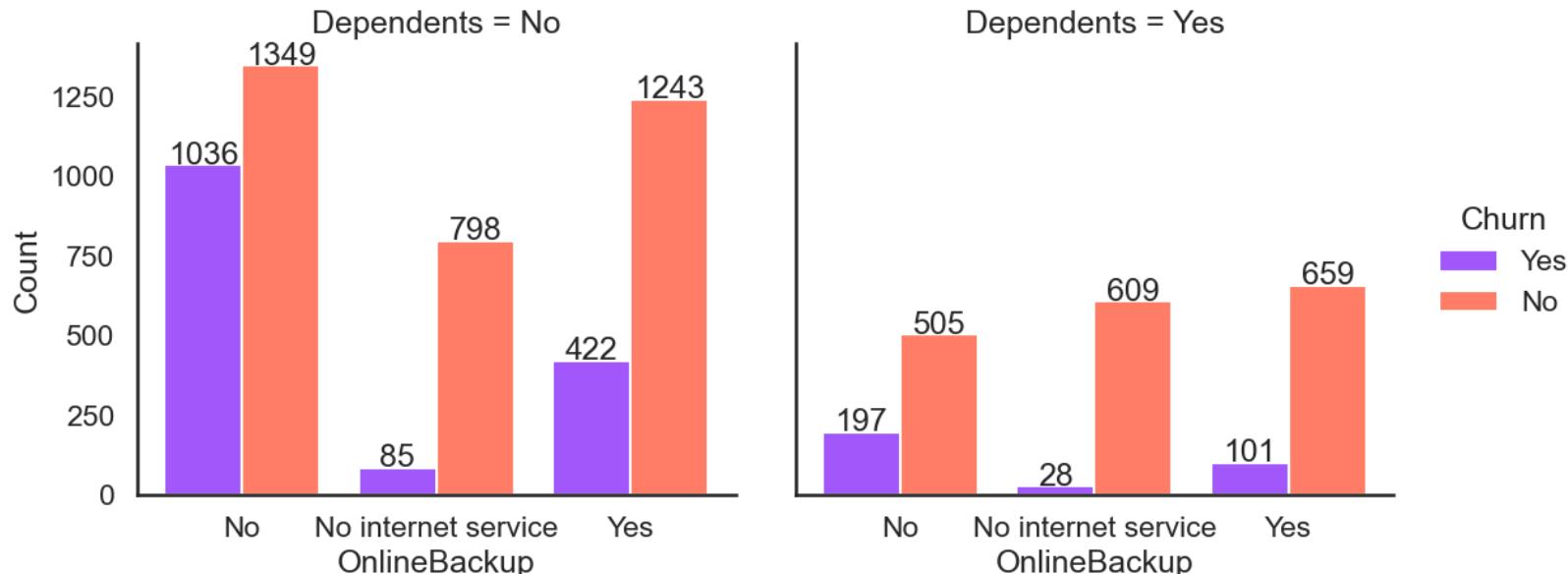
Customers with no Online Security are high churners, especially with no dependents at 44.7%.

Customers with a no internet service and dependents are low churners at 4.4%.

heatmap of Churn-rate for OnlineSecurity and Dependents



5. Bivariate Analysis of OnlineBackup vs Dependents with Churn as Hue

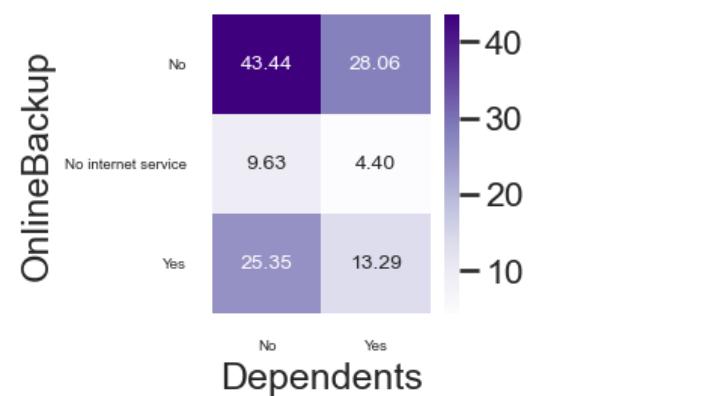


Insight:

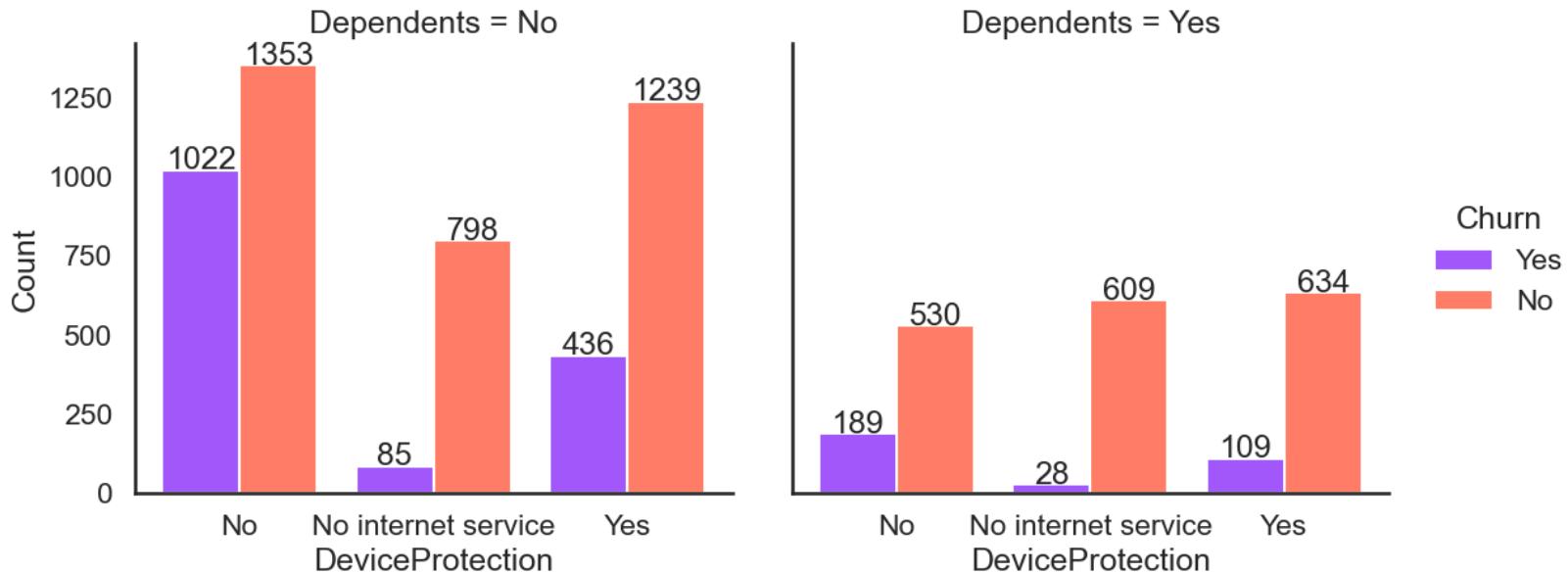
Customers with no Online Backup and with no dependents are at 43.4%.

Customers with a no internet service and dependents are low churners at 4.4%.

heatmap of Churn-rate for OnlineBackup and Dependents



6. Bivariate Analysis of DeviceProtection vs Dependents with Churn as Hue

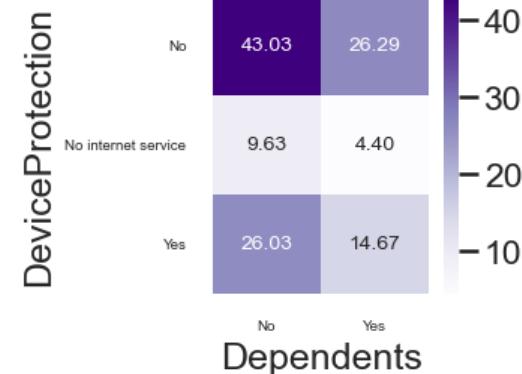


Insight:

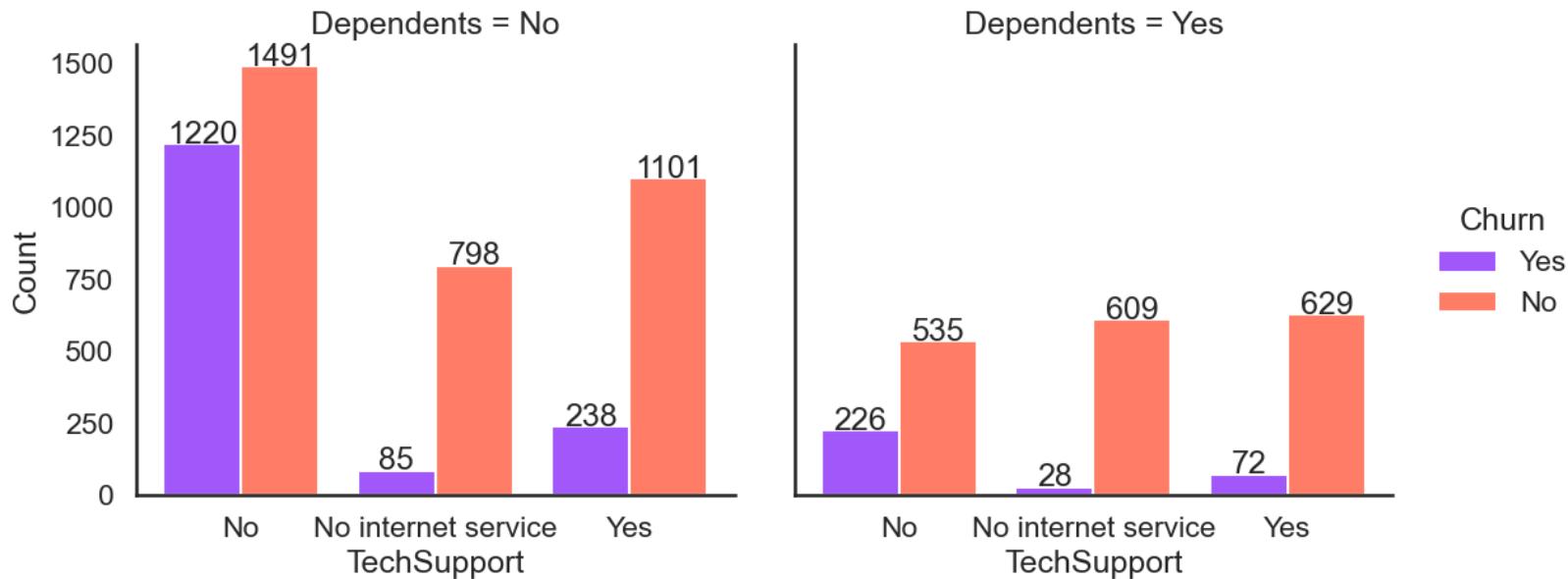
Customers with no Device protection and no dependents are at 43%.

Customers with a no internet service and dependents are low churners at 4.4%.

heatmap of Churn-rate for DeviceProtection and Dependents



7. Bivariate Analysis of TechSupport vs Dependents with Churn as Hue

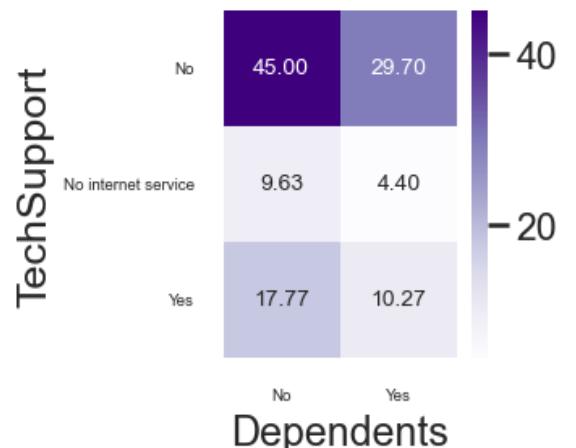


Insight:

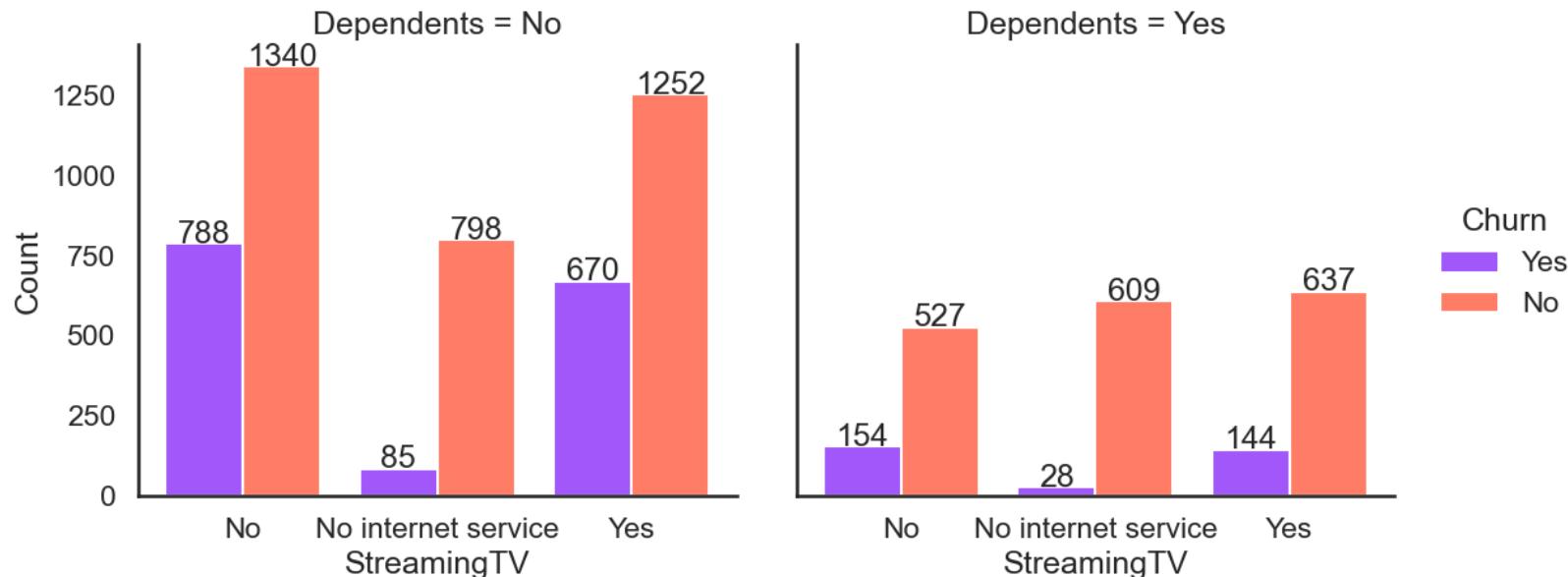
Customers with no Tech Support and no dependents are at 45%.

Customers with a no internet service and dependents are low churners at 4.4%.

heatmap of Churn-rate for TechSupport and Dependents



8. Bivariate Analysis of StreamingTV vs Dependents with Churn as Hue

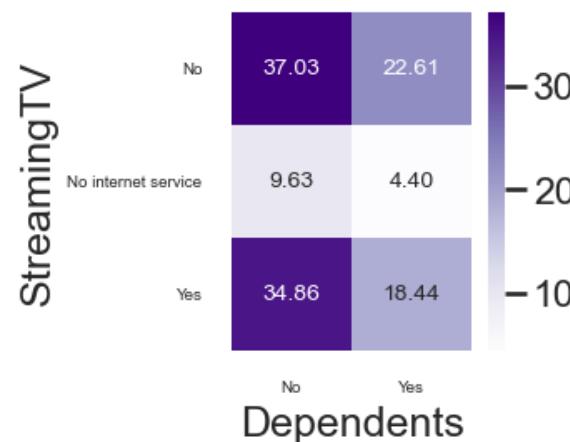


Insight:

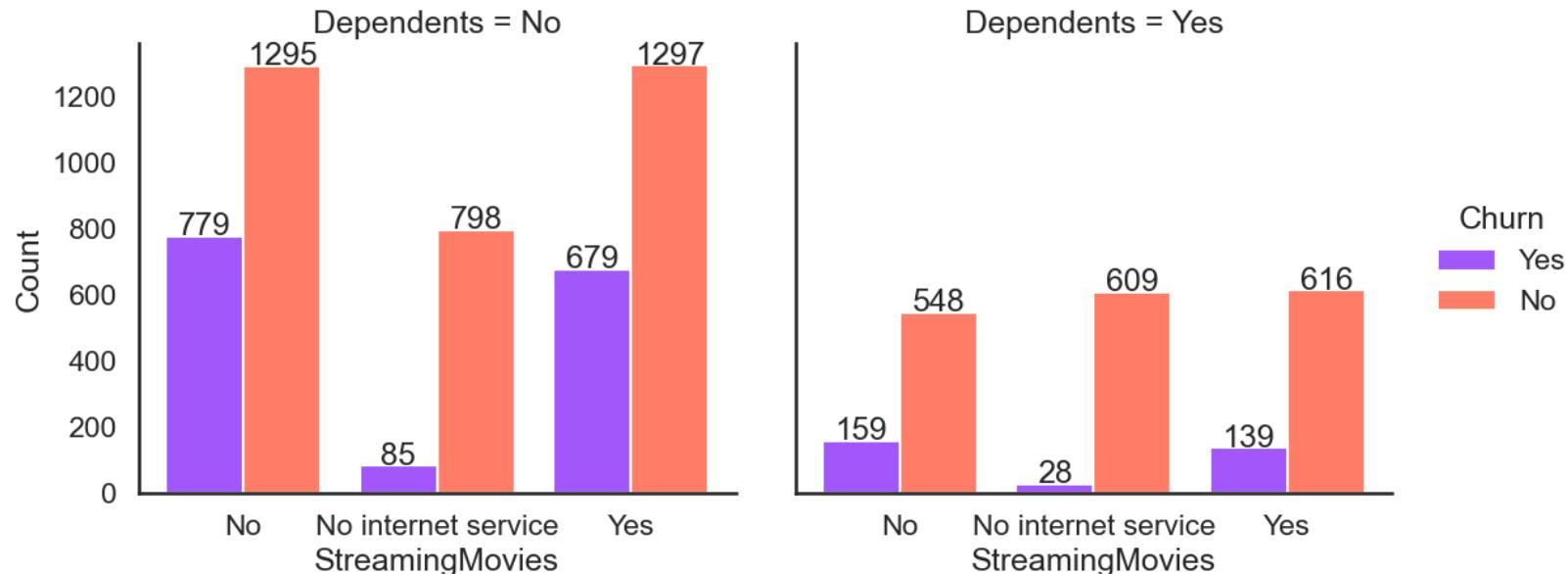
Customers with no dependents and with and without a streaming TV service are high churners at 37% and 34.86% respectively .

Customers with a no internet service and dependents are low churners at 4.4%.

heatmap of Churn-rate for StreamingTV and Dependents



9. Bivariate Analysis of StreamingMovies vs Dependents with Churn as Hue

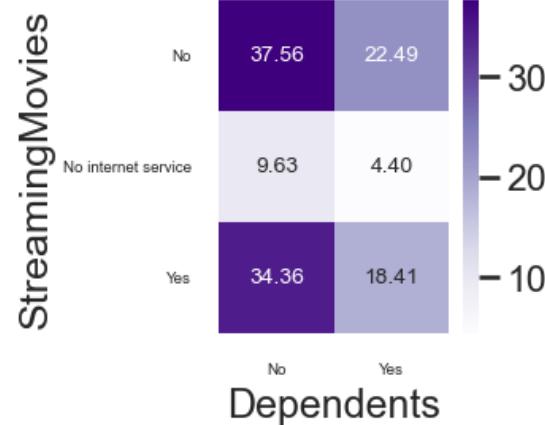


Insight:

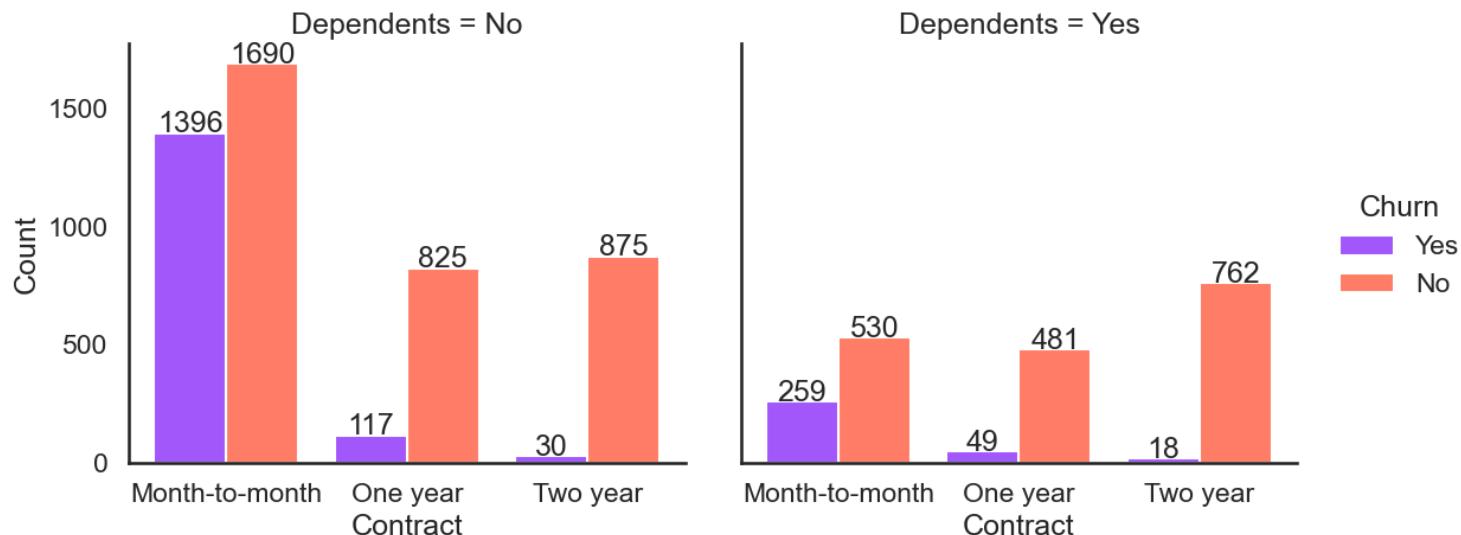
Customers with no dependents and with and without a streaming Movies service are high churners at 37.5% and 34.83% respectively .

Customers with a no internet service and dependents are low churners at 4.4%.

heatmap of Churn-rate for StreamingMovies and Dependents



10. Bivariate Analysis of Contract vs Dependents with Churn as Hue



heatmap of Churn-rate for Contract and Dependents

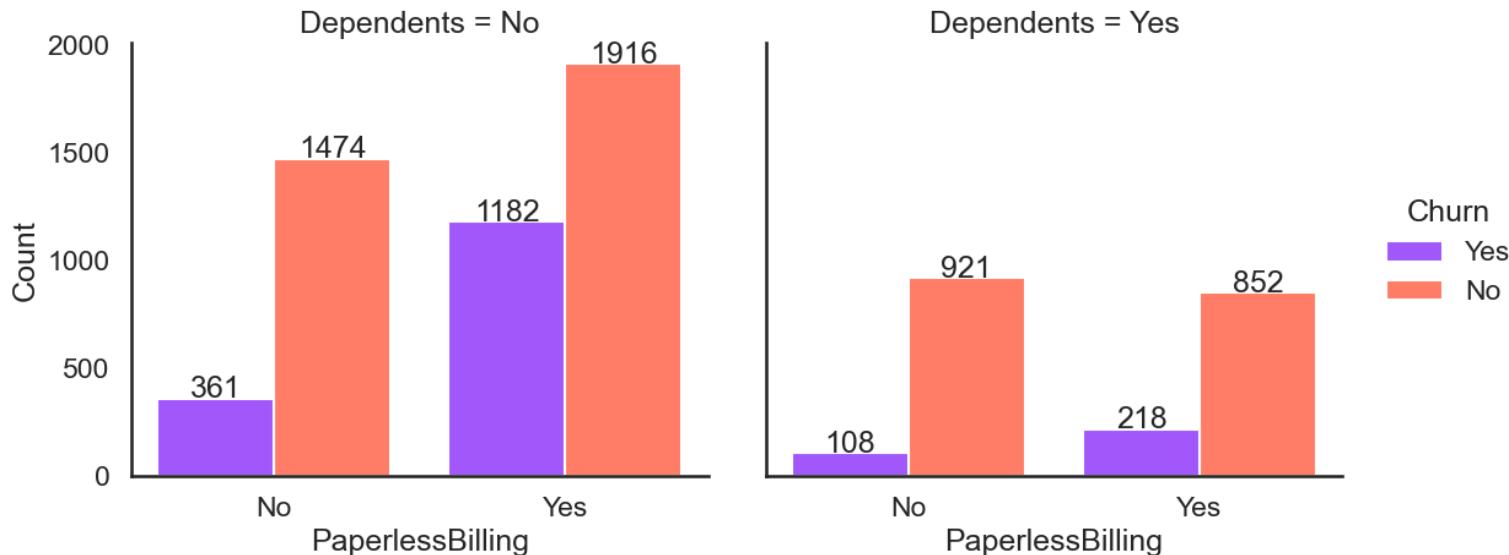


Insight:

Customers in month to month contract are high churners, especially those with no dependents at 45.2%.

Customers in 2 year contract are low churners especially those with partners at 2.3%.

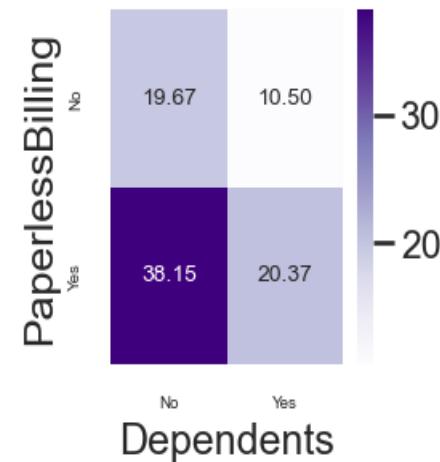
11. Bivariate Analysis of PaperlessBilling vs Dependents with Churn as Hue



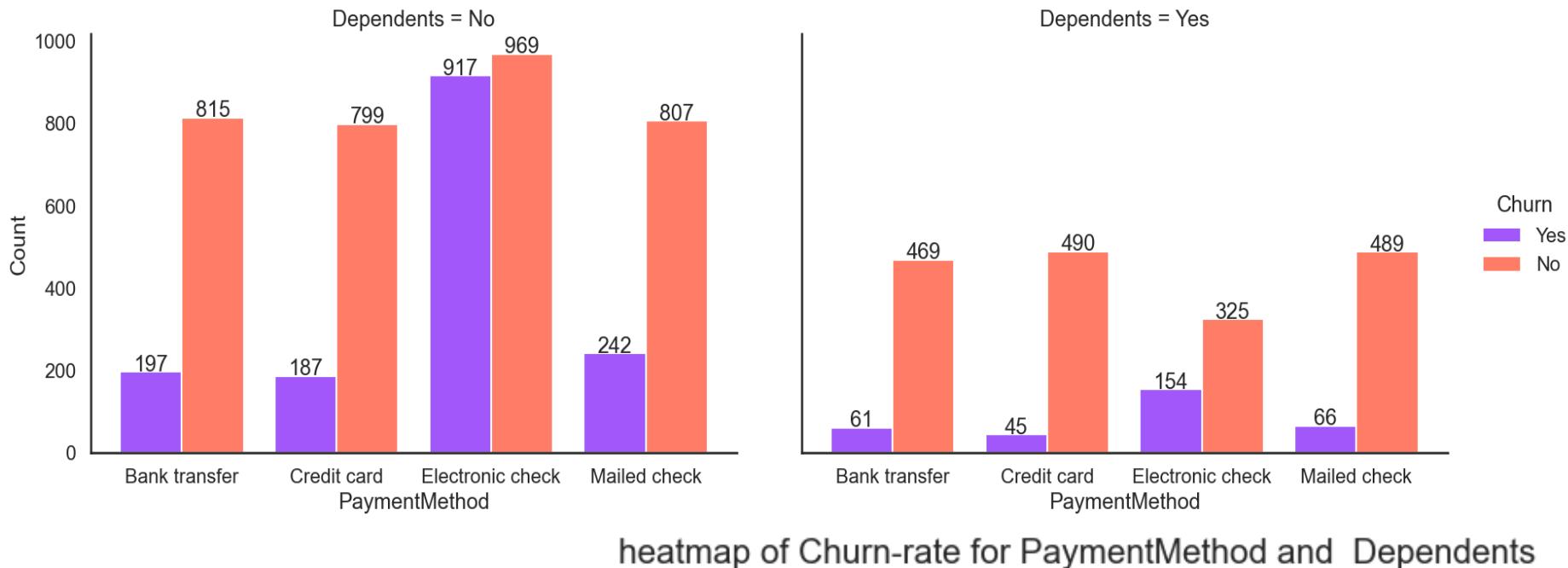
heatmap of Churn-rate for PaperlessBilling and Dependents

Insight:

Customers with no dependents and a paperless billing service are high churners at 38.15% whereas customers with dependents and no paperless Billing service are low churners at 10.5%.



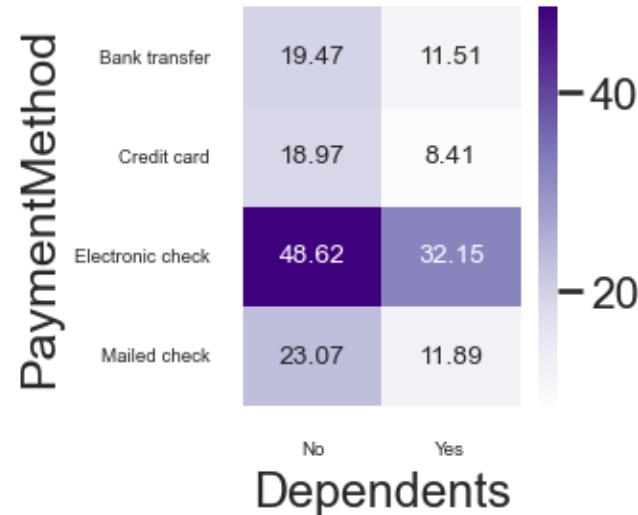
12. Bivariate Analysis of PaymentMethod vs Dependents with Churn as Hue



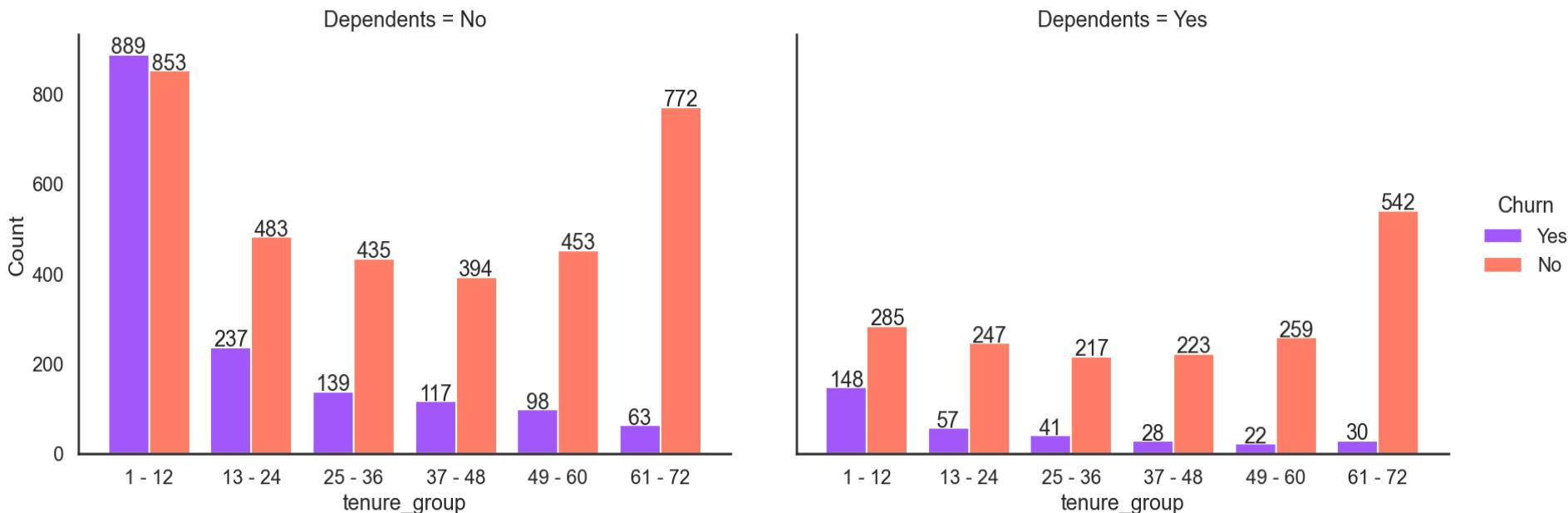
heatmap of Churn-rate for PaymentMethod and Dependents

Insight:

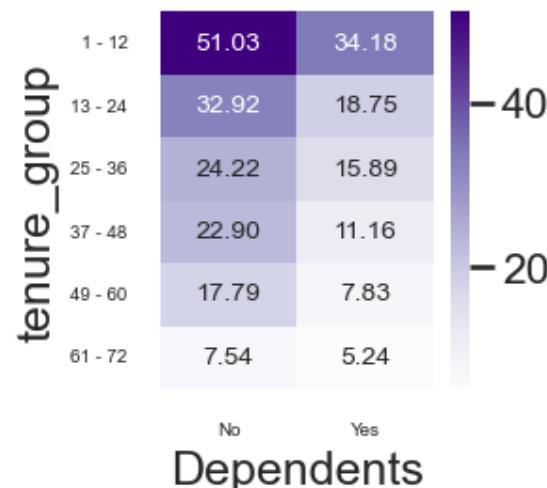
Customers with electronic check payment and no dependents are high churners at 48.6% whereas customers with a dependent and credit card payment are low churners at 8.4%.



13. Bivariate Analysis of tenure_group vs Dependents with Churn as Hue



heatmap of Churn-rate for tenure_group and Dependents

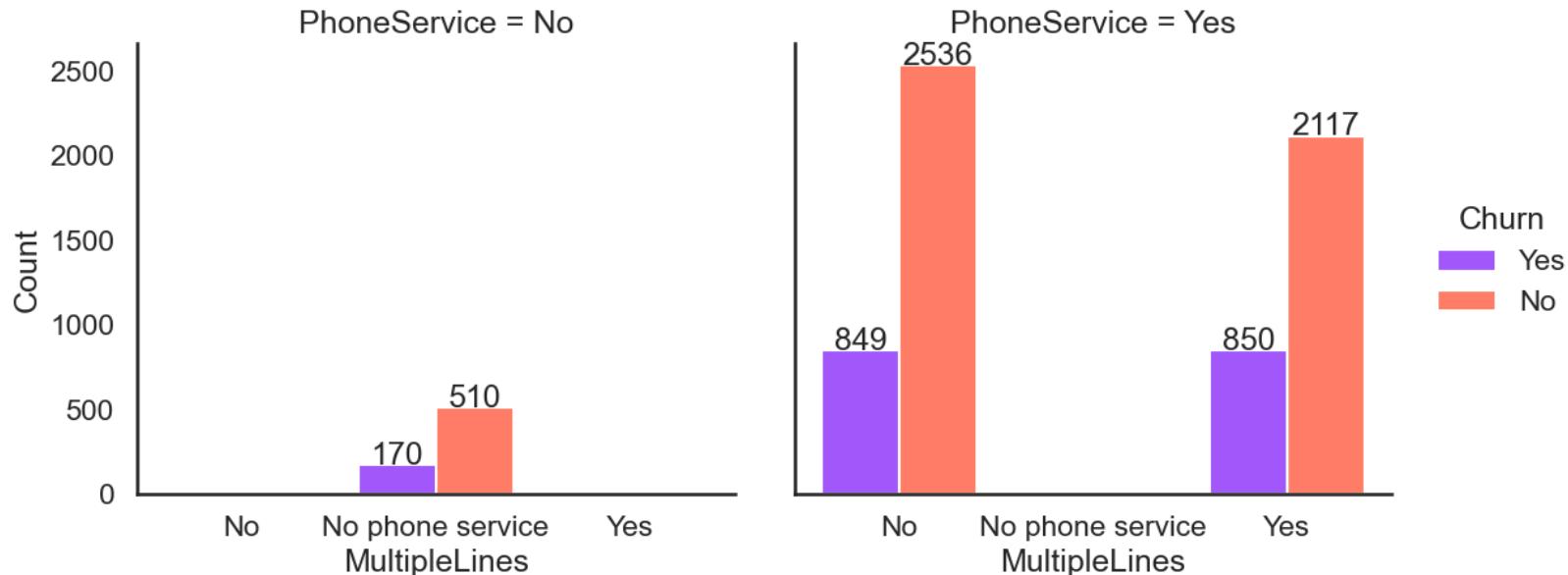


Insight:

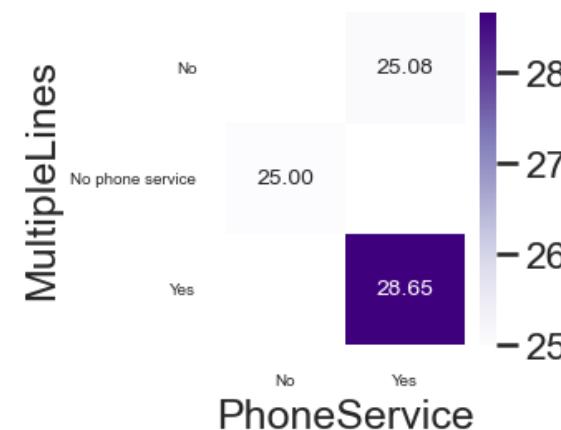
Customers with dependents in 1-12months and 12-24 months tenure are high churners at 51.03% and 33% .

Customers with dependents in 1-12 months tenure are high churners at 34%. Customers in 61-72 month tenure are low churners..

1. Bivariate Analysis of MultipleLines vs PhoneService with Churn as Hue



heatmap of Churn-rate for MultipleLines and PhoneService

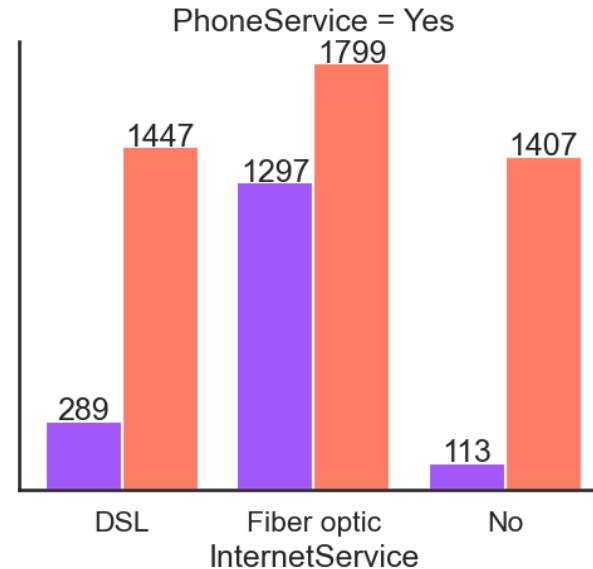
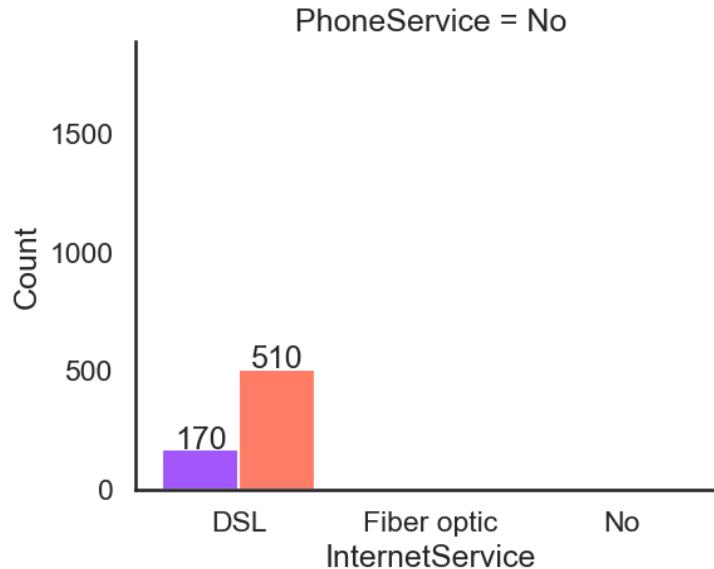


Insight:

Customers having phone service with and without multiple lines are high churners at 28% and 25%.

Customers with no phone service are low churners..

2. Bivariate Analysis of InternetService vs PhoneService with Churn as Hue



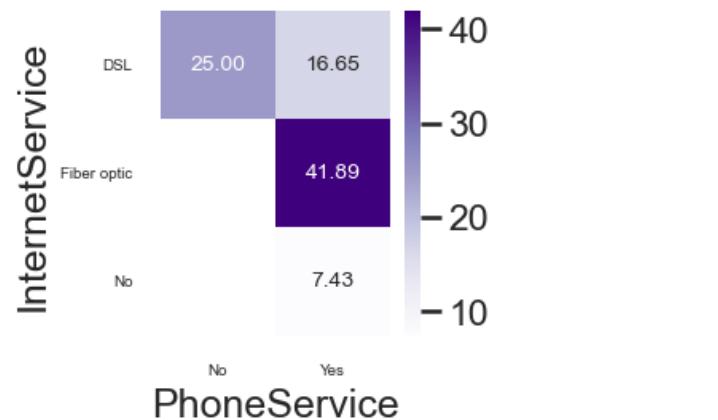
Insight:

Customers with phone service and a fiberoptic internet service are high churners at 41.89%.

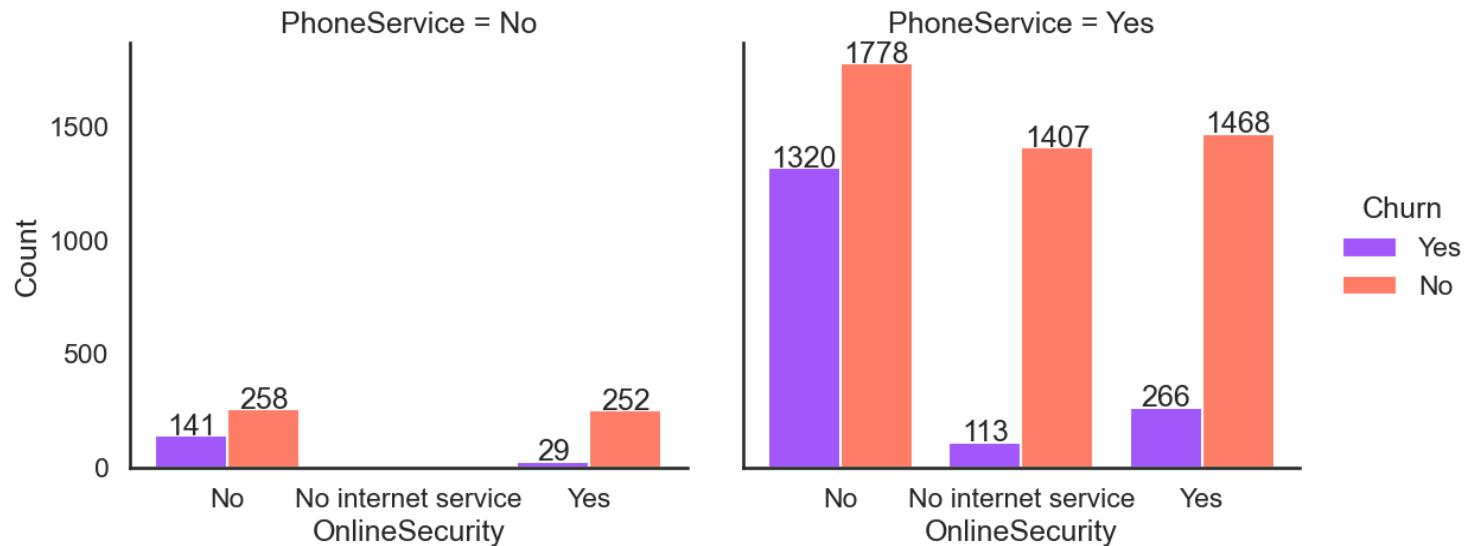
Customers with no phone service and DSL internet service are high churners at 25% .

Customers with a phone service but no internet connection are low churners at 7%..

heatmap of Churn-rate for InternetService and PhoneService



3. Bivariate Analysis of OnlineSecurity vs PhoneService with Churn as Hue

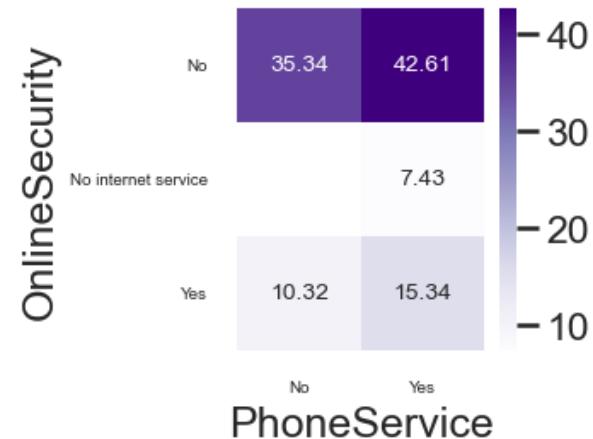


heatmap of Churn-rate for OnlineSecurity and PhoneService

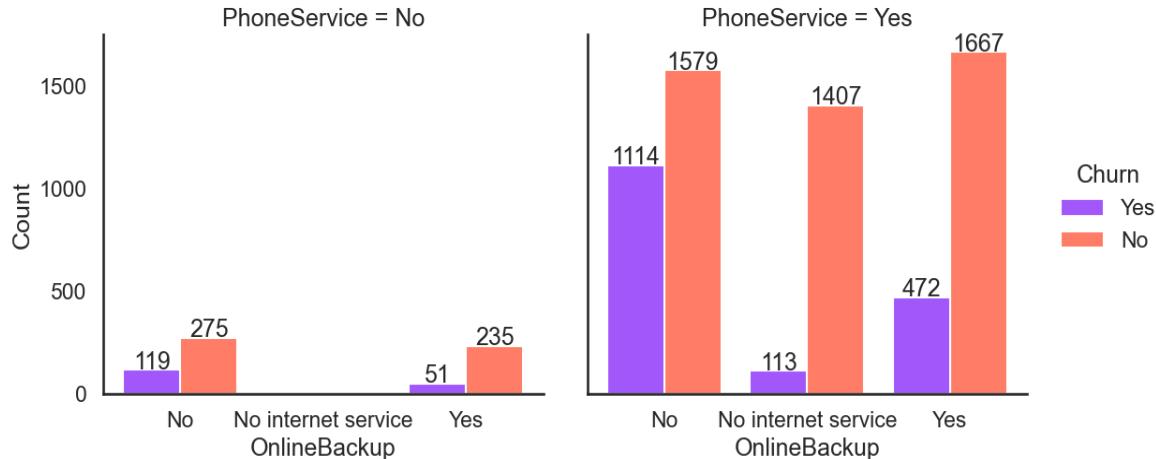
Insight:

Customers with No Online security are high churners especially the one with a phone service at 42.6%.

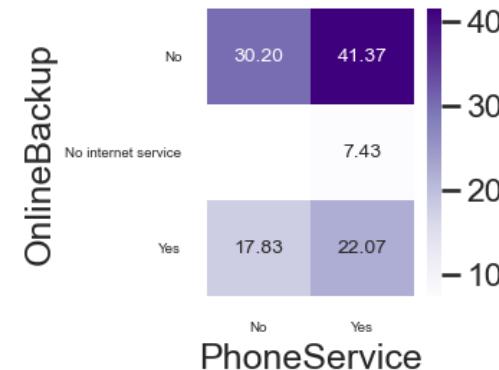
Customers without internet service are low churners. .



4. Bivariate Analysis of OnlineBackup vs PhoneService with Churn as Hue



heatmap of Churn-rate for OnlineBackup and PhoneService

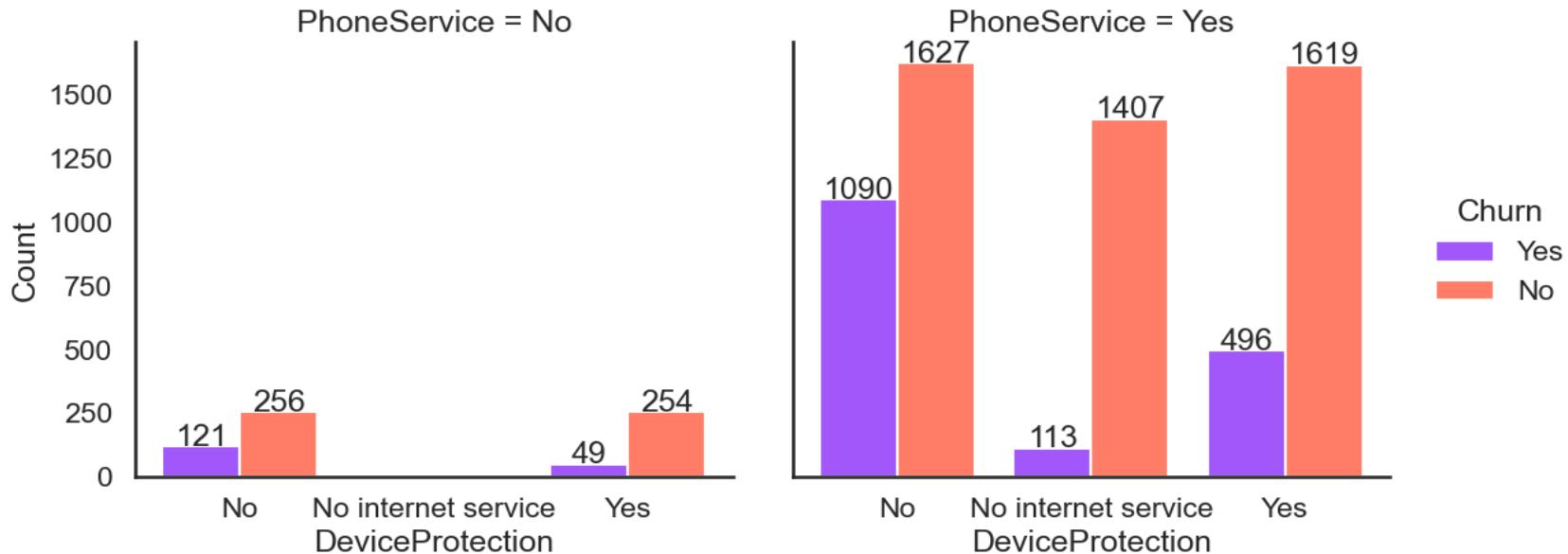


Insight:

Customers with No Online Backup are high churners especially the one with a phone service at 41.36%.

Customers without internet service are low churners..

5. Bivariate Analysis of DeviceProtection vs PhoneService with Churn as Hue

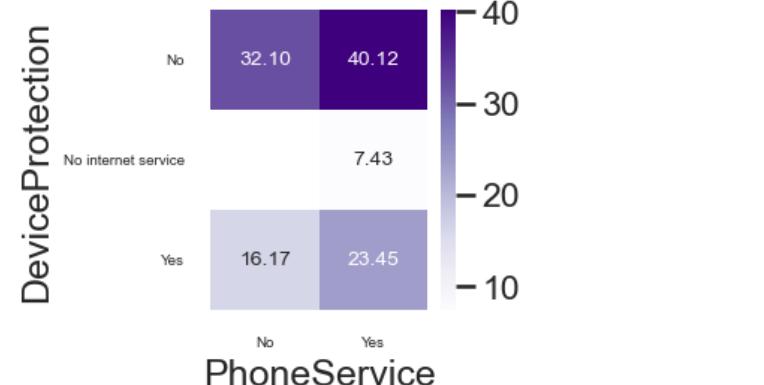


Insight:

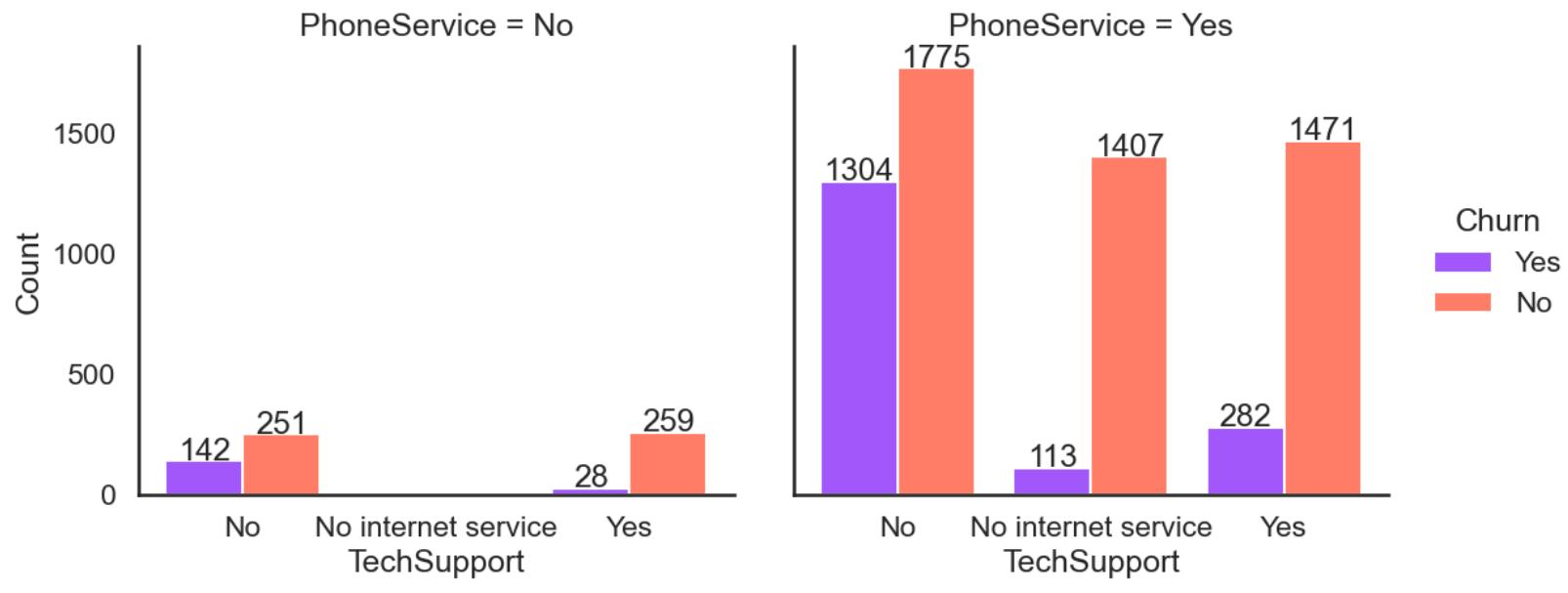
Customers with No Device protection are high churners especially the one with a phone service at 40.12%.

Customers without internet service are low churners..

heatmap of Churn-rate for DeviceProtection and PhoneService



6. Bivariate Analysis of TechSupport vs PhoneService with Churn as Hue

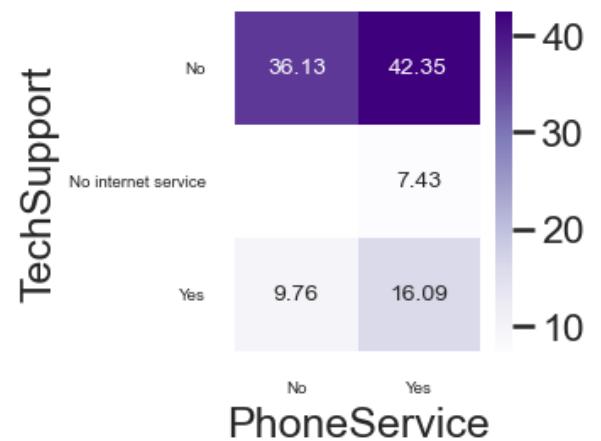


Insight:

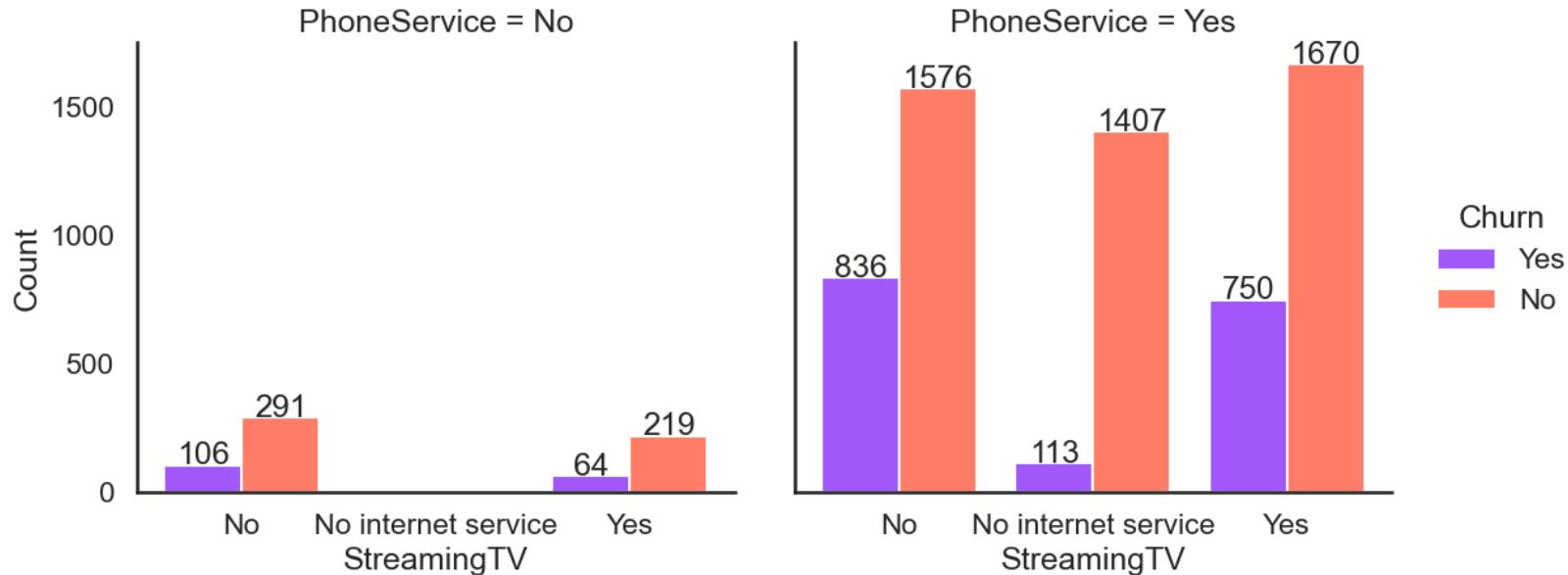
Customers with No Tech Support are high churners especially the one with a phone service at 42.36%.

Customers without internet service are low churners..

heatmap of Churn-rate for TechSupport and PhoneService



7. Bivariate Analysis of StreamingTV vs PhoneService with Churn as Hue

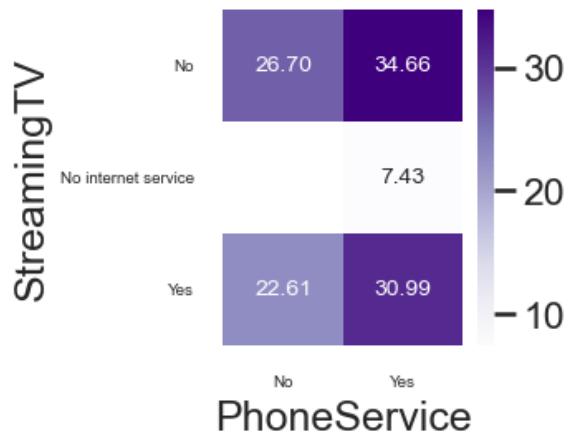


Insight:

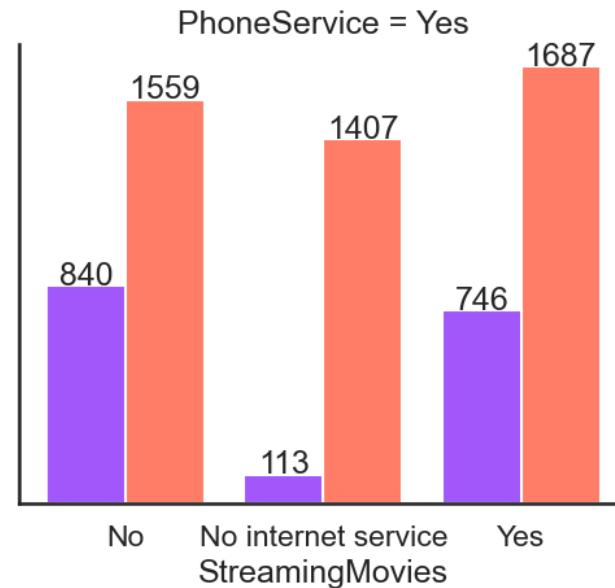
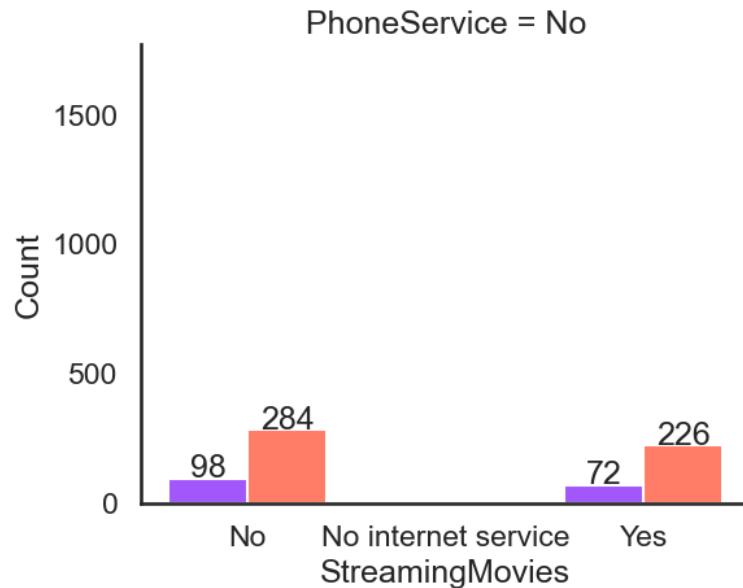
Customers with and without Streaming TV service are high churners especially the one with a phone service at 34.6%.

Customers without internet service are low churners..

heatmap of Churn-rate for StreamingTV and PhoneService



8. Bivariate Analysis of StreamingMovies vs PhoneService with Churn as Hue

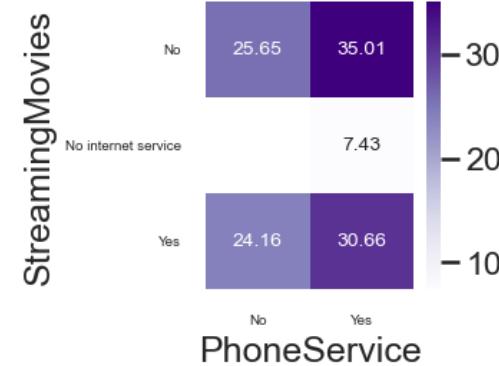


Insight:

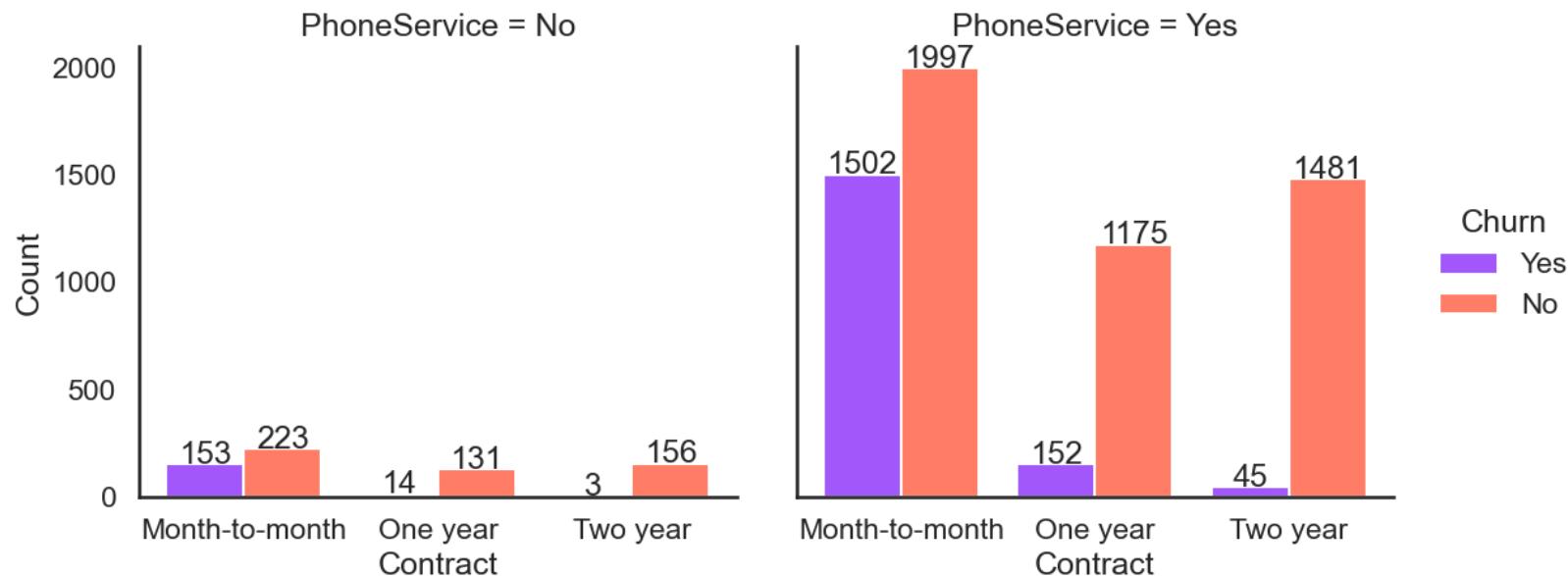
Customers with and without Streaming Movies service are high churners especially the one with a phone service at 34.6%.

Customers without internet service are low churners..

heatmap of Churn-rate for StreamingMovies and PhoneService



9. Bivariate Analysis of Contract vs PhoneService with Churn as Hue



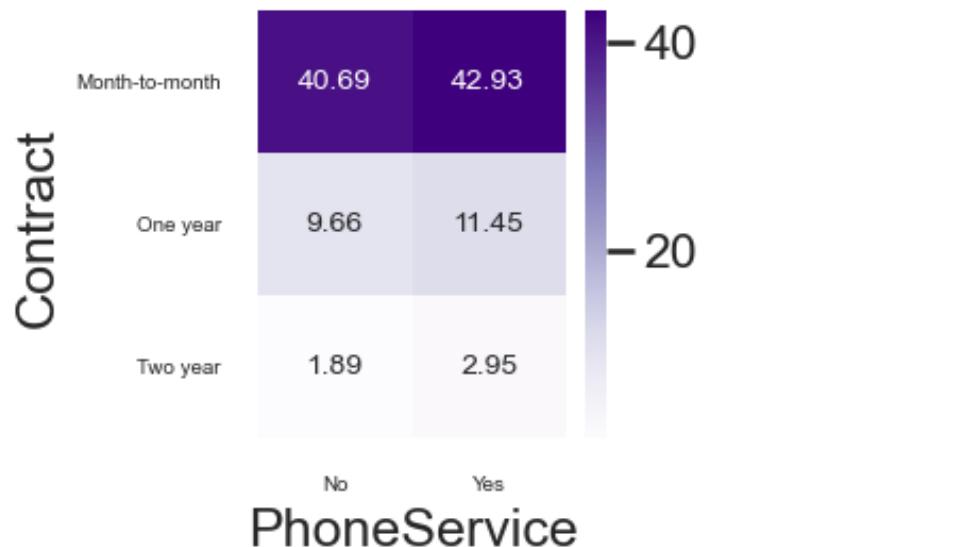
heatmap of Churn-rate for Contract and PhoneService

Insight:

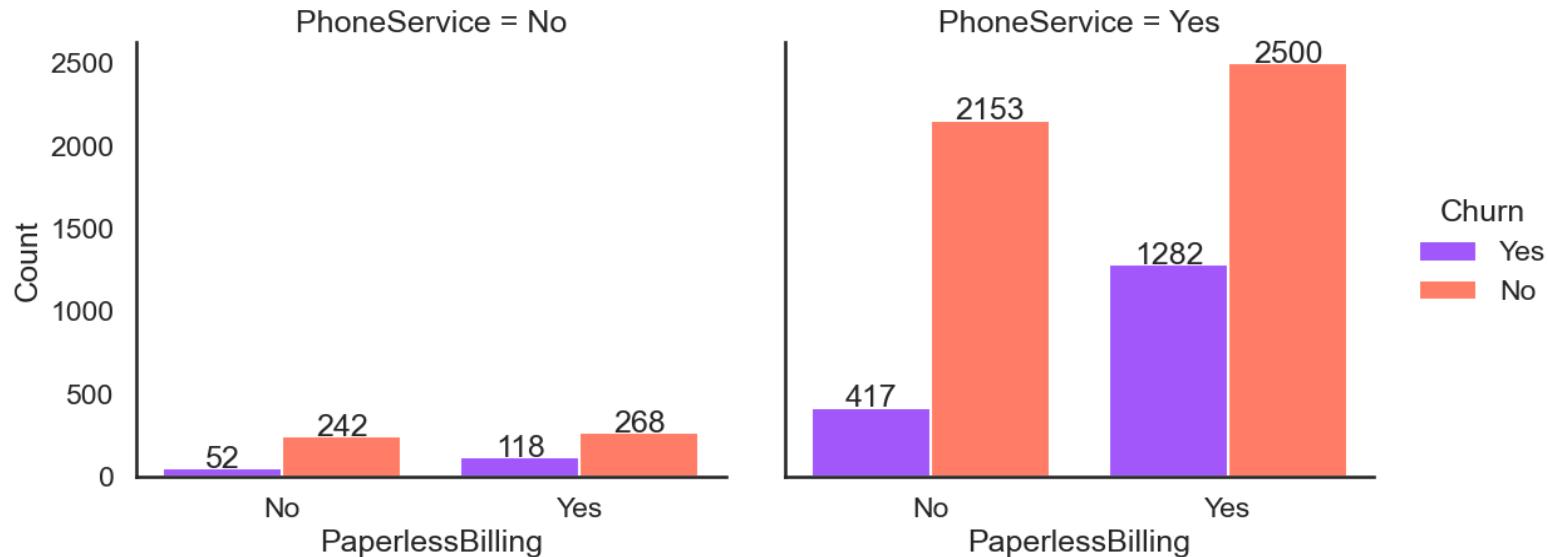
Customers having a month to month contract are high churners especially the one with a phone service at 43%.

Customers without internet service are low churners.

Customers in two year contract are low churners especially without phone service at 1.89%.



10. Bivariate Analysis of PaperlessBilling vs PhoneService with Churn as Hue

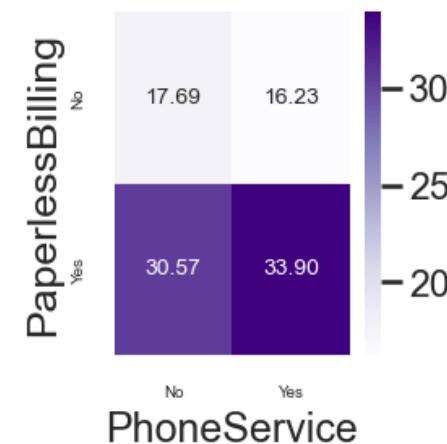


heatmap of Churn-rate for PaperlessBilling and PhoneService

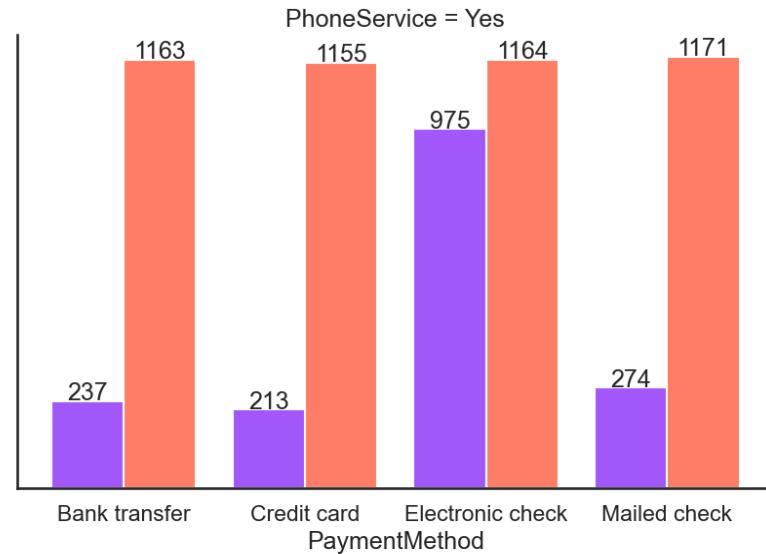
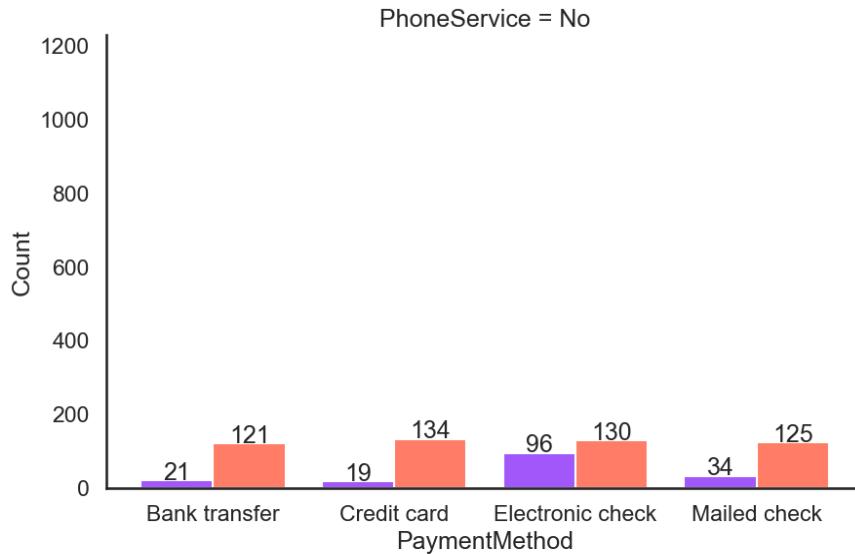
Insight:

Customers without a paperless Billing option are low Churners.

Customers with a paperless billing option are high chuners especially with a phone service 34%..



11. Bivariate Analysis of PaymentMethod vs PhoneService with Churn as Hue



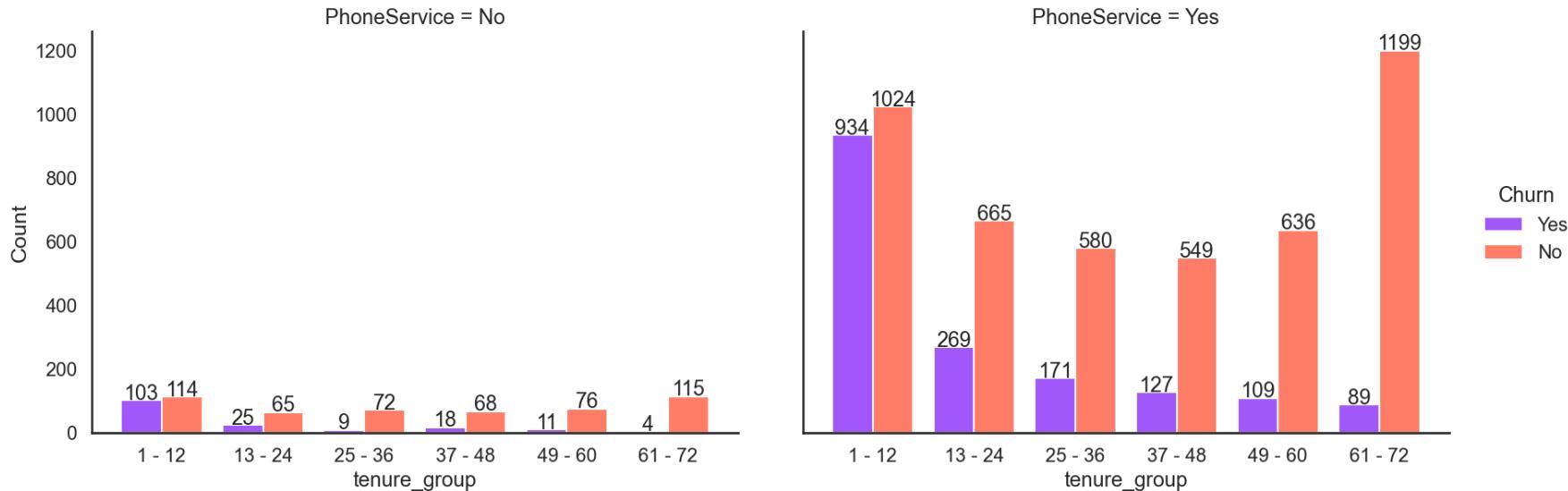
Insight:

Customers with Electronic mail check are high churners especially with a phone service at 45.5%.
Customers with no phone service and a credit card payment method are low churners at 12.4%..

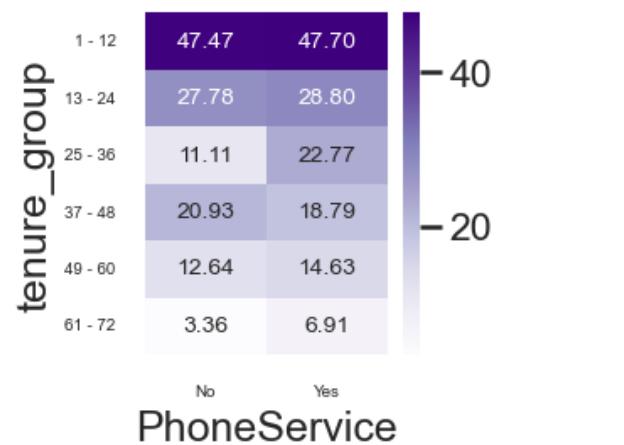
heatmap of Churn-rate for PaymentMethod and PhoneService



12. Bivariate Analysis of tenure_group vs PhoneService with Churn as Hue



heatmap of Churn-rate for tenure_group and PhoneService

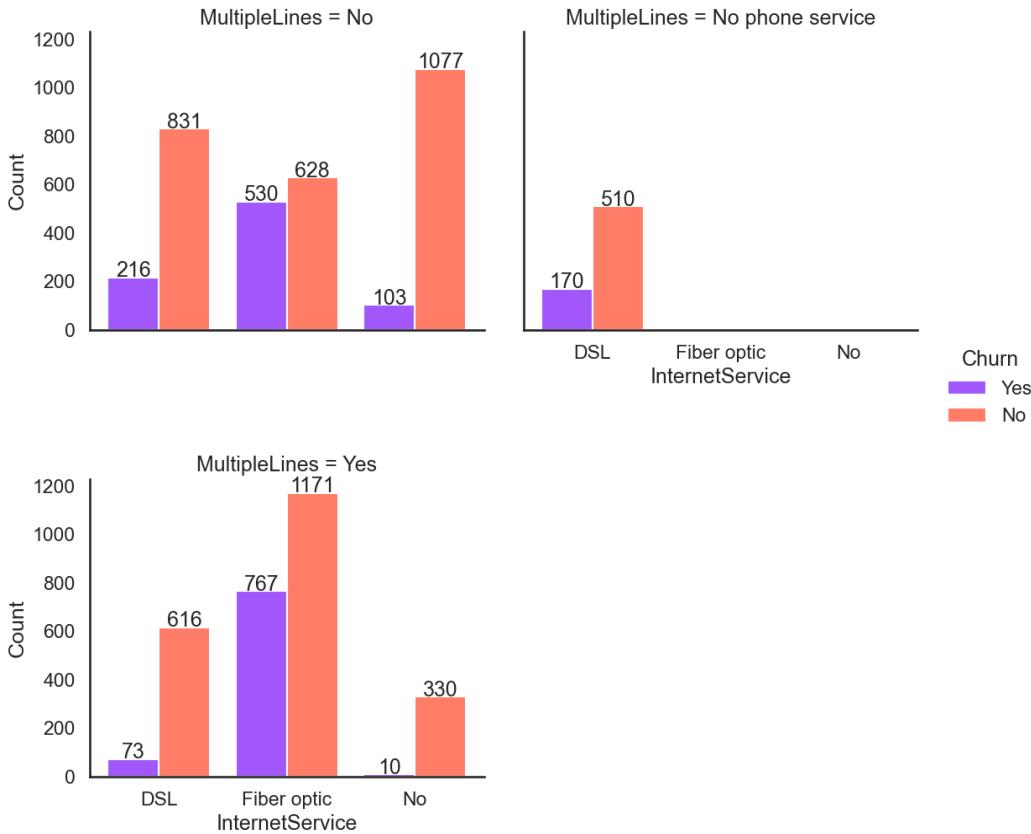


Insight:

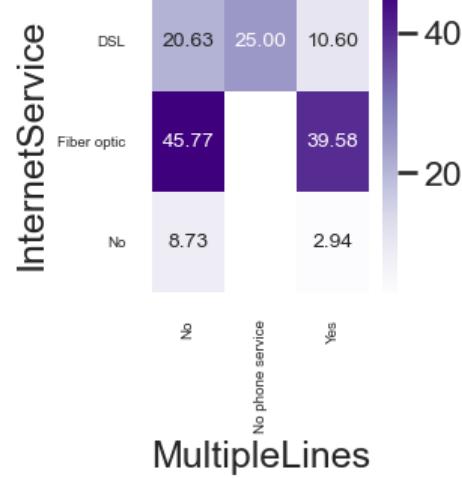
Customers in 1-12 and 13-24 tenure are high churners with 47% and 27% churn rate.

The churn rate decreases gradually as tenure increases with lowest churn rate at 61-72 tenure especially for those without a phone service at 3.36%.

1. Bivariate Analysis of InternetService vs MultipleLines with Churn as Hue



heatmap of Churn-rate for InternetService and MultipleLines

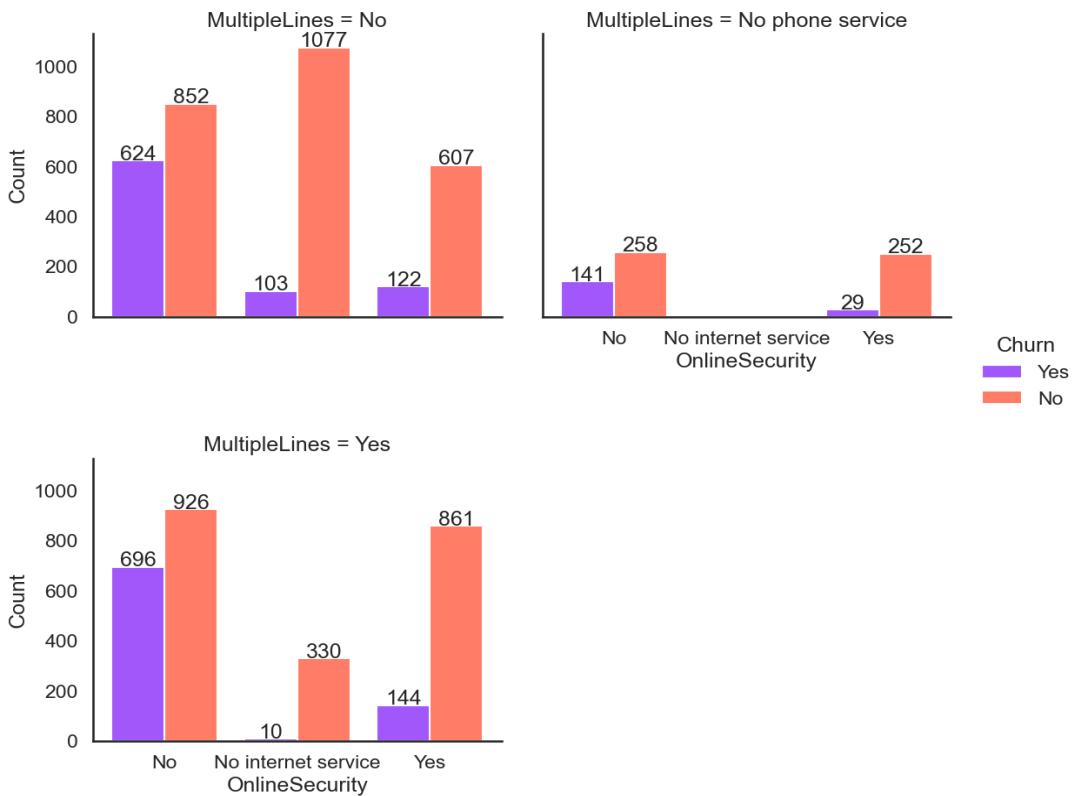


Insight:

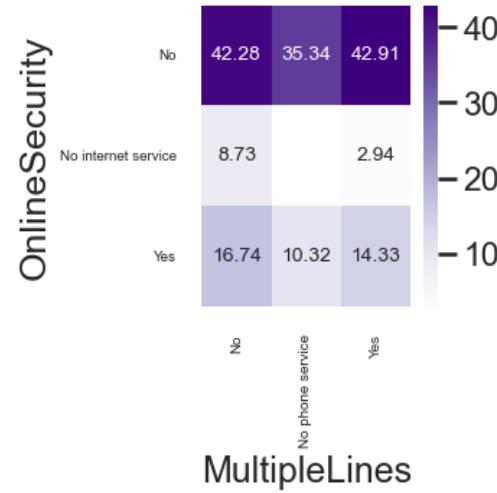
Customers with Fiber Optic internet service are high churners especially with and without multiple lines at 39.5 and 45.7% churn rate.

Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines..

2. Bivariate Analysis of OnlineSecurity vs MultipleLines with Churn as Hue



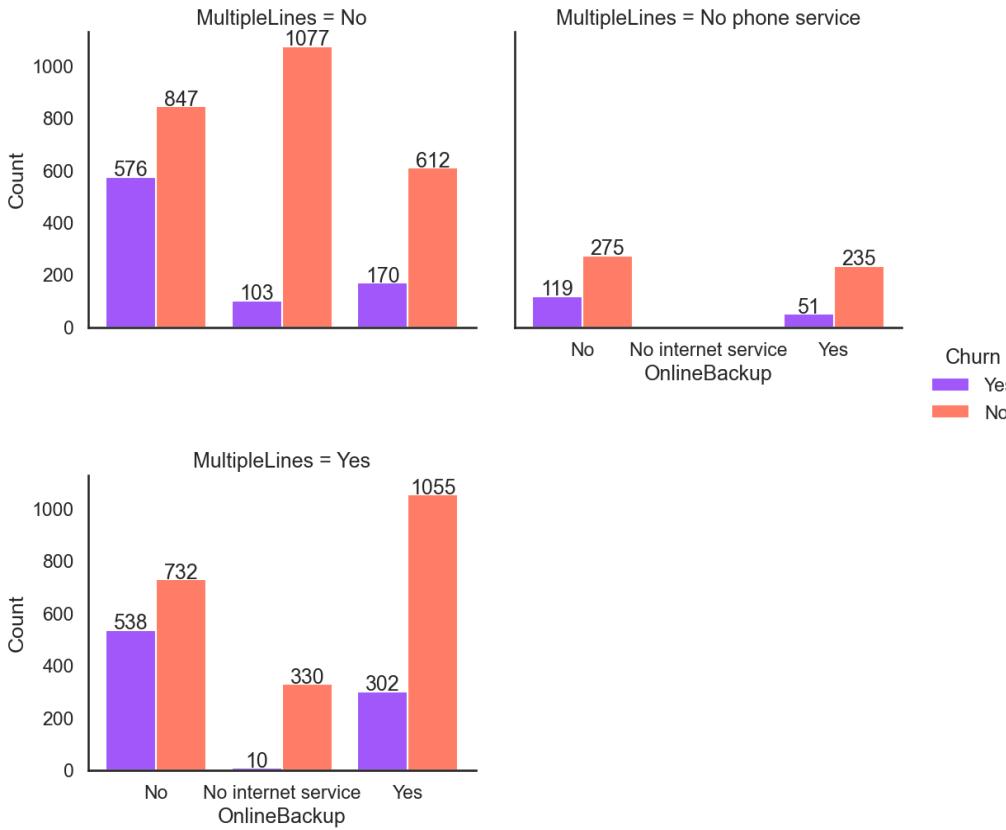
heatmap of Churn-rate for OnlineSecurity and MultipleLines



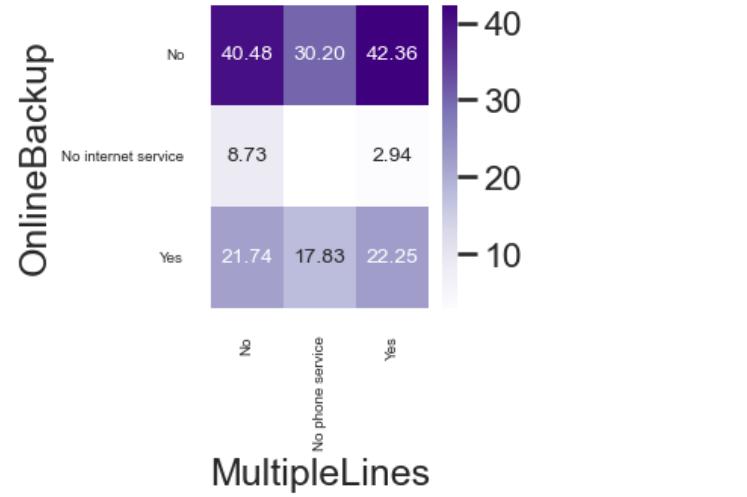
Insight:

Customers with No Online Security service are high churners especially with multiple lines at 42.9% churn rate.
Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines..

3. Bivariate Analysis of OnlineBackup vs MultipleLines with Churn as Hue



heatmap of Churn-rate for OnlineBackup and MultipleLines

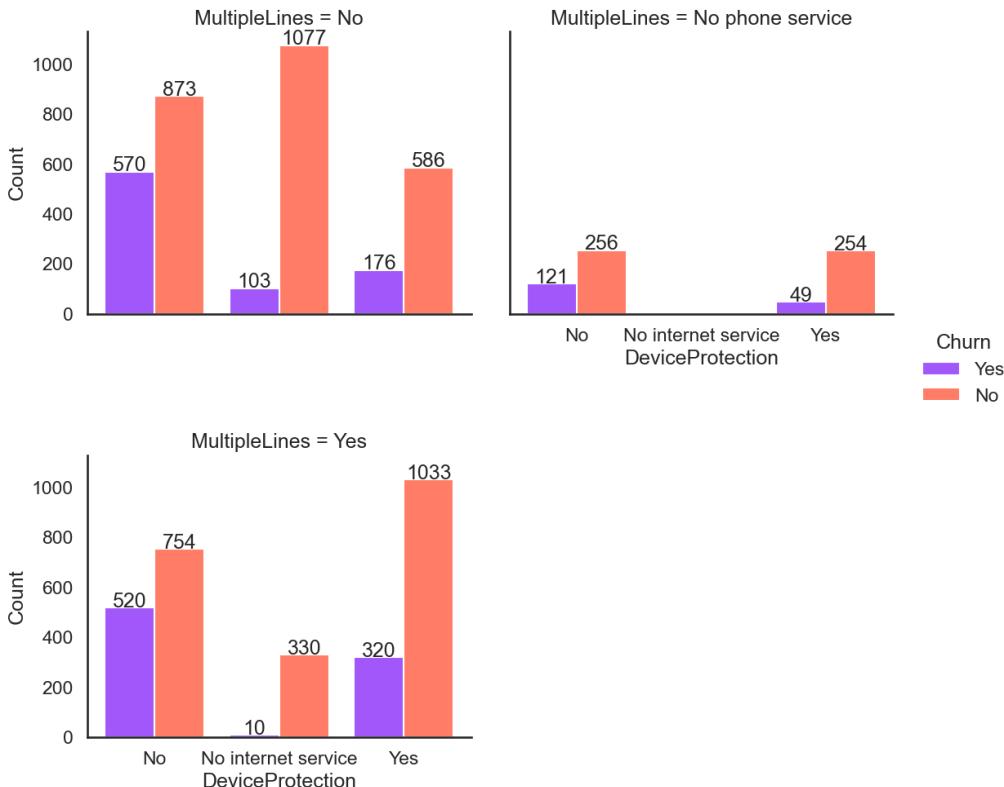


Insight:

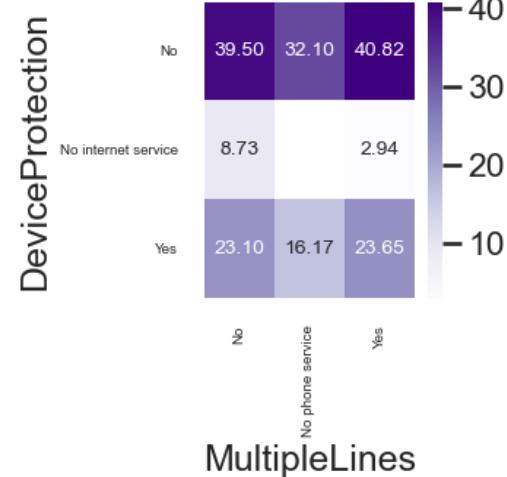
Customers with No Online Backup service are high churners especially with multiple lines at 42.3% churn rate.

Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines.

4. Bivariate Analysis of DeviceProtection vs MultipleLines with Churn as Hue

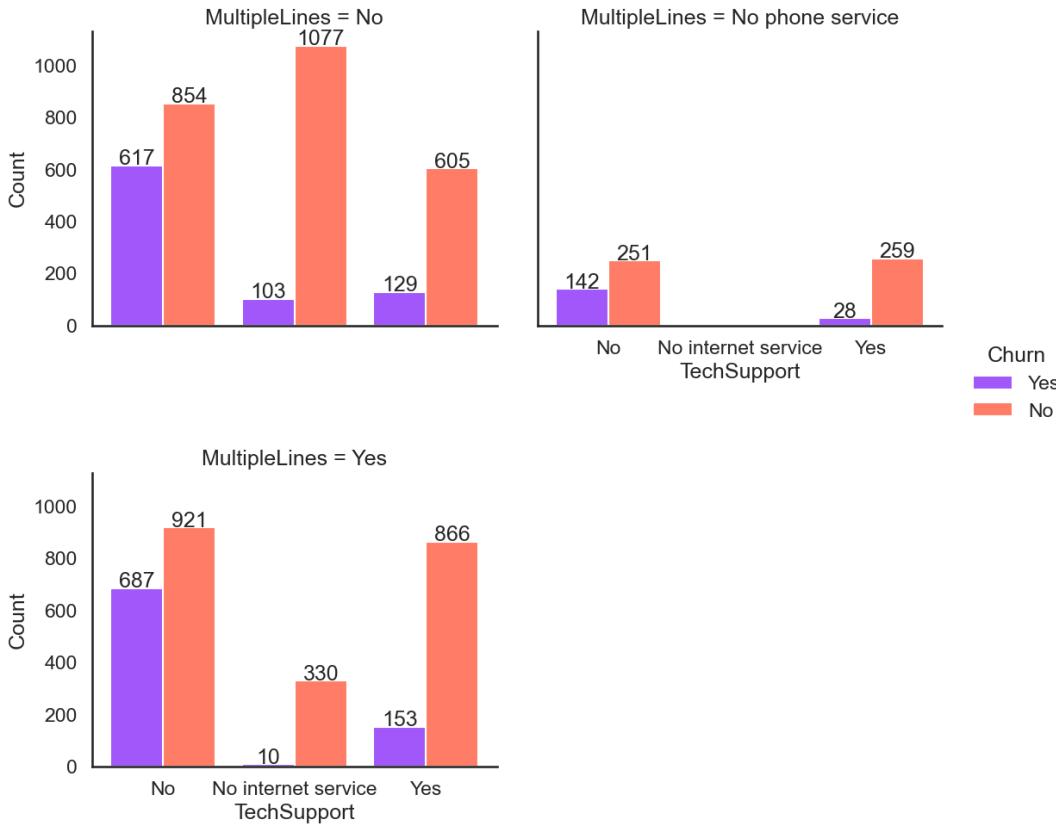


heatmap of Churn-rate for DeviceProtection and MultipleLines

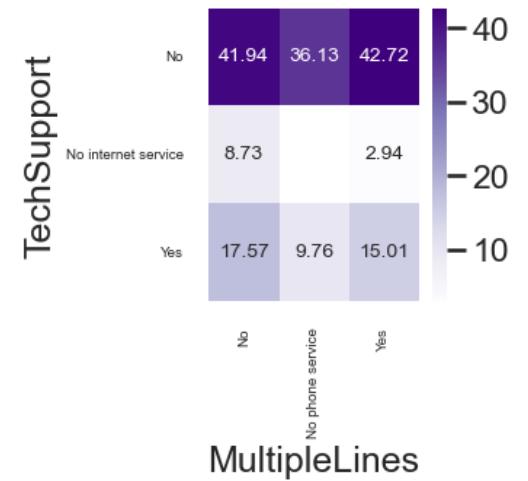


Insight:
 Customers with No Device Protection service are high churners especially with multiple lines at 40.8% churn rate.
 Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines..

5. Bivariate Analysis of TechSupport vs MultipleLines with Churn as Hue



heatmap of Churn-rate for TechSupport and MultipleLines

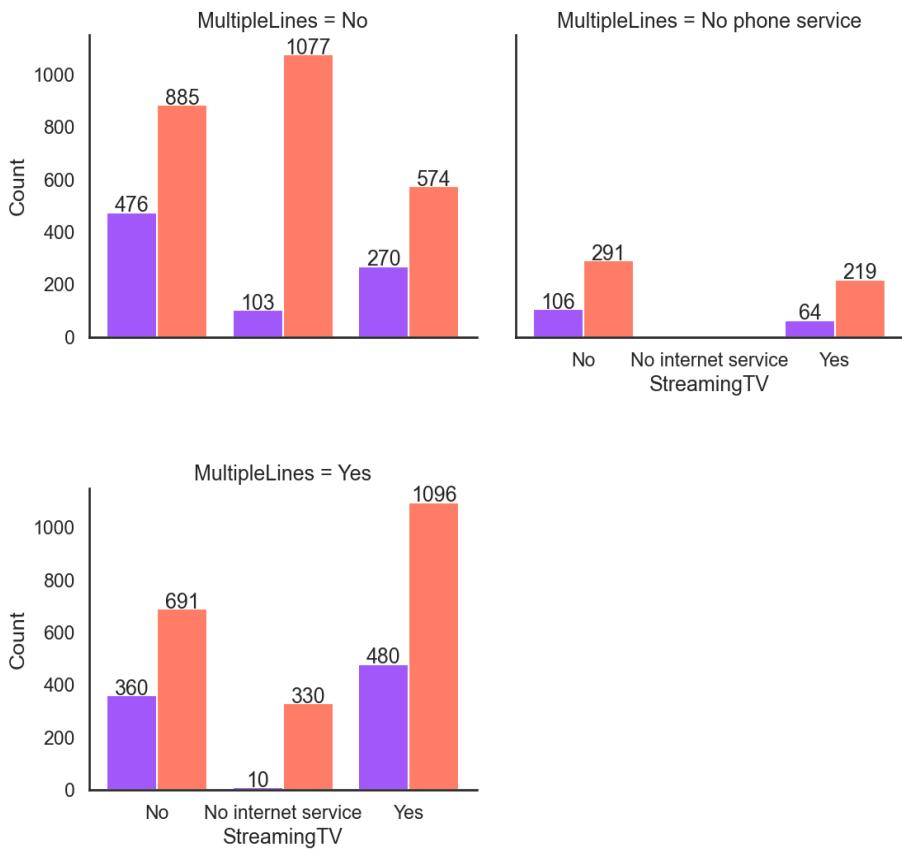


Insight:

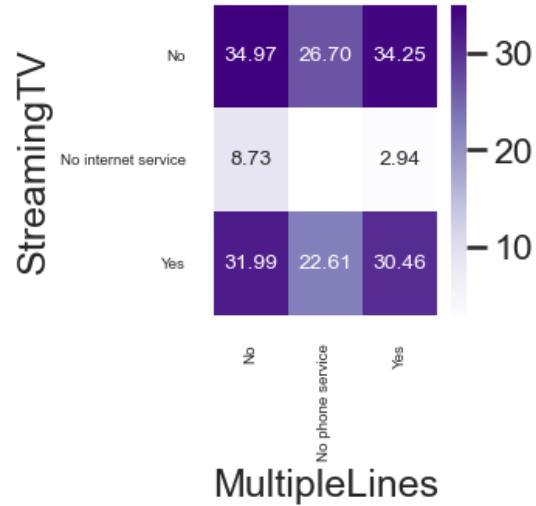
Customers with No Tech Support service are high churners especially with multiple lines at 42.7% churn rate.

Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines..

6. Bivariate Analysis of StreamingTV vs MultipleLines with Churn as Hue



heatmap of Churn-rate for StreamingTV and MultipleLines

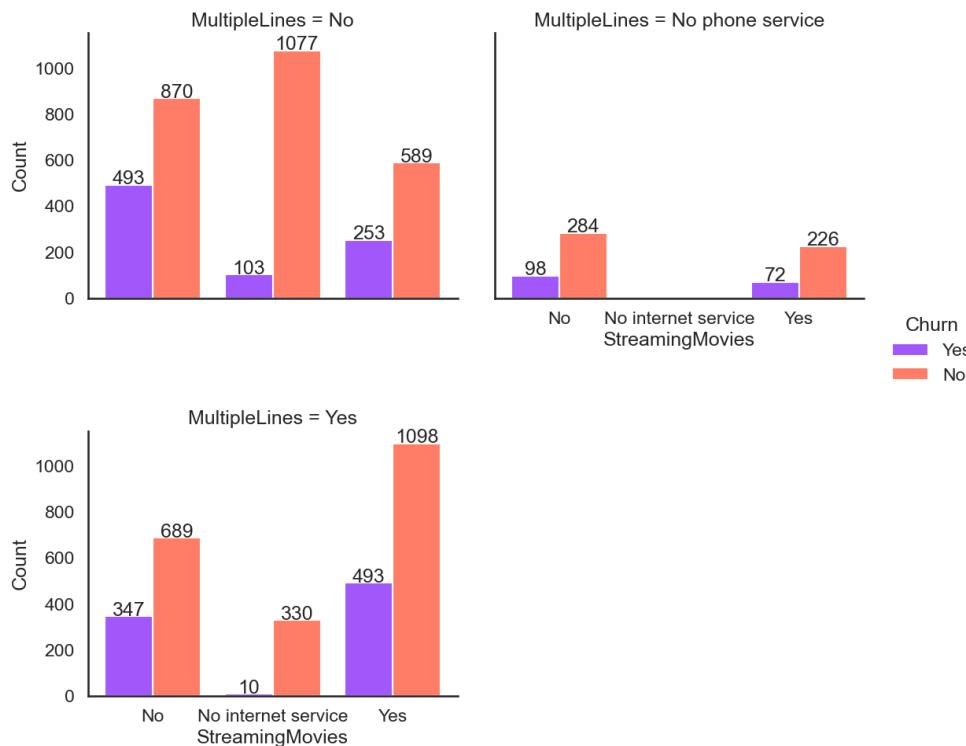


Insight:

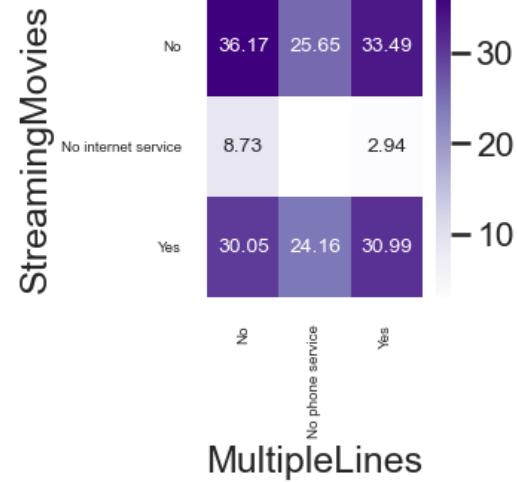
Customers with and without Streaming TV service are high churners especially with no multiple lines at 34.9% churn rate.

Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines..

7. Bivariate Analysis of StreamingMovies vs MultipleLines with Churn as Hue



heatmap of Churn-rate for StreamingMovies and MultipleLines

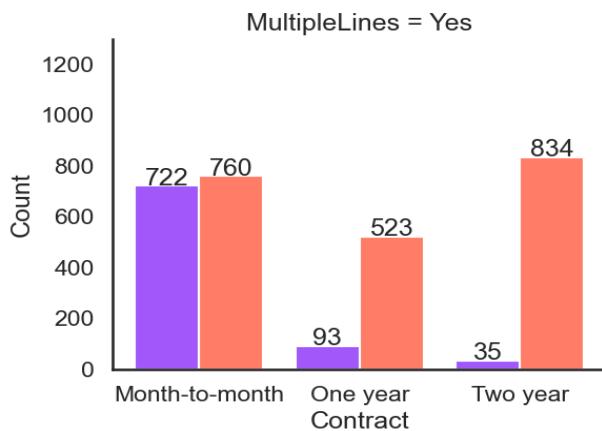
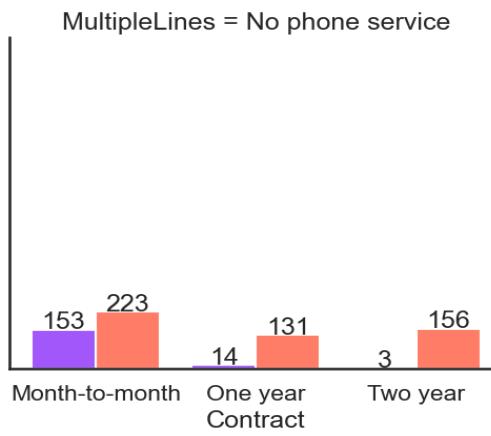
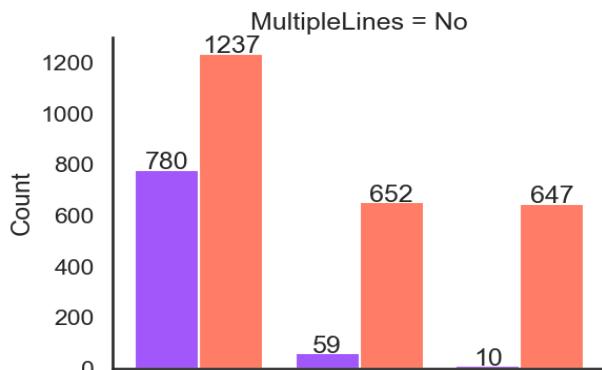


Insight:

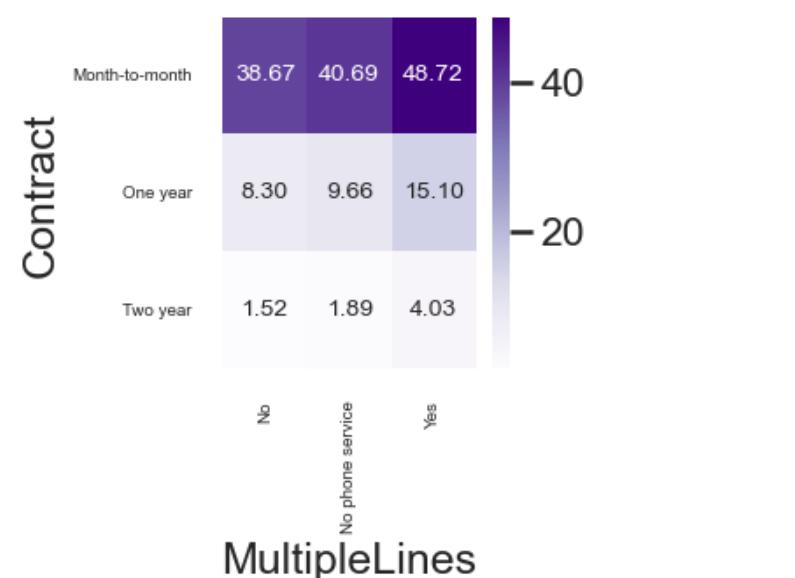
Customers with and without Streaming Movies service are high churners especially with no multiple lines at 36.17% churn rate.

Customers with no internet service are low churners with lowest at 2.9% for those with multiple lines..

8. Bivariate Analysis of Contract vs MultipleLines with Churn as Hue



heatmap of Churn-rate for Contract and MultipleLines

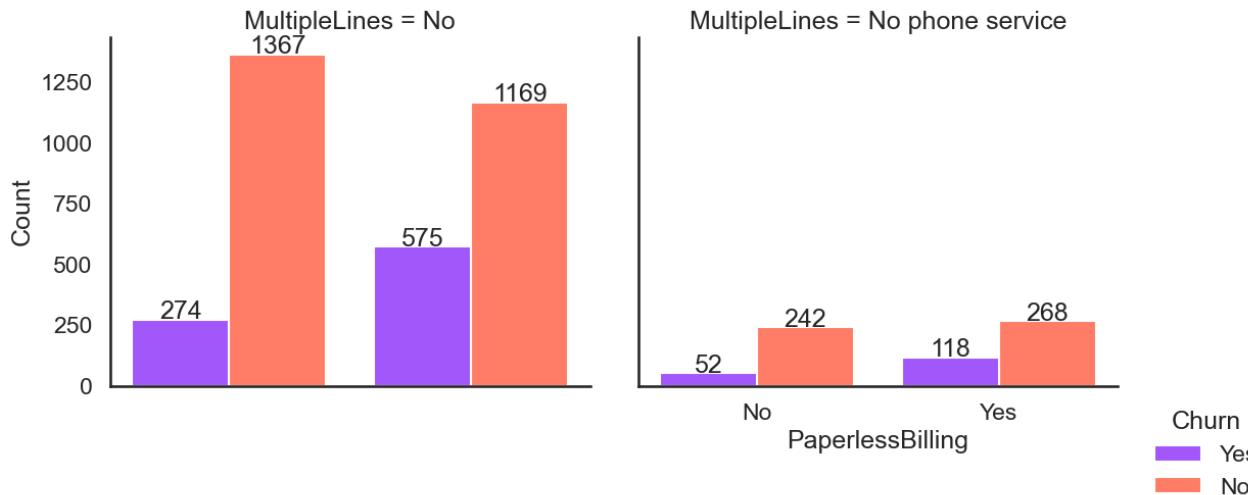


Insight:

Customers with one-to-one contract are high churners, especially highest at 48.72% for those with multiple lines.

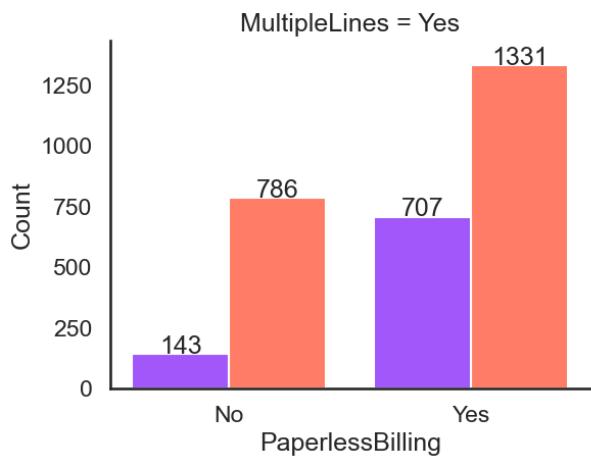
Customers with two-year contract are low churners especially without multiple lines at 1.52%.

9. Bivariate Analysis of PaperlessBilling vs MultipleLines with Churn as Hue

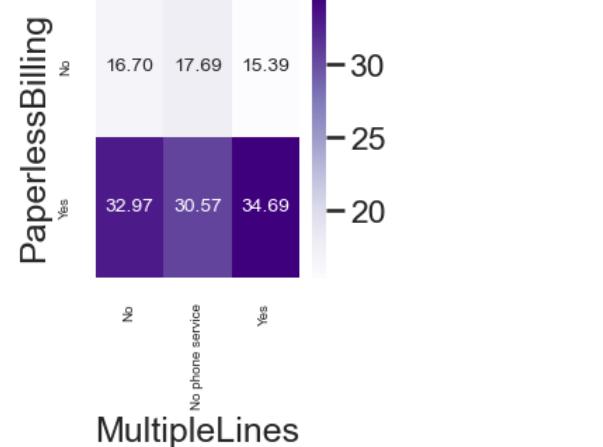


Insight:
Customers with Paperless billing option are high churners especially highest at 34.7% for those with multiple lines.

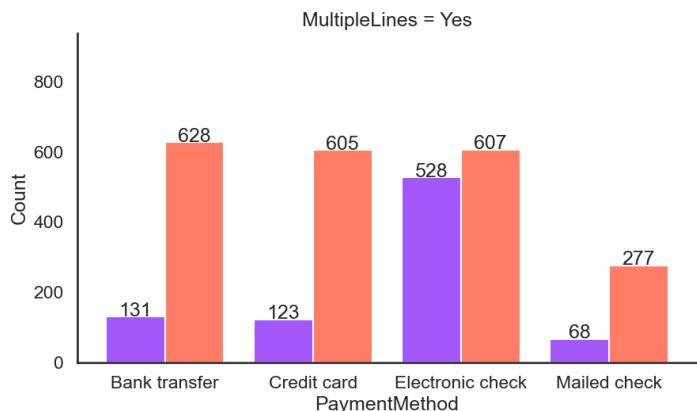
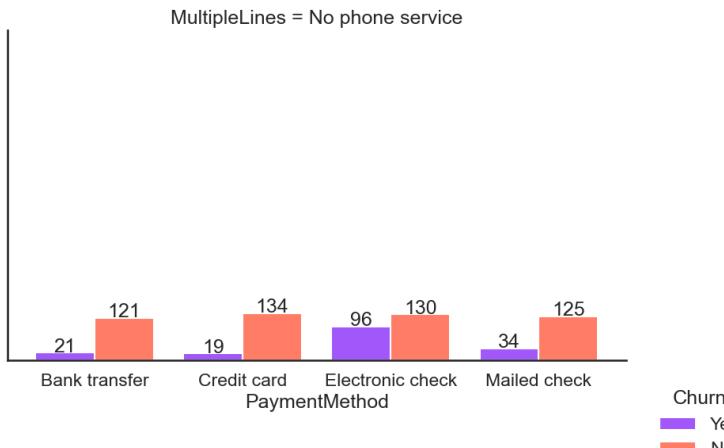
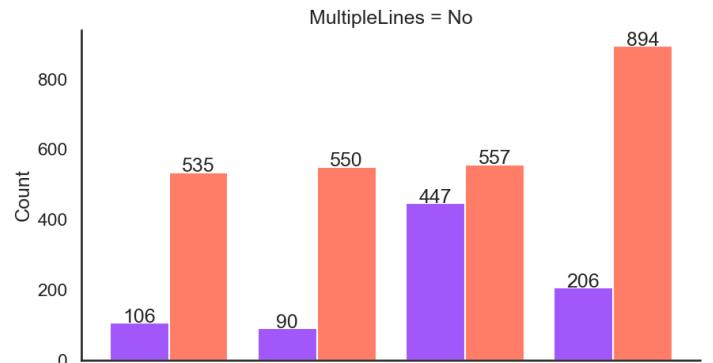
Customers without paperless billing option are low churners..



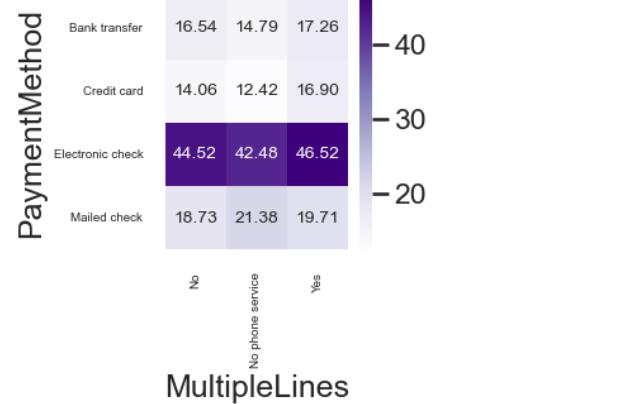
heatmap of Churn-rate for PaperlessBilling and MultipleLines



10. Bivariate Analysis of PaymentMethod vs MultipleLines with Churn as Hue



heatmap of Churn-rate for PaymentMethod and MultipleLines

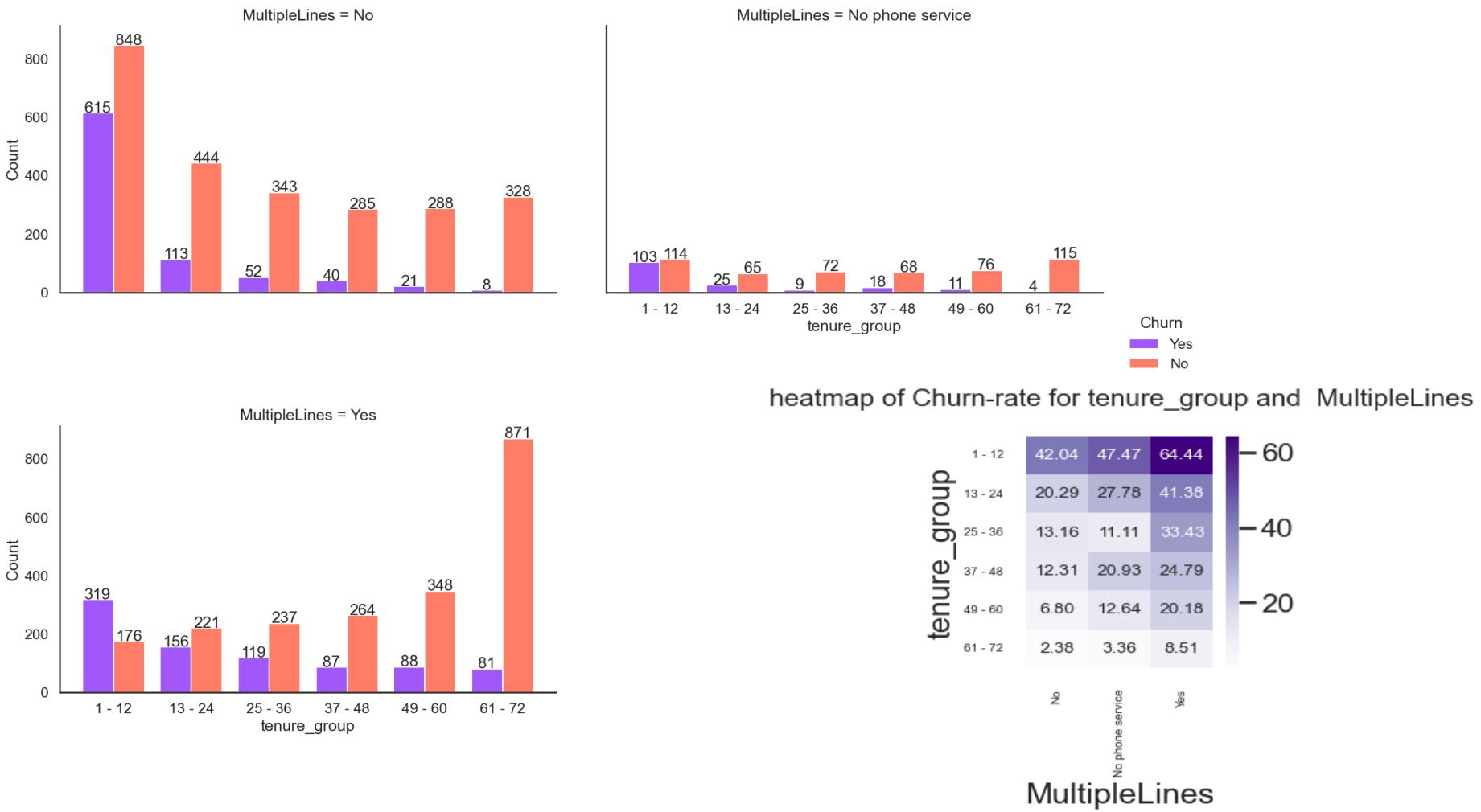


Insight:

Customers with Electronic check payment option are high churners especially highest at 46.5% for those with multiple lines.

Customers without phone service and a credit card option are low churners at 12%..

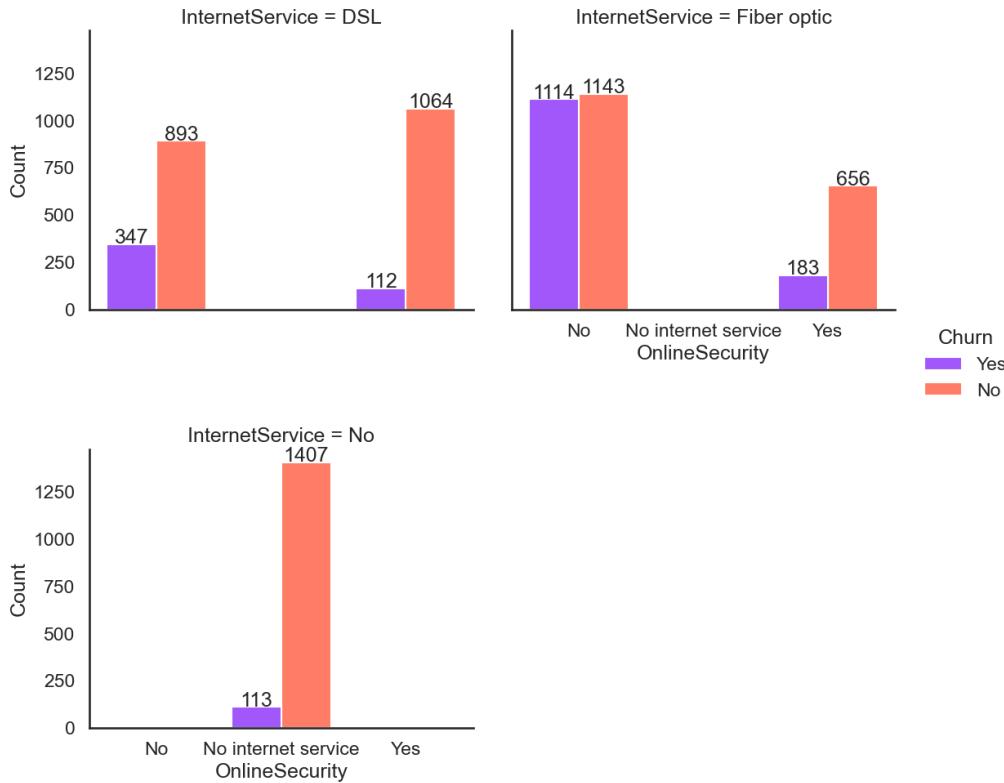
11. Bivariate Analysis of tenure_group vs MultipleLines with Churn as Hue



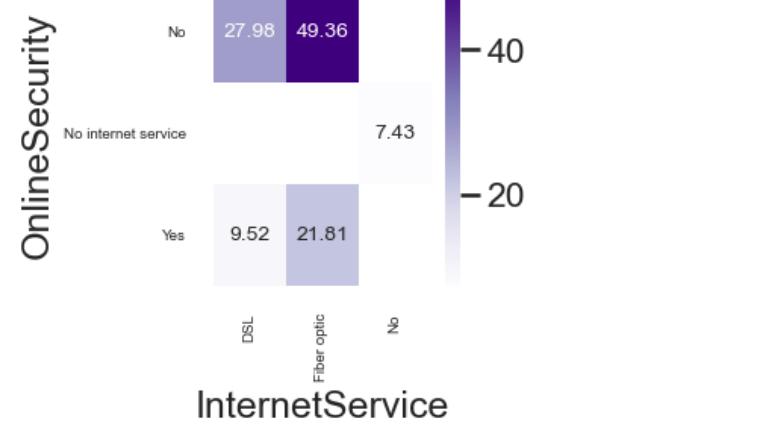
Insight:

Customers in 1-12 tenure group are high churners especially for those with multiple lines at 64%. As tenure increases, churn rate decreases with lowest without multiple lines at 2.38%.

1. Bivariate Analysis of OnlineSecurity vs InternetService with Churn as Hue



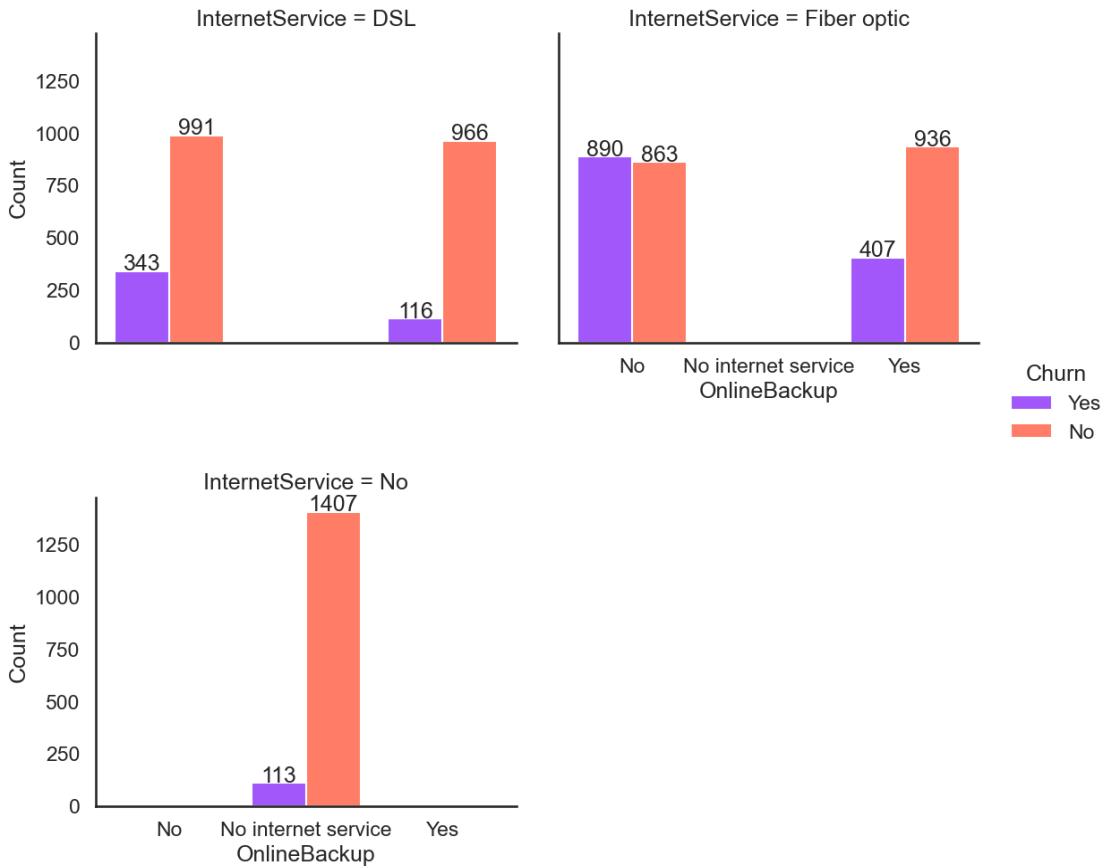
heatmap of Churn-rate for OnlineSecurity and InternetService



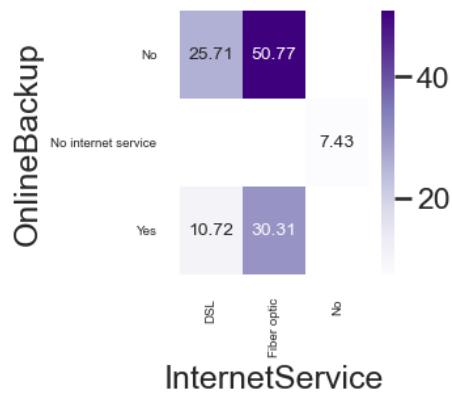
Insight:

Customers with fiber optic internet and no online security are high churners at 49.3%. Customers with no online security and no internet service are low churners.

2. Bivariate Analysis of OnlineBackup vs InternetService with Churn as Hue



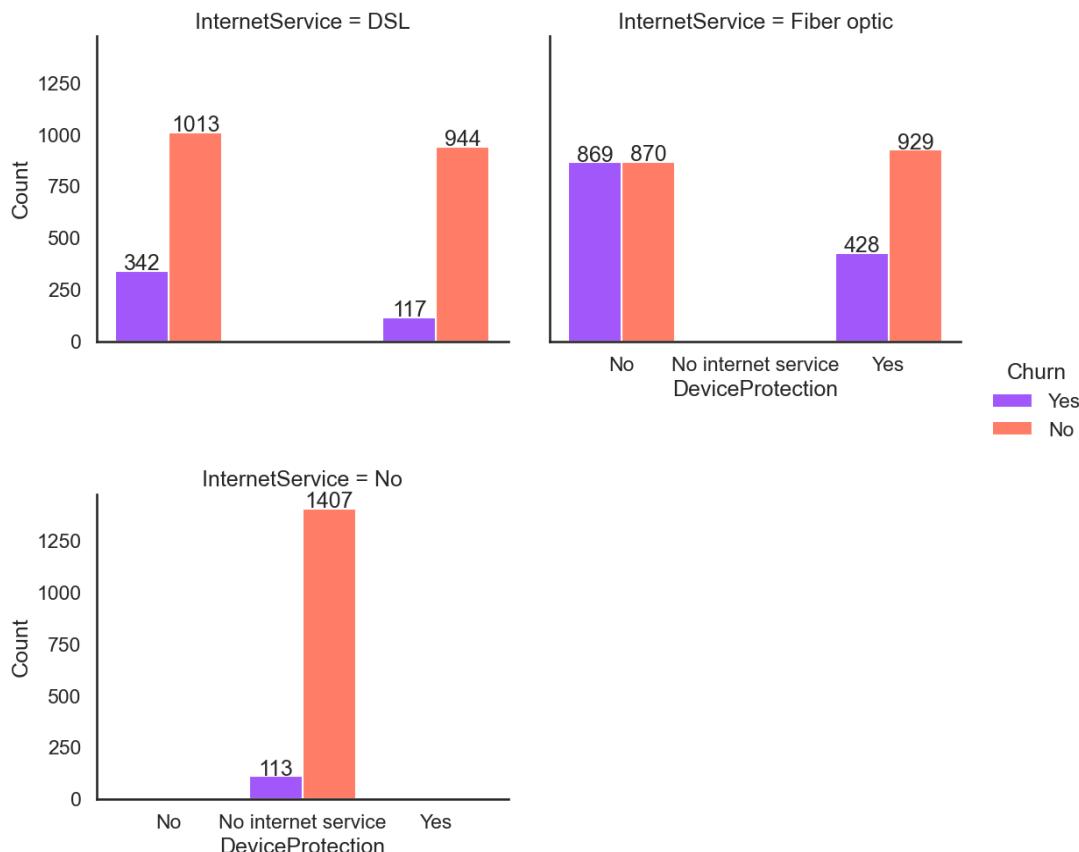
heatmap of Churn-rate for OnlineBackup and InternetService



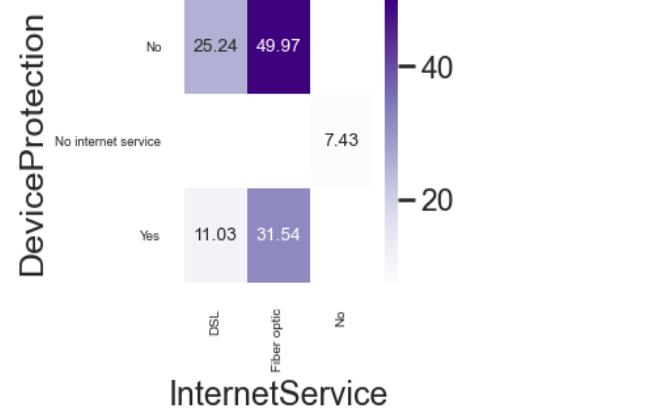
Insight:

Customers having fiber optic internet , no online back up and online back up are high chuners at 50.7% and 30.3% respectively..

3. Bivariate Analysis of DeviceProtection vs InternetService with Churn as Hue



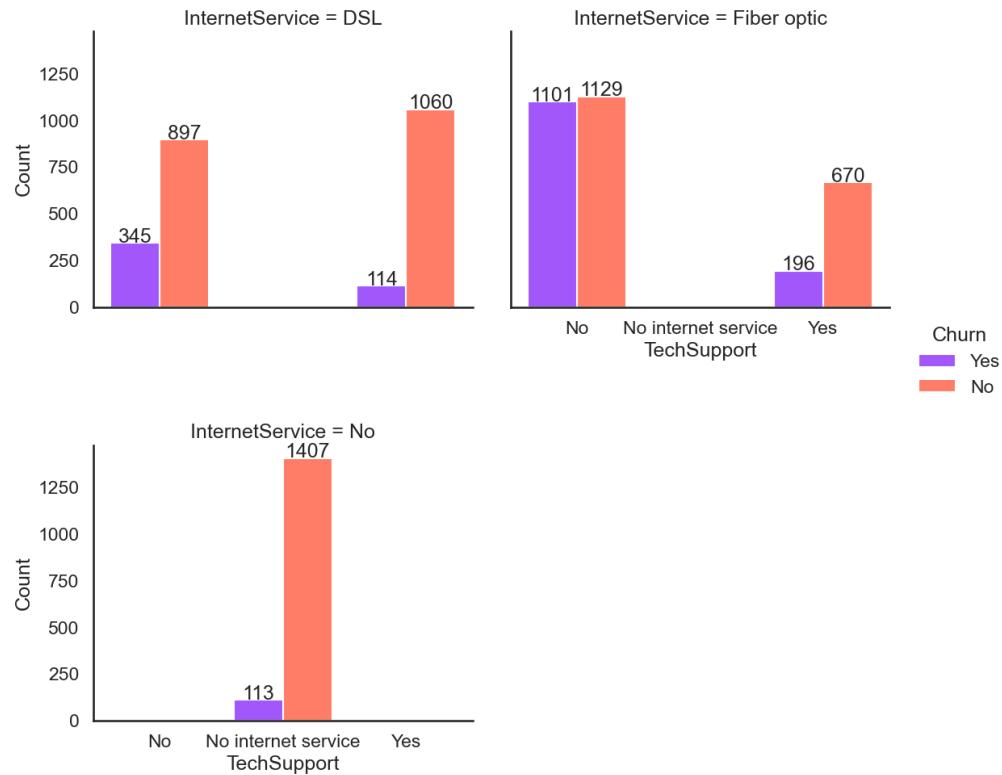
heatmap of Churn-rate for DeviceProtection and InternetService



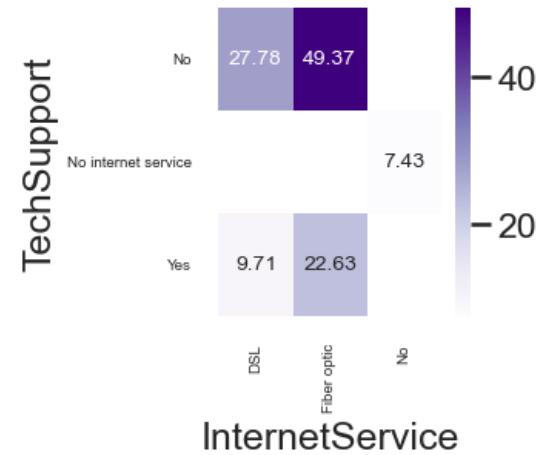
Insight:

Customers having fiber optic internet, no device protection and with device protection are high churners at 49.97% and 31.53% respectively..

4. Bivariate Analysis of TechSupport vs InternetService with Churn as Hue



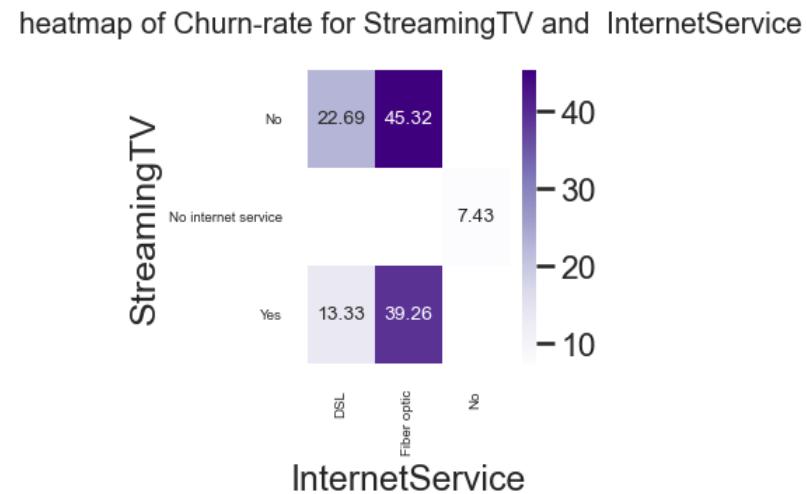
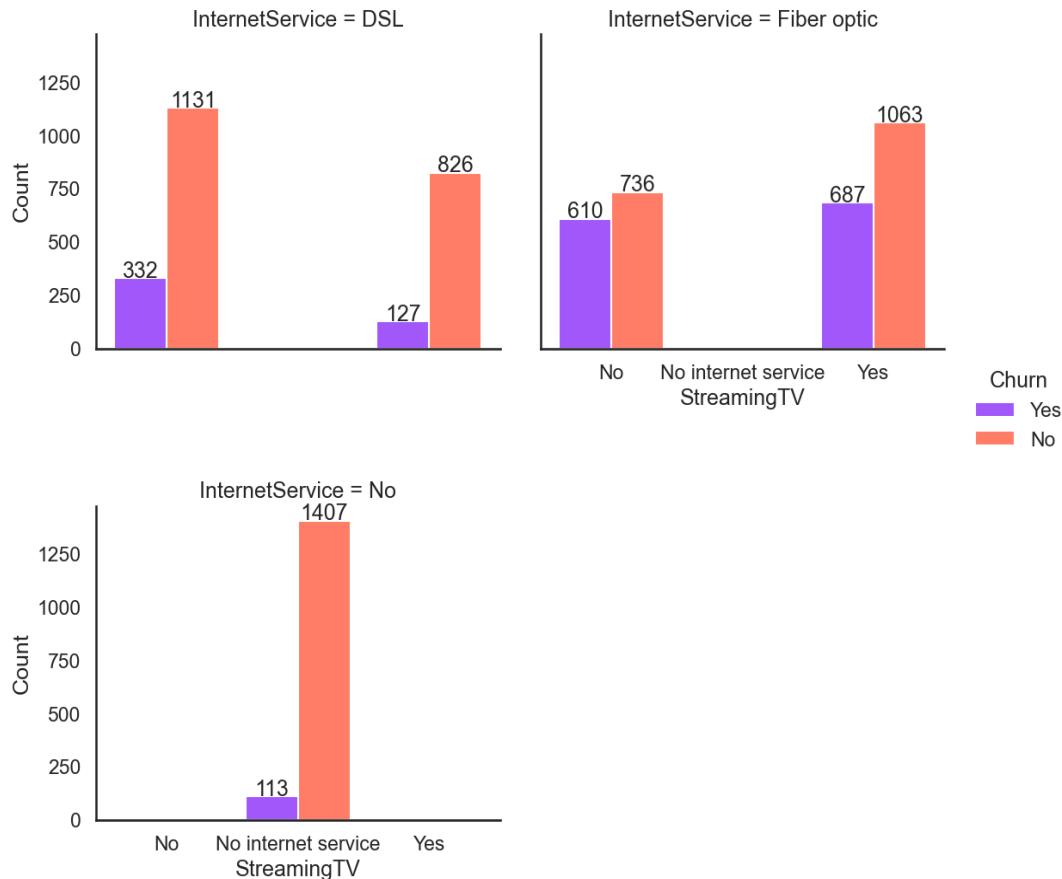
heatmap of Churn-rate for TechSupport and InternetService



Insight:

Customers having fiber optic internet and DSL, with no Tech Support are high churners at 49.37% and 27.78% respectively..

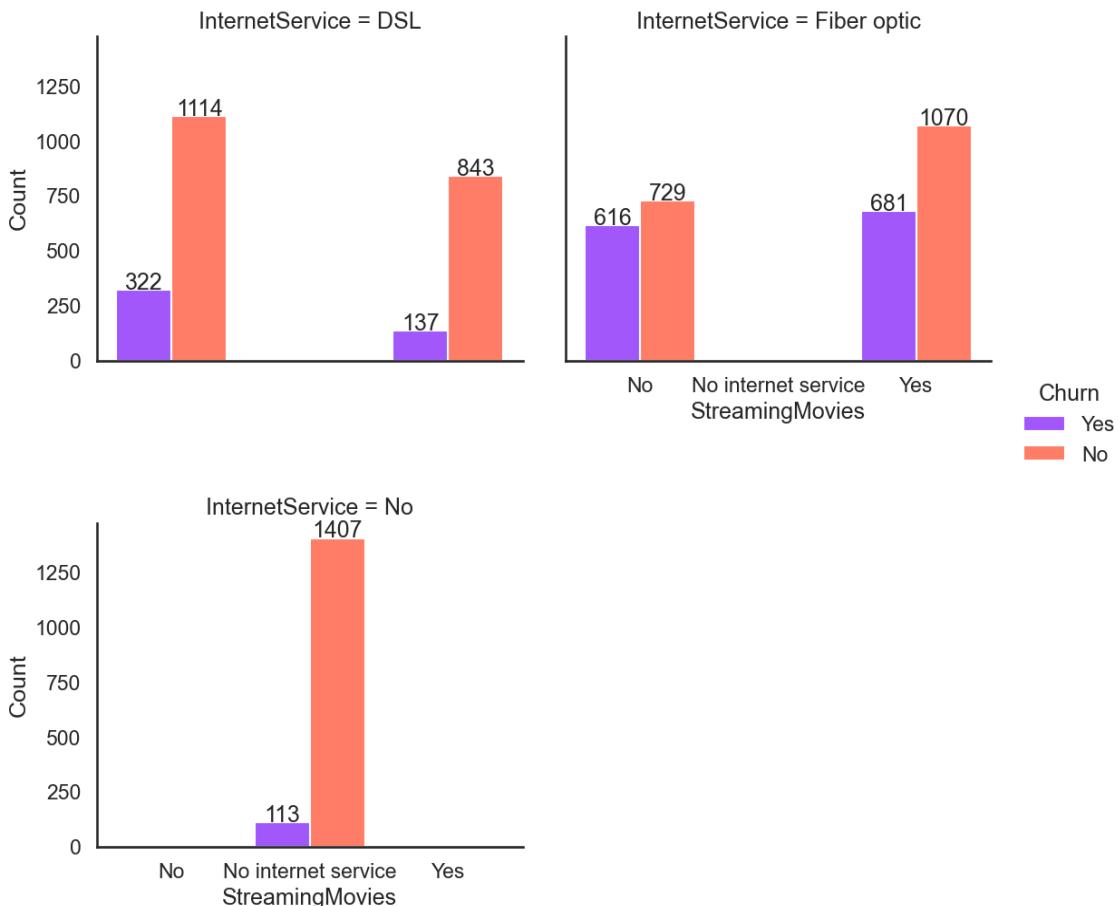
5. Bivariate Analysis of StreamingTV vs InternetService with Churn as Hue



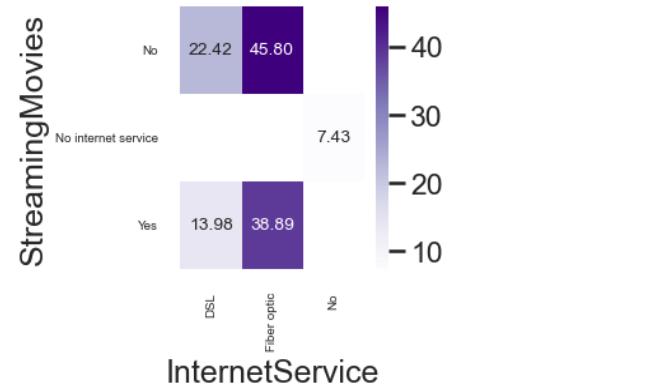
Insight:

Customers having fiber optic internet, with and without Streaming TV service are high churners at 45.32% and 39.26% respectively..

6. Bivariate Analysis of StreamingMovies vs InternetService with Churn as Hue



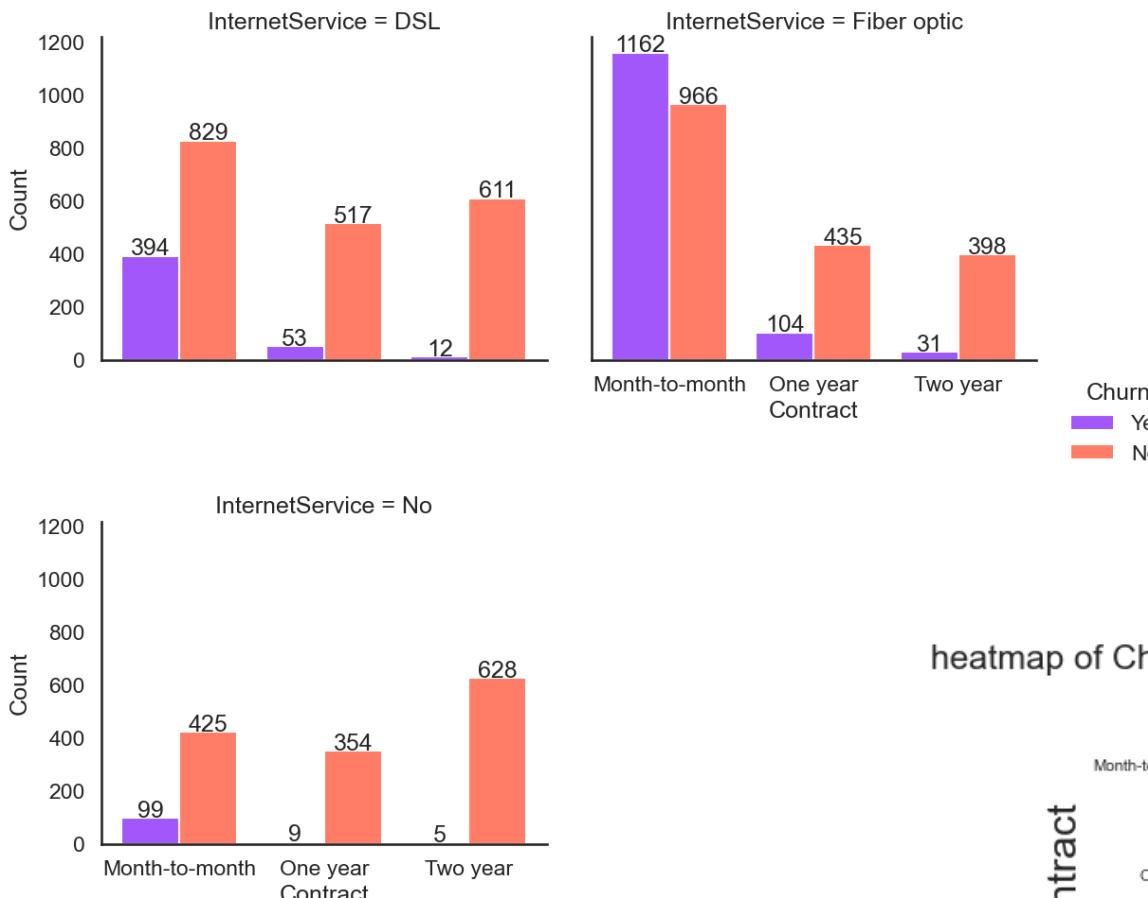
heatmap of Churn-rate for StreamingMovies and InternetService



Insight:

Customers having fiber optic internet, with and without Streaming Movies service are high churners at 45.82% and 38.8% respectively..

7. Bivariate Analysis of Contract vs InternetService with Churn as Hue



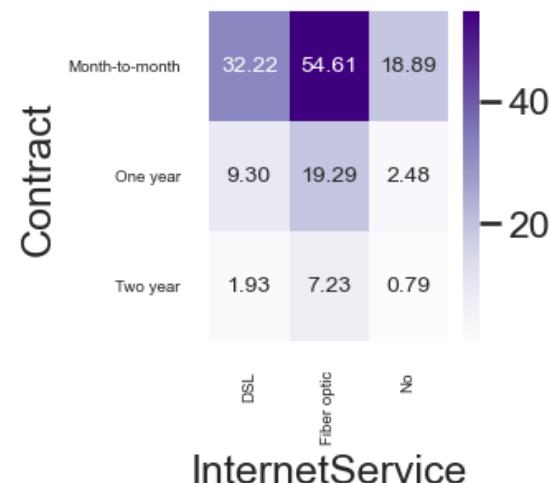
Insight:

Customers with Fiber optic internet service and month-to-month contract are high churners at 54.6%.

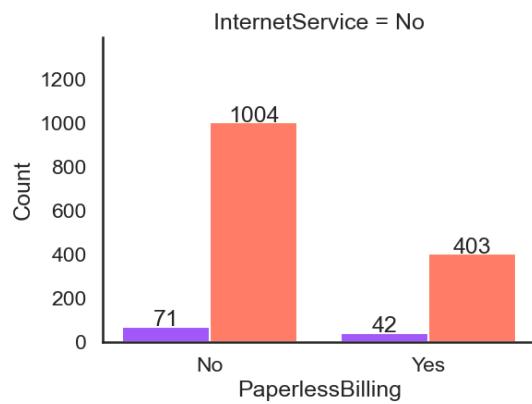
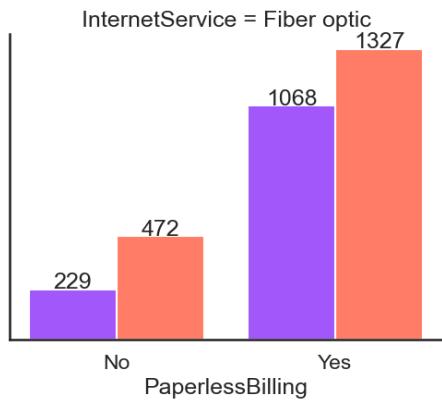
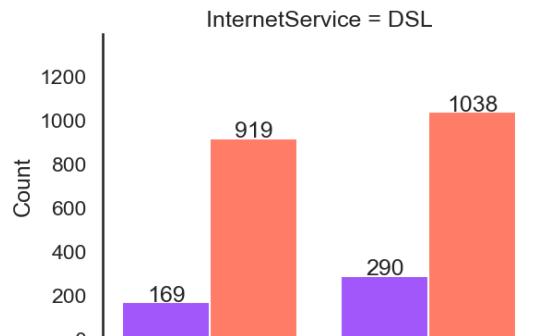
Customers with DSL internet and month-to-month contract are high churners at 32.2%.

Customers with two-year contract are low churns, the lowest being 0.79% for no internet service .

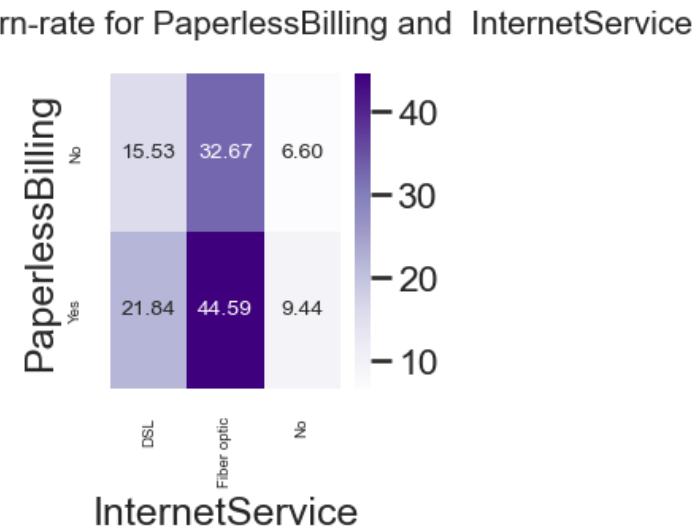
heatmap of Churn-rate for Contract and InternetService



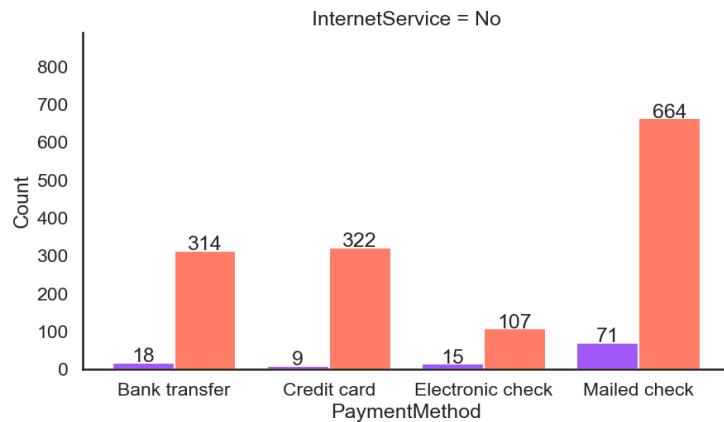
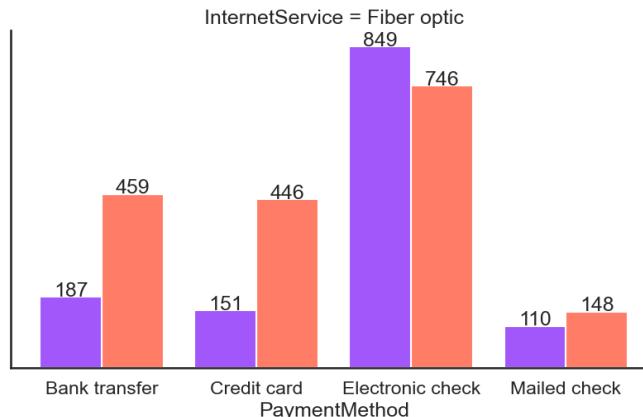
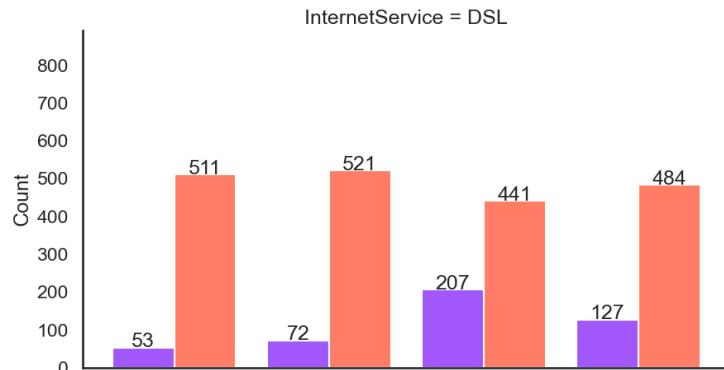
8. Bivariate Analysis of PaperlessBilling vs InternetService with Churn as Hue



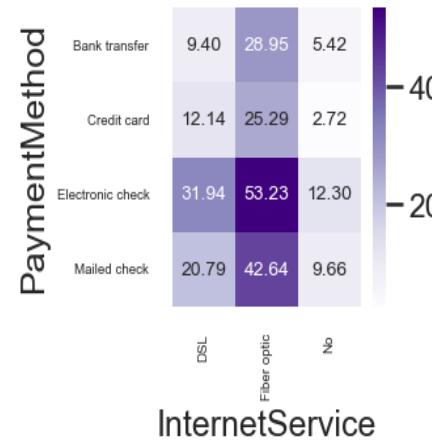
Insight:
 Customers with Fiber optic internet and with and without paperless billing service are high churners at 44.59% and 32.67% respectively.
 Customers with no internet service and no paperless billing option are low churners at 6.6%.



9. Bivariate Analysis of PaymentMethod vs InternetService with Churn as Hue



heatmap of Churn-rate for PaymentMethod and InternetService

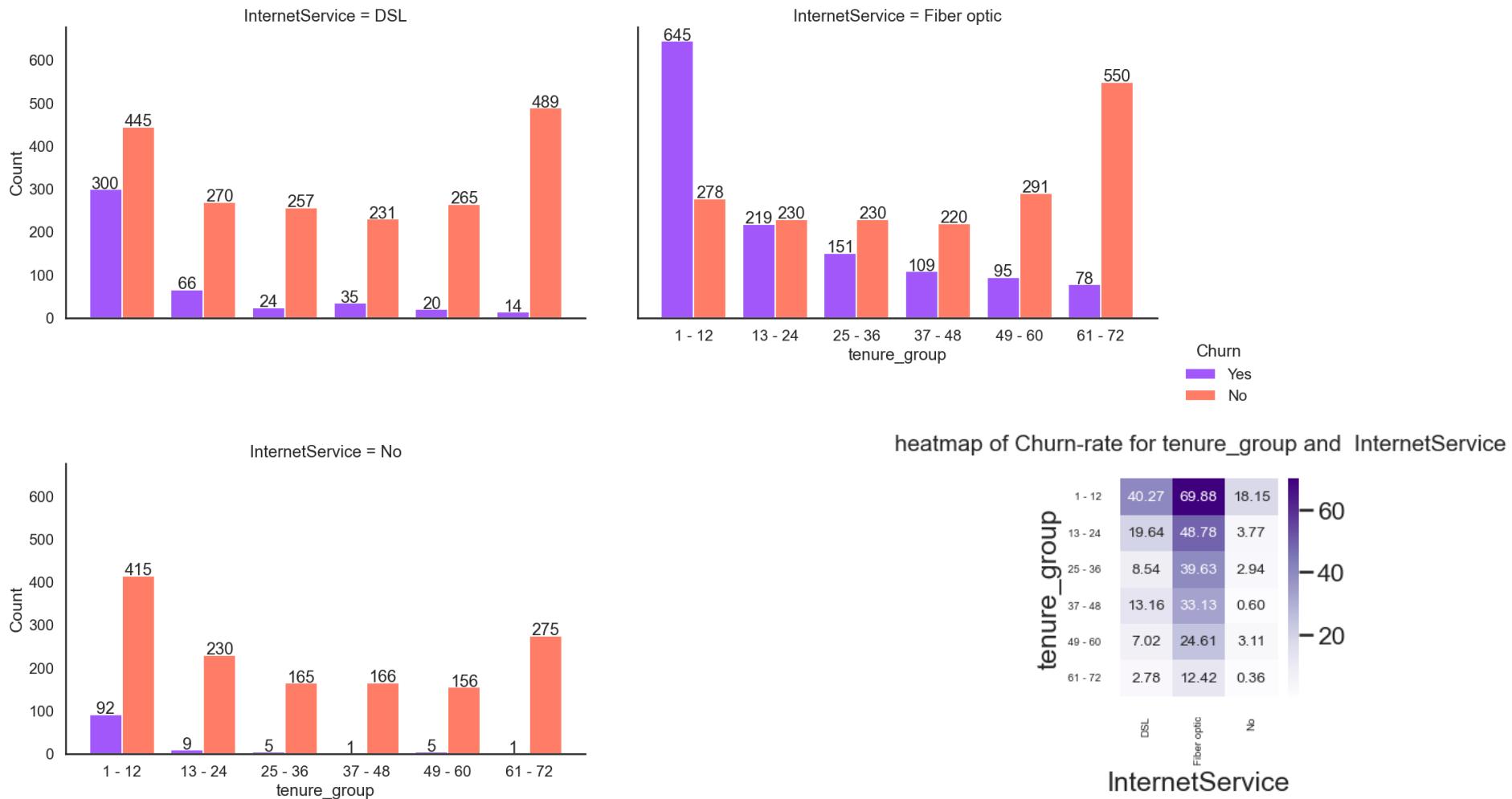


Insight:

Customers with Fiber optic internet and electronic check and mailed check payment options are high churners at 53.23% and 42.64% respectively.

Customers with no internet service and credit card payment option are low churners at 2.7%.

10. Bivariate Analysis of tenure_group vs InternetService with Churn as Hue

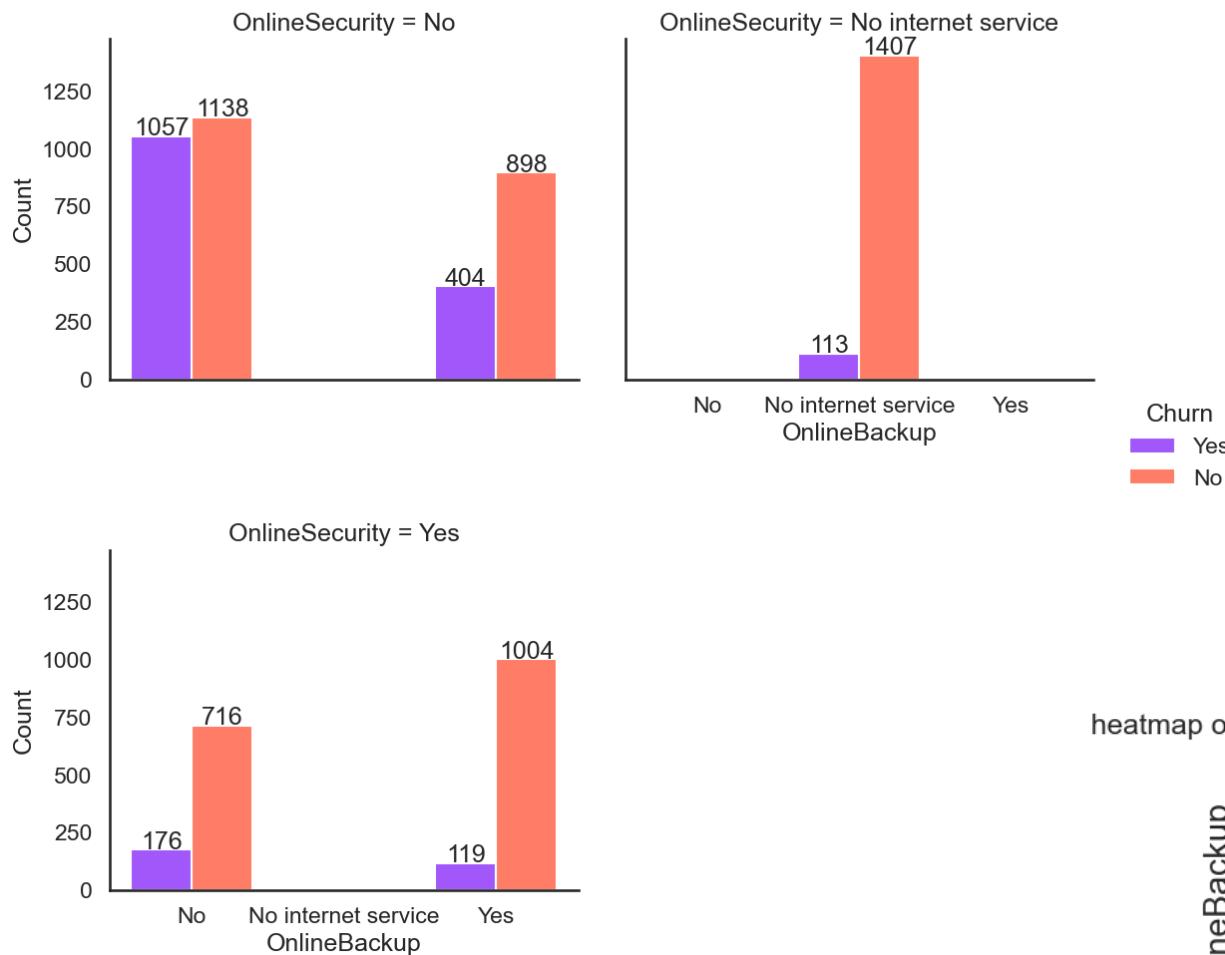


Insight:

Customers with Fiber optic internets service are churners in 1-12, 13-24, 25-36 and 37-48 months tenures with the highest at 69.8%. Customers with DSL internet service are high churners at 40.2% in 1-12 month tenure group.

As tenure increases the churn rate decreases and is the lowest at 0.36 % for the tenure 61-72 months and no internet service. Surprisingly, there is a 5% increase in churn rate from 25-36 tenure to 37-48 tenure for customers using DSL internet service..

1. Bivariate Analysis of OnlineBackup vs OnlineSecurity with Churn as Hue



Insight:

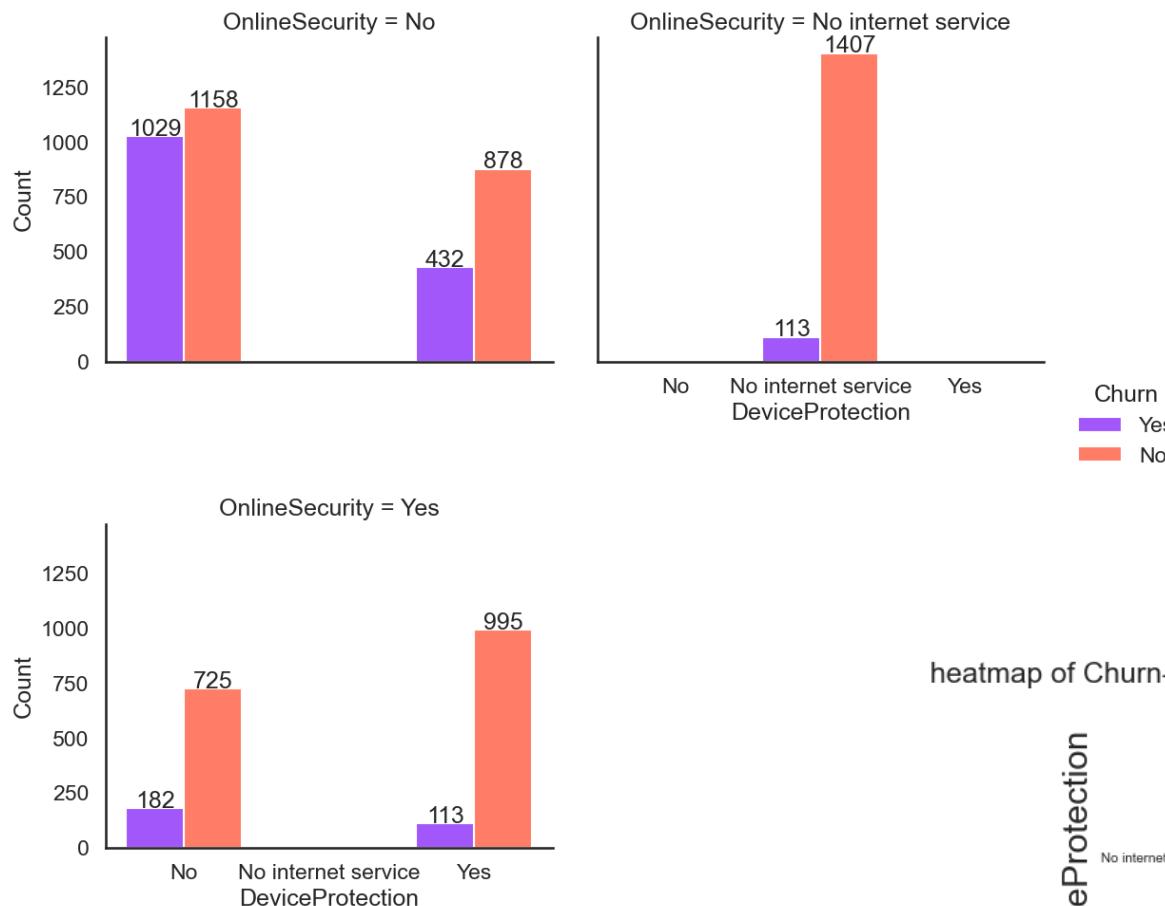
Customers with no online security, with and without online backup service are high churners at 48.15% and 31.03%.

Customers without internet service were low churners at 7.43%.

heatmap of Churn-rate for OnlineBackup and OnlineSecurity



2. Bivariate Analysis of DeviceProtection vs OnlineSecurity with Churn as Hue



Insight:

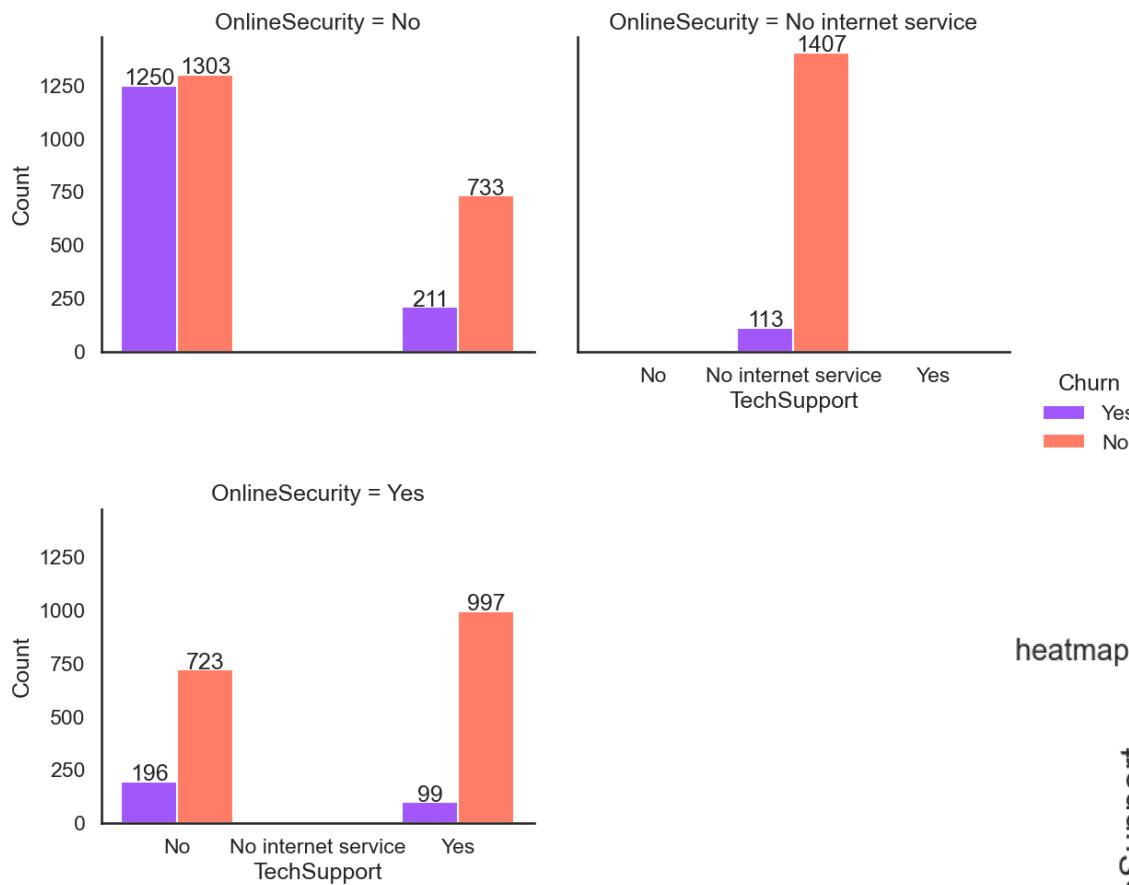
Customers with no online security, with and without Device Protection service are high churners at 33% and 47.05% .

DeviceProtection

heatmap of Churn-rate for DeviceProtection and OnlineSecurity



3. Bivariate Analysis of TechSupport vs OnlineSecurity with Churn as Hue



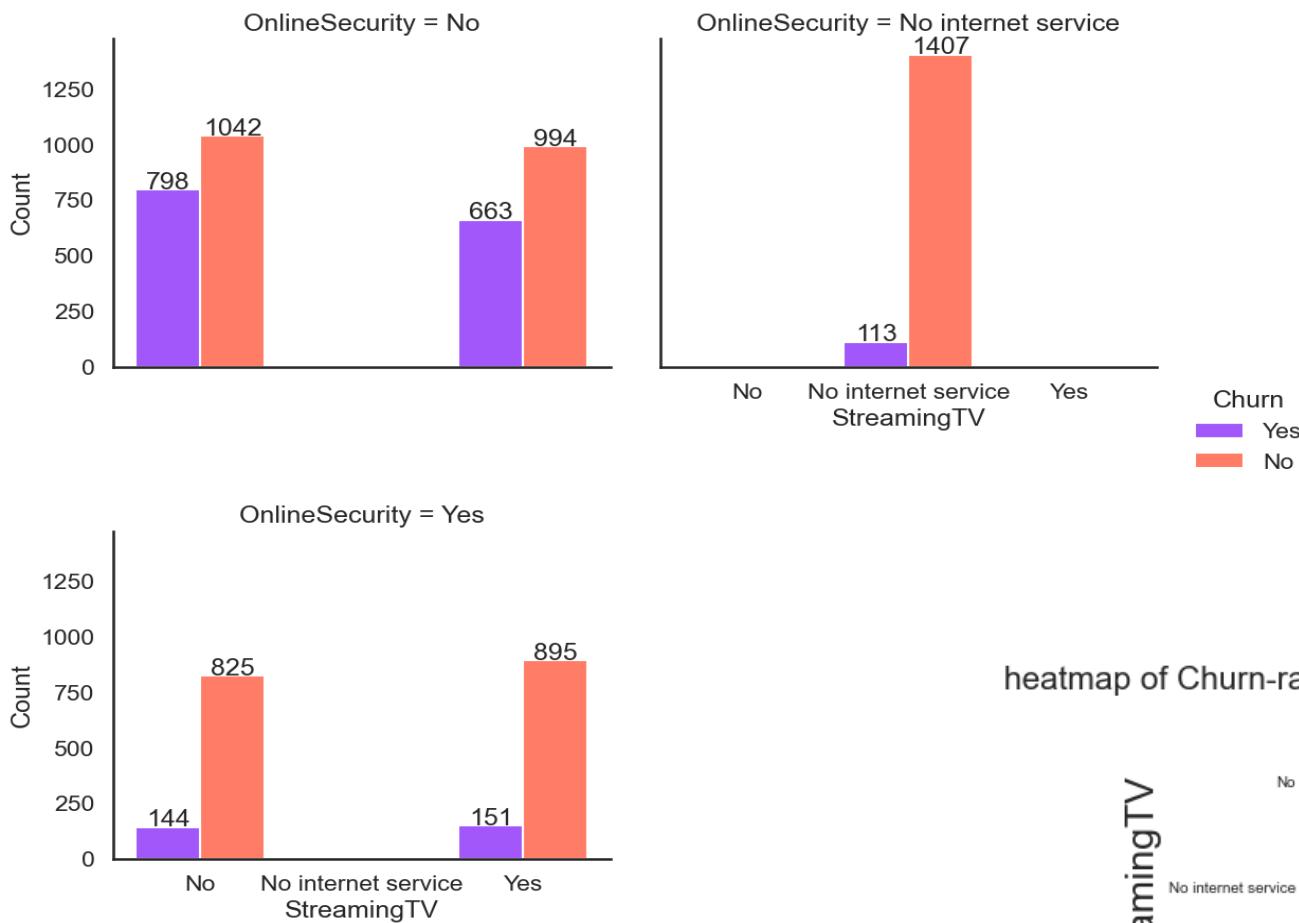
Insight:

Customers with no online security, with and without Tech Support service are high churners at 22.3% and 48.95%.

heatmap of Churn-rate for TechSupport and OnlineSecurity



4. Bivariate Analysis of StreamingTV vs OnlineSecurity with Churn as Hue



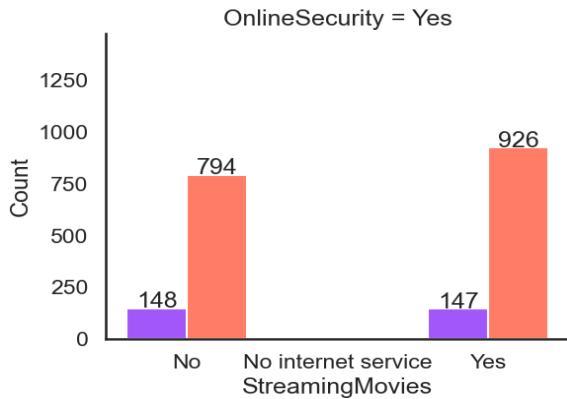
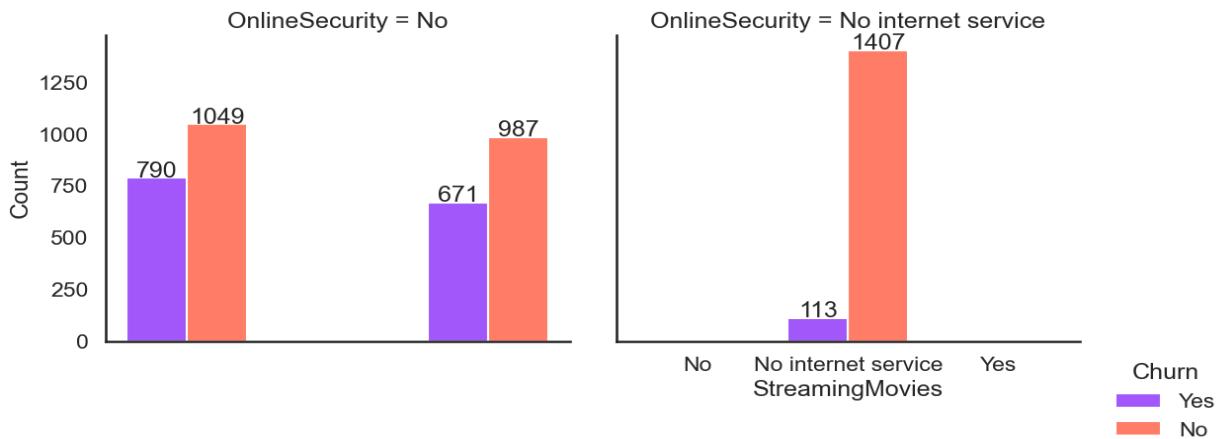
heatmap of Churn-rate for StreamingTV and OnlineSecurity



Insight:

Customers with no online security, with and without Stream TV service are high churners at 40% and 43.37%..

5. Bivariate Analysis of StreamingMovies vs OnlineSecurity with Churn as Hue

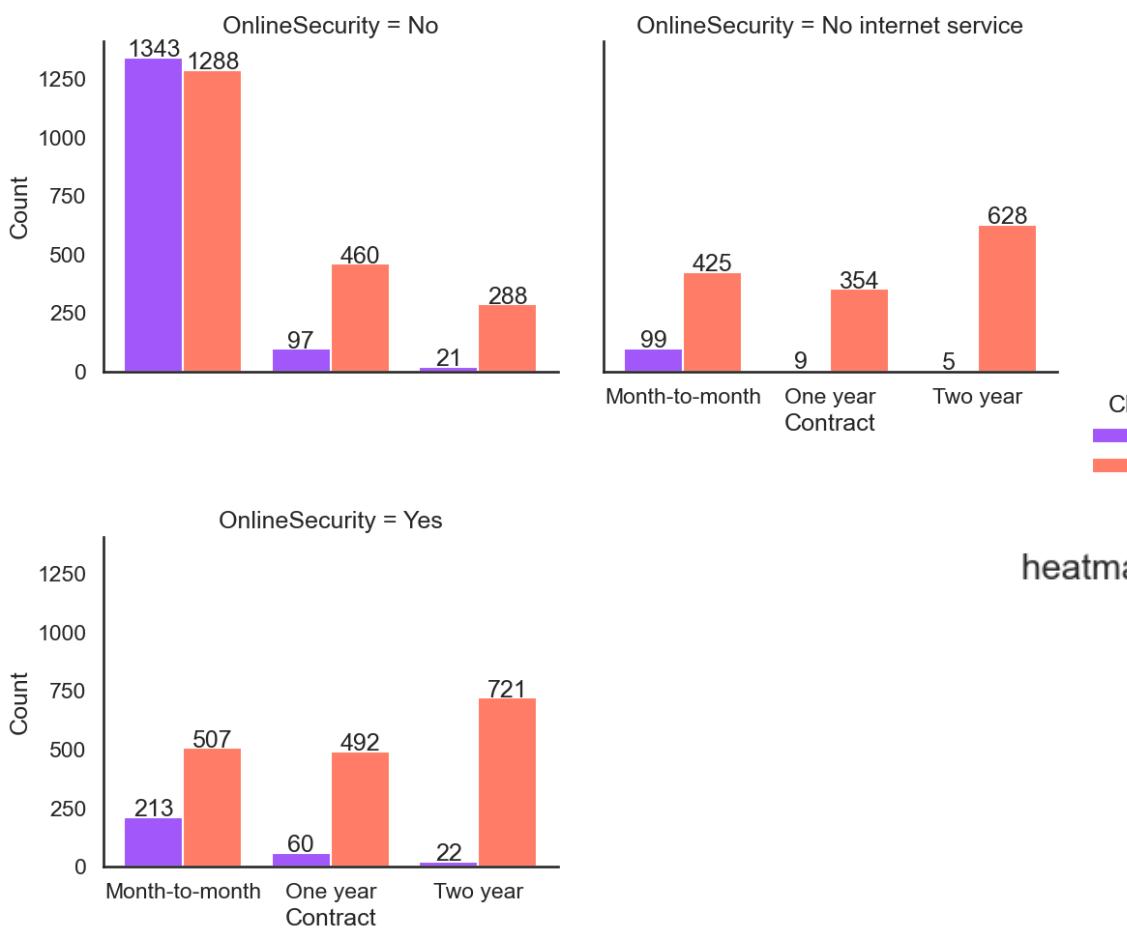


heatmap of Churn-rate for StreamingMovies and OnlineSecurity



Insight:
Customers with no online security, with and without Stream Movies service are high churners at 40.47% and 43%..

6. Bivariate Analysis of Contract vs OnlineSecurity with Churn as Hue



Insight: Customers having a month to month contract, with and without online security are high churners at 29.5% and 51.05% respectively. Customers with two year contracts are low churners , with the lowest being no internet service with 0.79%..

heatmap of Churn-rate for Contract and OnlineSecurity



7. Bivariate Analysis of PaperlessBilling vs OnlineSecurity with Churn as Hue



heatmap of Churn-rate for PaperlessBilling and OnlineSecurity

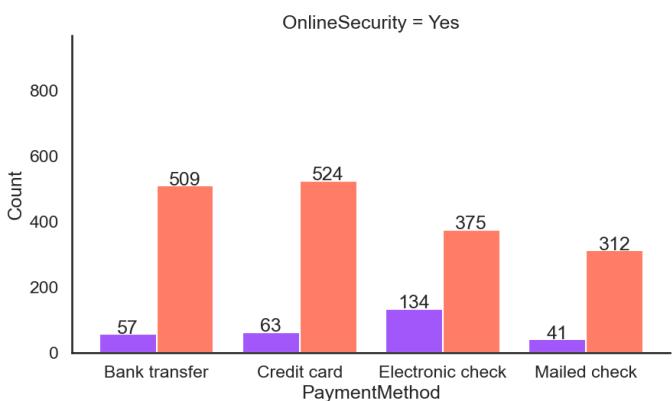
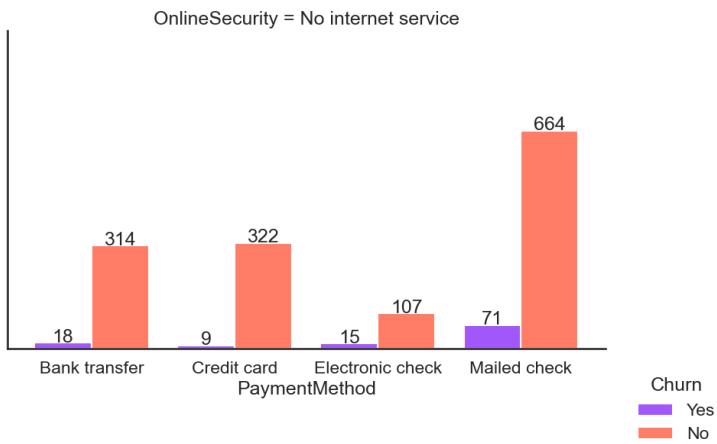
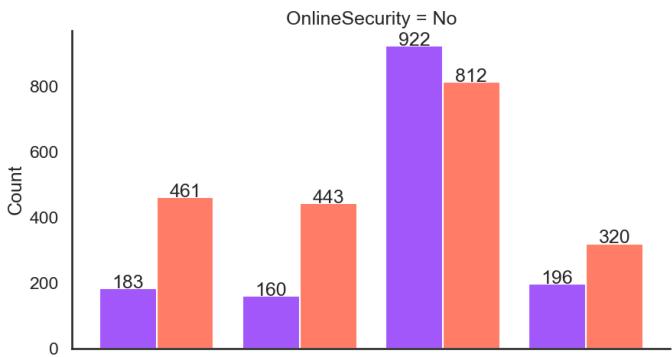


Insight:

Customers with no online security, with and without Paperless Billing service are high churners at 45.6% and 31.7%.

Customers with no internet service and no paperless billing option are low churners at 6.6%.

8. Bivariate Analysis of PaymentMethod vs OnlineSecurity with Churn as Hue



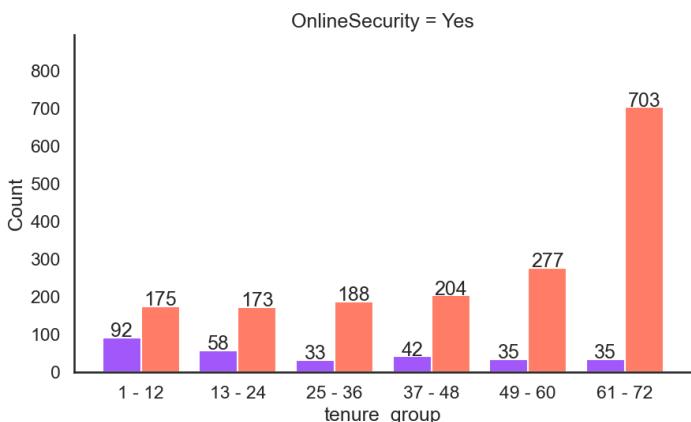
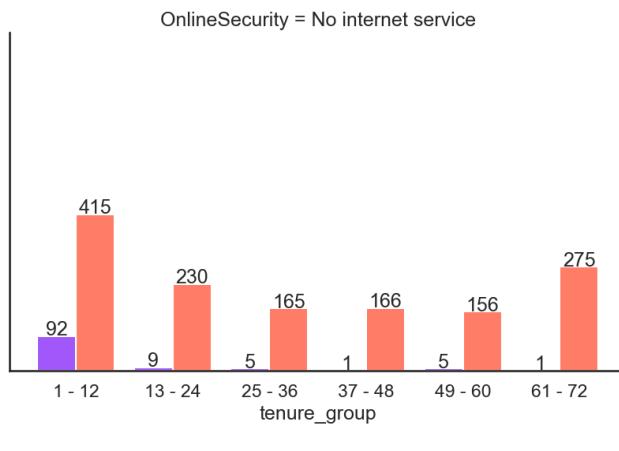
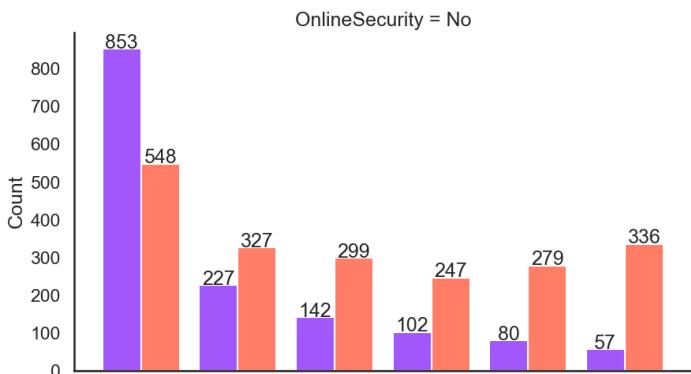
heatmap of Churn-rate for PaymentMethod and OnlineSecurity



Insight:

Customers with no online security, with Electronic and mailed check payment method are high churners at 53.17% and 37.9%. Customers with no internet service and credit card payment method are low churners at 2.72%.

9. Bivariate Analysis of tenure_group vs OnlineSecurity with Churn as Hue



heatmap of Churn-rate for tenure_group and OnlineSecurity

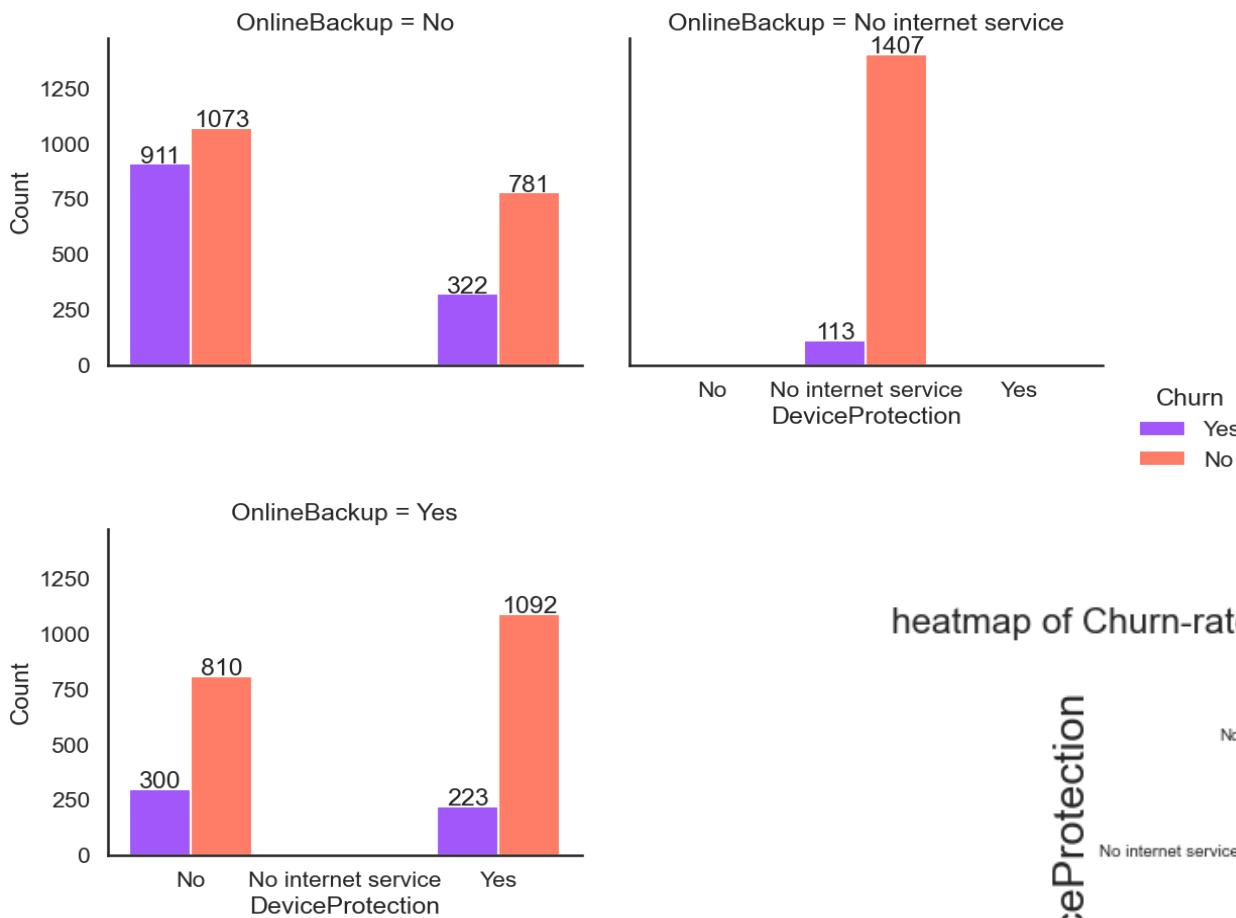


Insight:

Customers with no online Security and belonging to 1-12,13-24,25-36,37-48 tenure groups are high churners. Customers with no internet service are low churners.

Customers with Online security and 1-12 tenure group are high churners with 34.46%..

1. Bivariate Analysis of DeviceProtection vs OnlineBackup with Churn as Hue

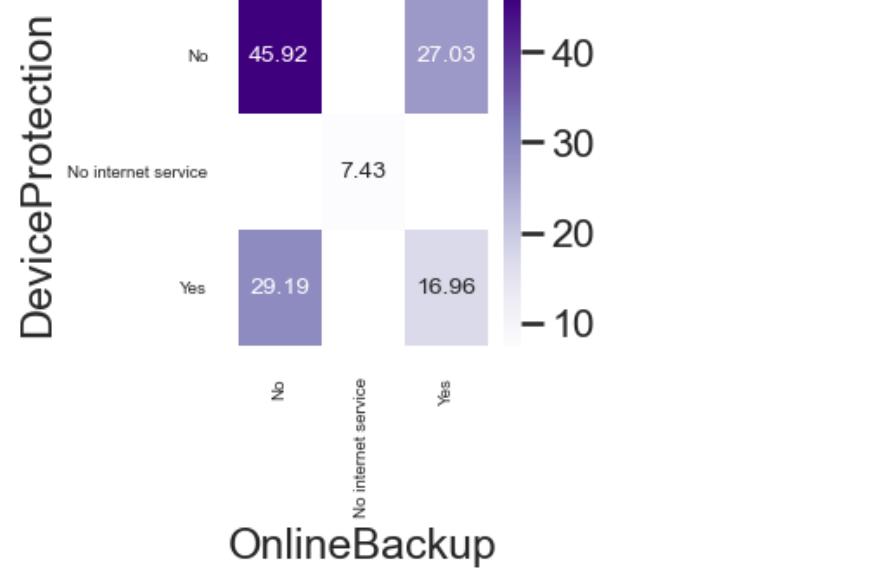


Insight:

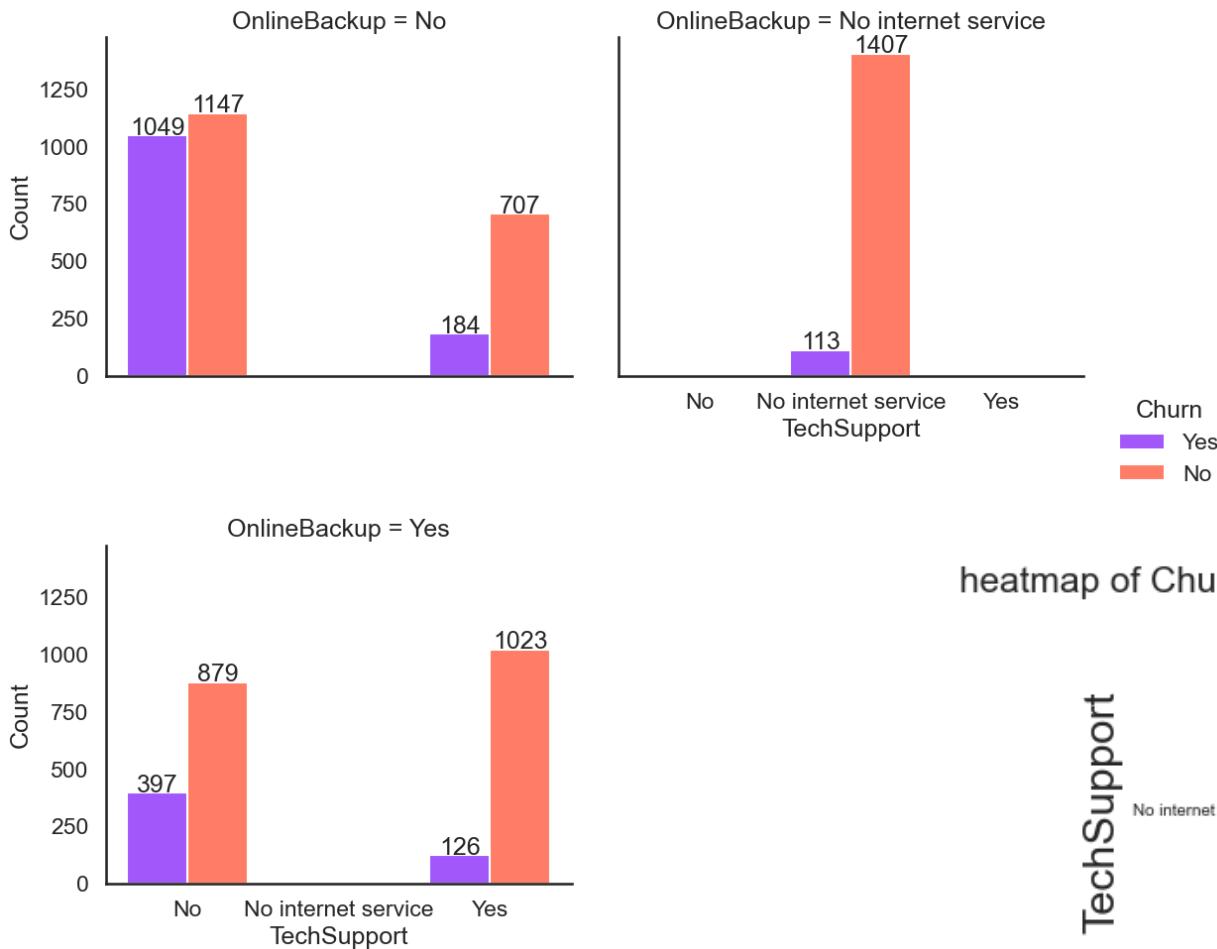
Customers with no online backup, with and without Device Protection service are high churners at 29.19% and 45.9%.

Customers without internet service were low churners at 7.43%..

heatmap of Churn-rate for DeviceProtection and OnlineBackup

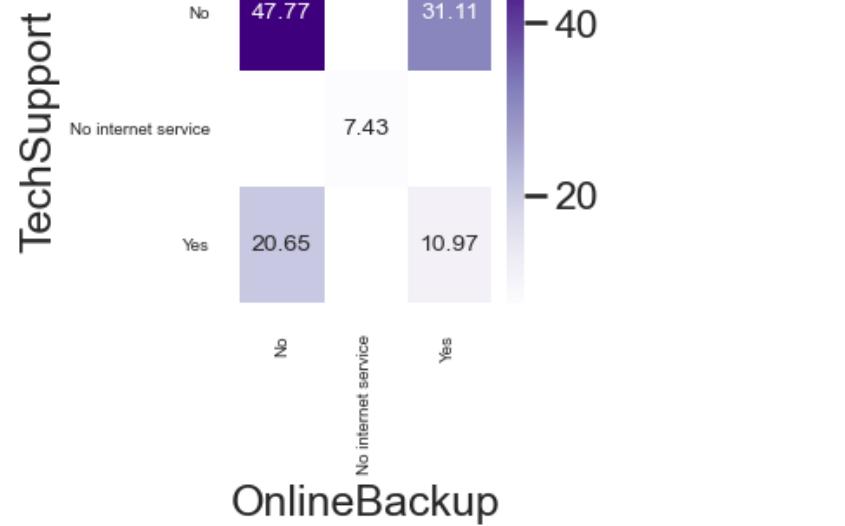


2. Bivariate Analysis of TechSupport vs OnlineBackup with Churn as Hue

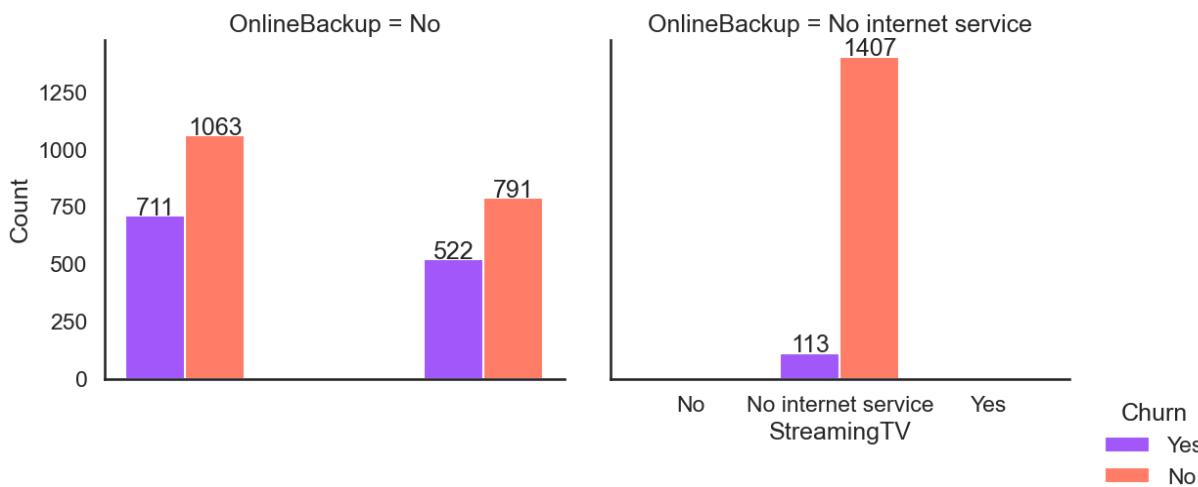


Insight: Customers with no online backup, with and without Tech Support service are high churners at 20.65% and 47.77%..

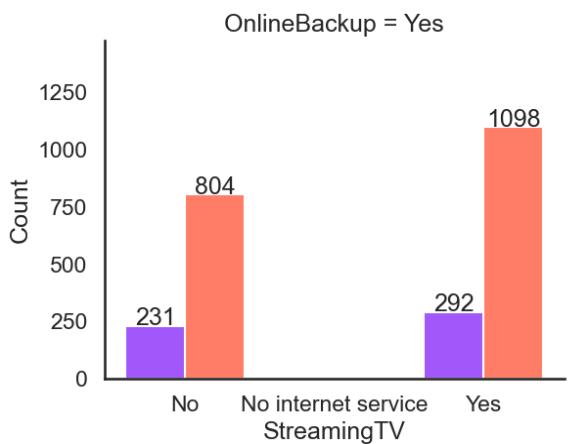
heatmap of Churn-rate for TechSupport and OnlineBackup



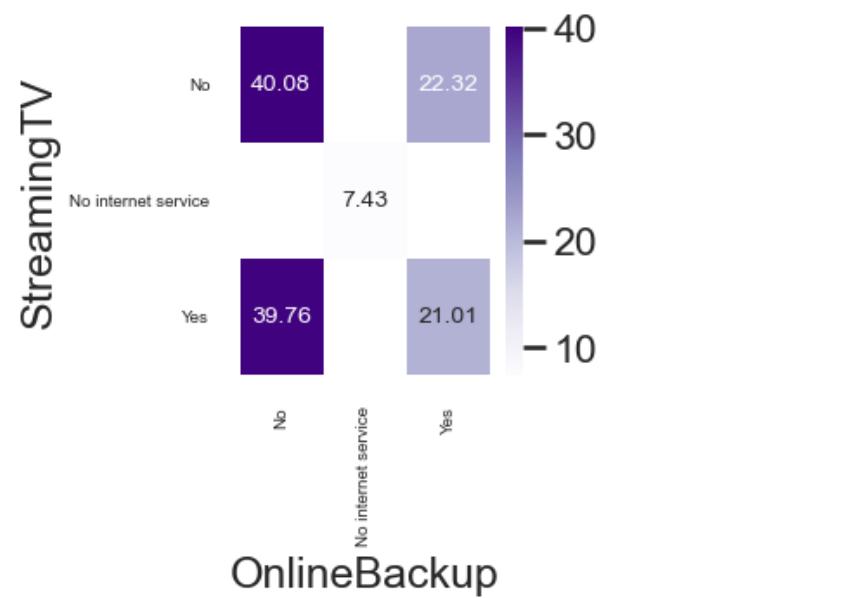
3. Bivariate Analysis of StreamingTV vs OnlineBackup with Churn as Hue



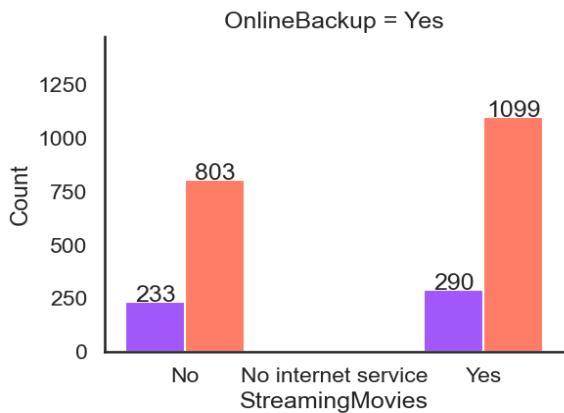
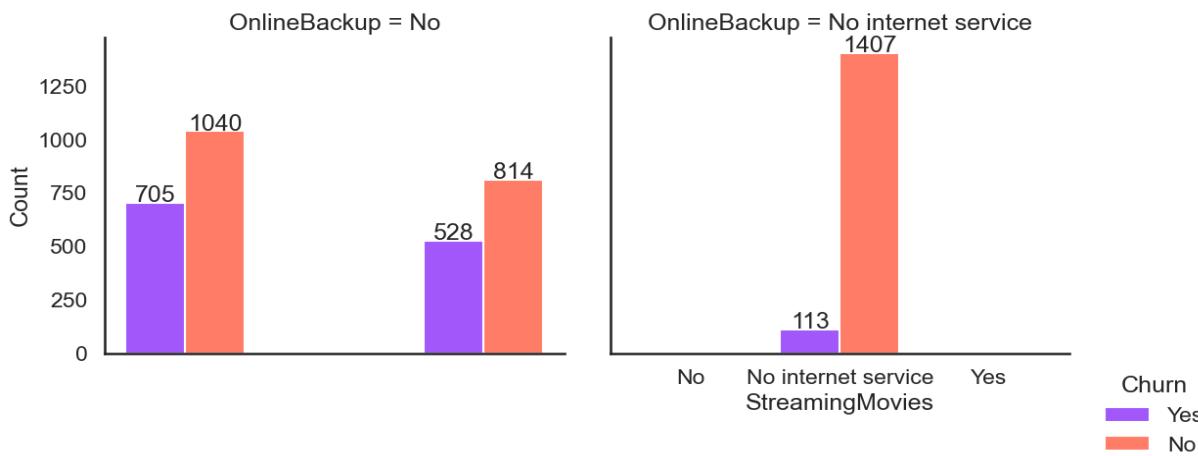
Insight:
Customers with no online backup, with and without Stream TV service are high churners at 40% and 40%..



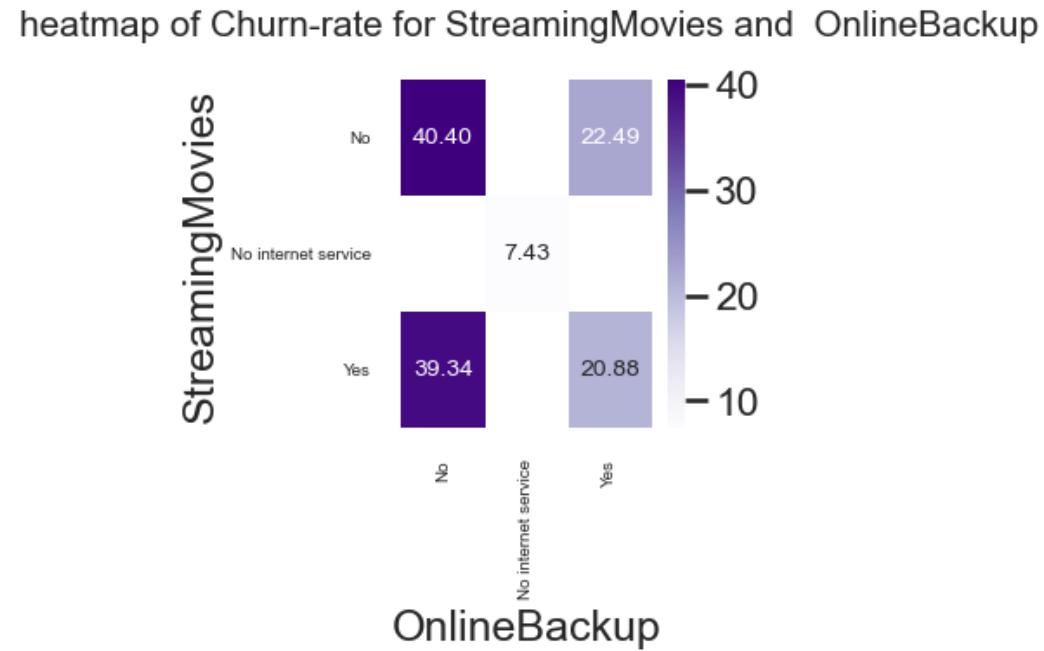
heatmap of Churn-rate for StreamingTV and OnlineBackup



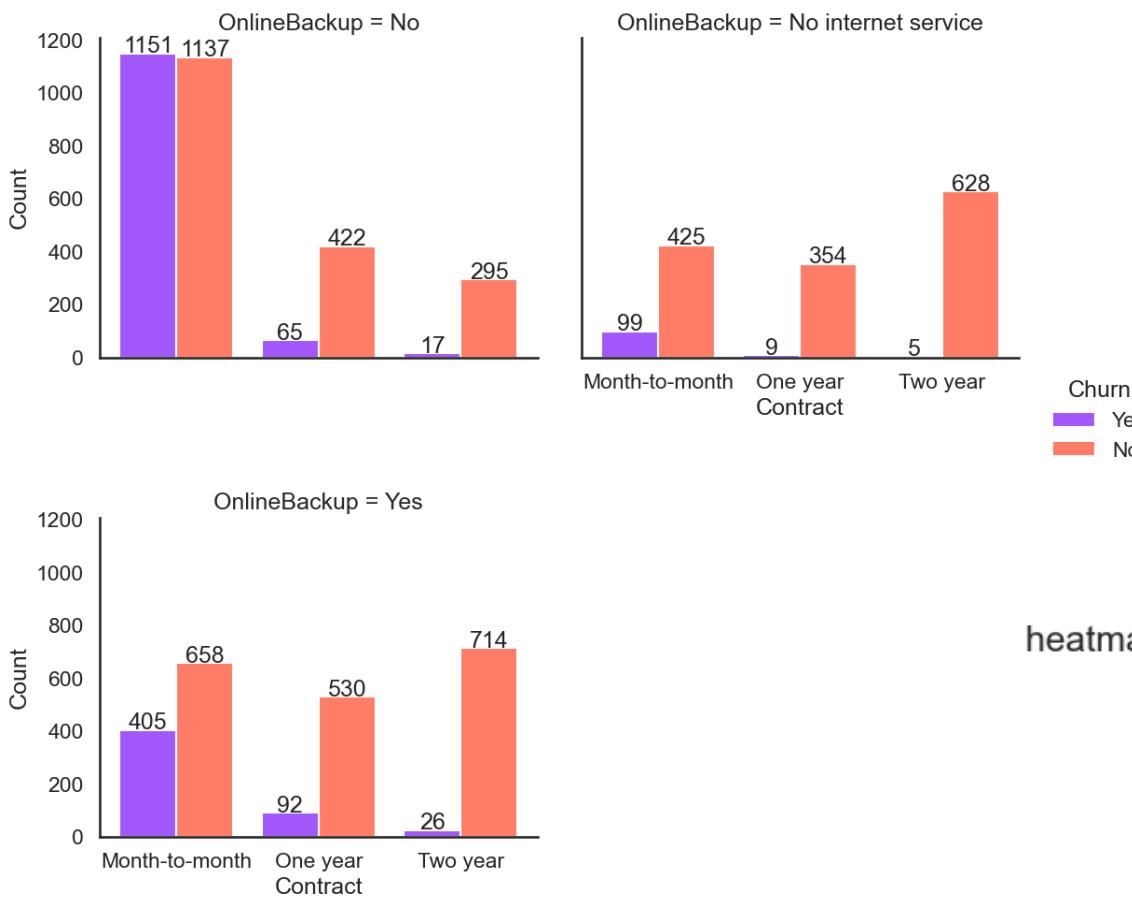
4. Bivariate Analysis of StreamingMovies vs OnlineBackup with Churn as Hue



Insight: Customers with no online backup, with and without Stream Movies service are high churners at 39.3% and 40.4%..



5. Bivariate Analysis of Contract vs OnlineBackup with Churn as Hue

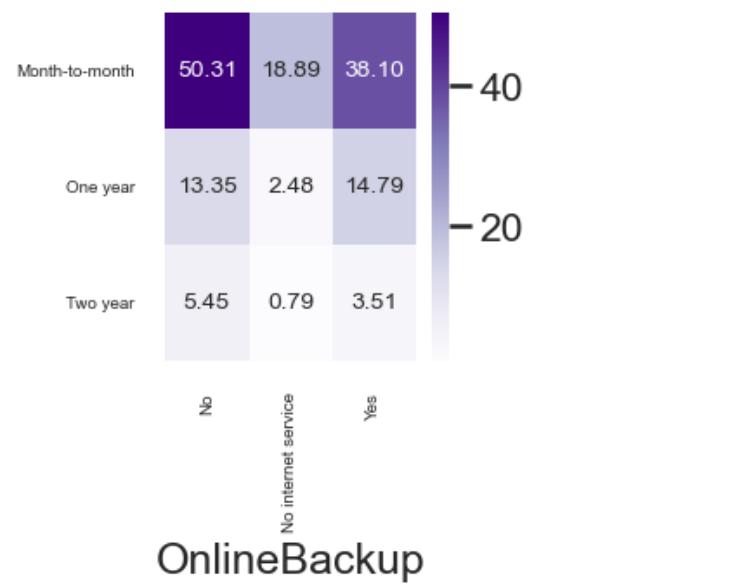


Insight:

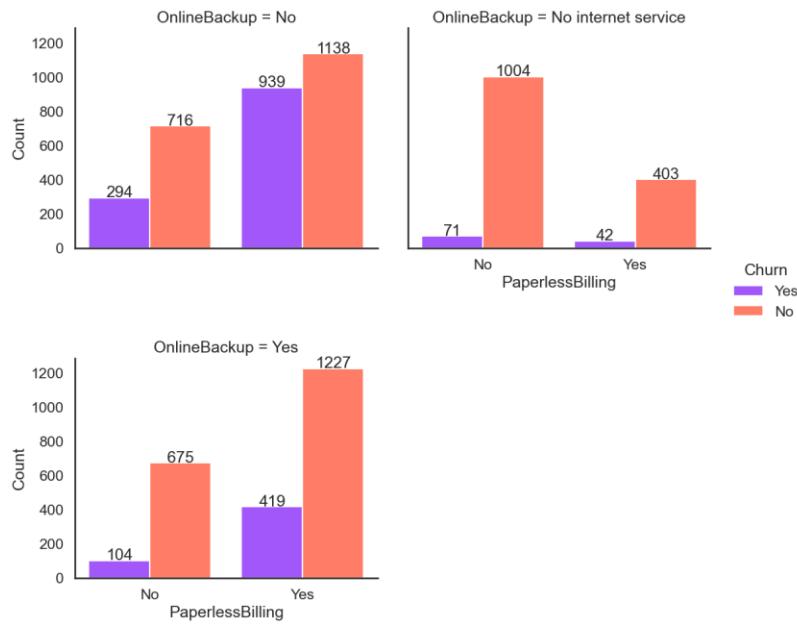
Customers having a month to month contract, with and without online backup are high churners at 38.1% and 50.3% respectively.

Customers with two year contracts are low churners , with the lowest being no internet service with 0.79%..

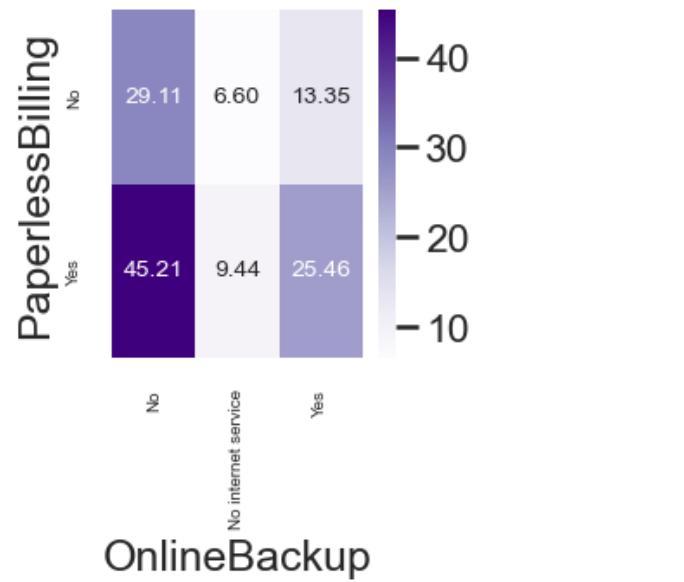
heatmap of Churn-rate for Contract and OnlineBackup



6. Bivariate Analysis of PaperlessBilling vs OnlineBackup with Churn as Hue

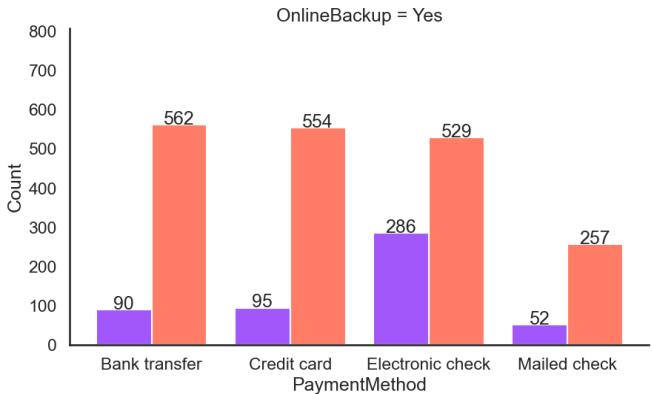
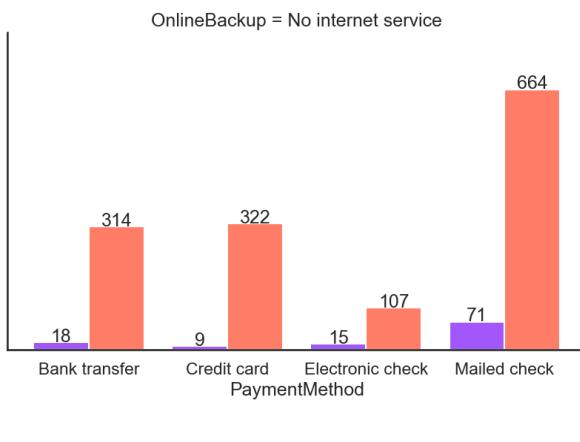
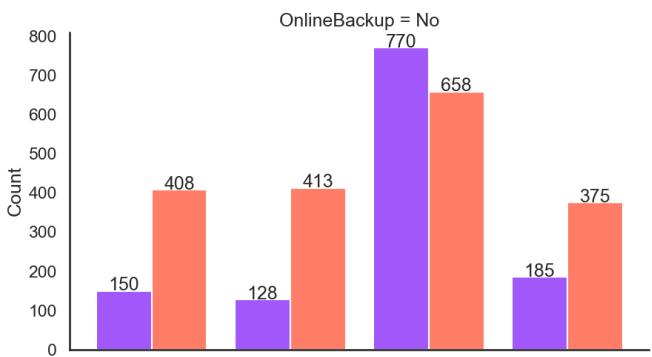


heatmap of Churn-rate for PaperlessBilling and OnlineBackup



Insight: Customers with no online backup, with and without Paperless Billing seem to have higher churn rates.

7. Bivariate Analysis of PaymentMethod vs OnlineBackup with Churn as Hue

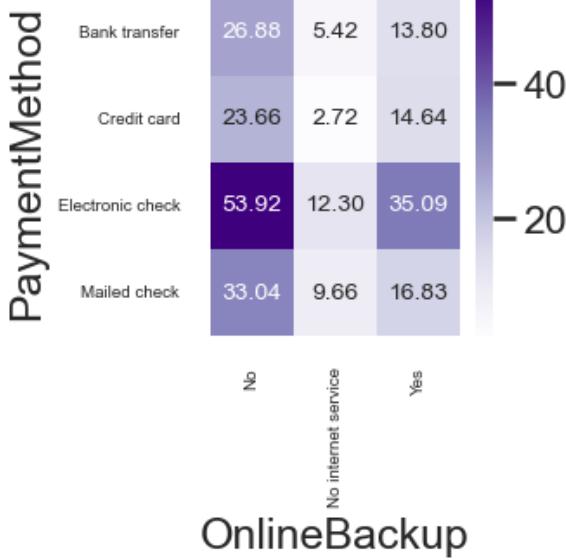


Insight:

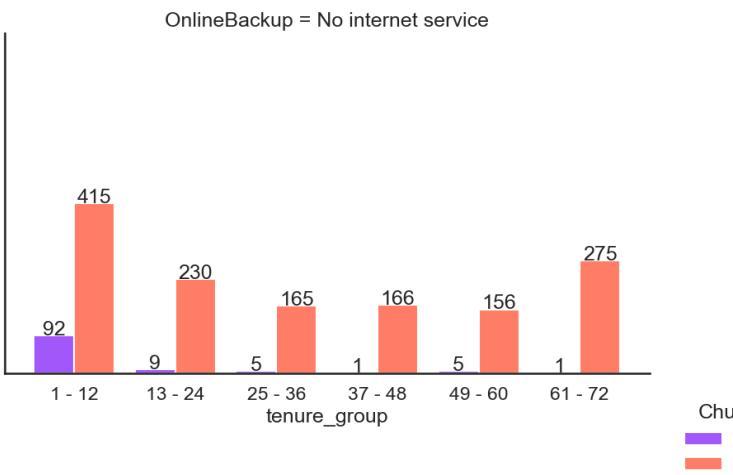
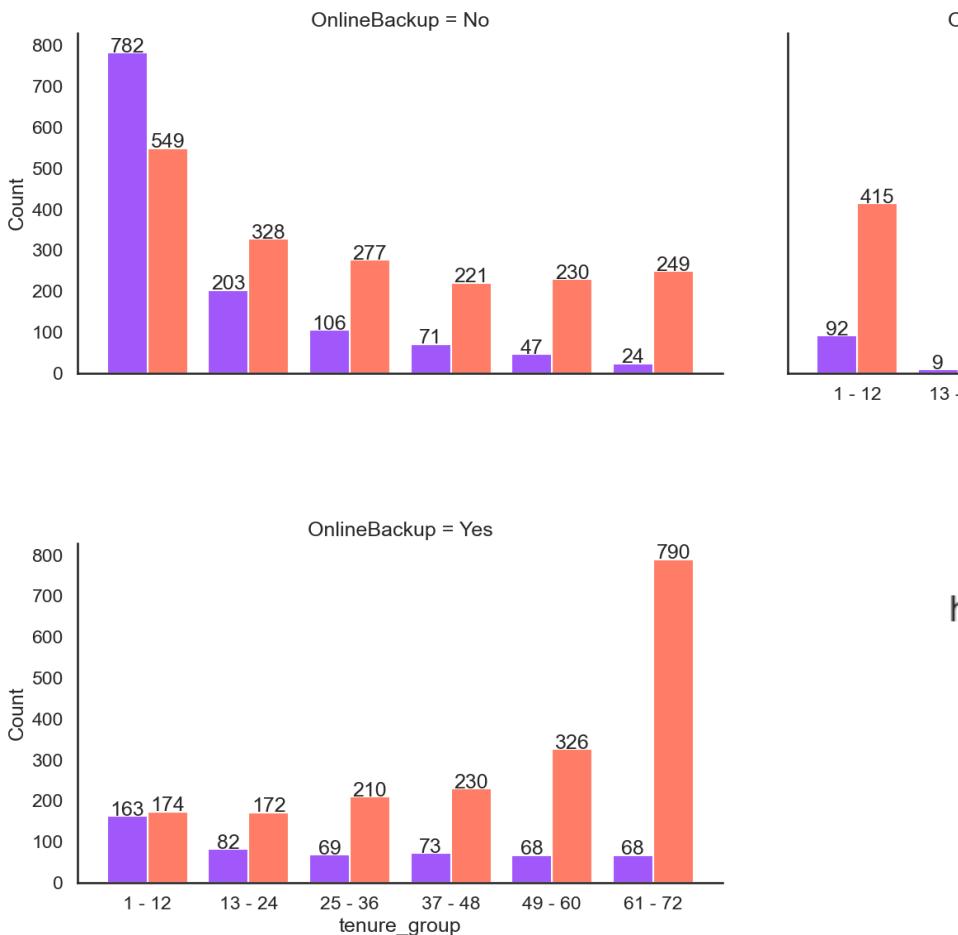
Customers with no online backup, with Electronic and mailed check payment method are high churners at 53.9% and 33.04%.

Customers with no internet service and credit card payment method are low churners at 2.72%.

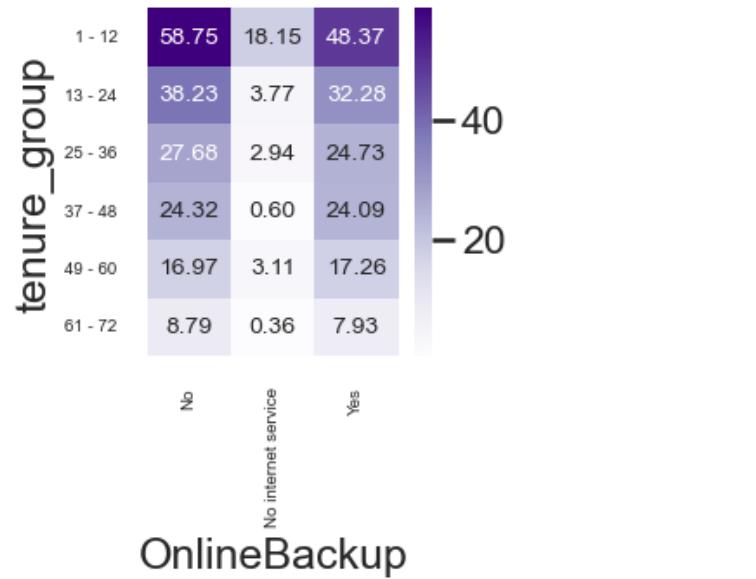
heatmap of Churn-rate for PaymentMethod and OnlineBackup



8. Bivariate Analysis of tenure_group vs OnlineBackup with Churn as Hue



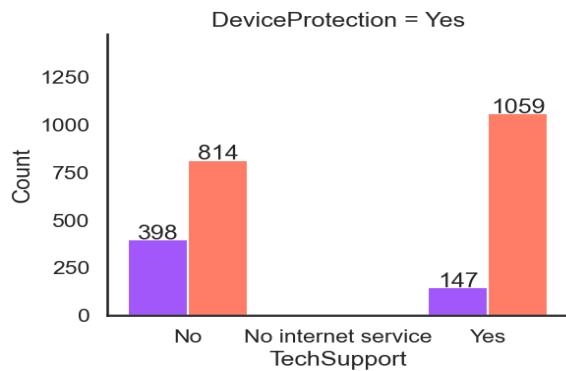
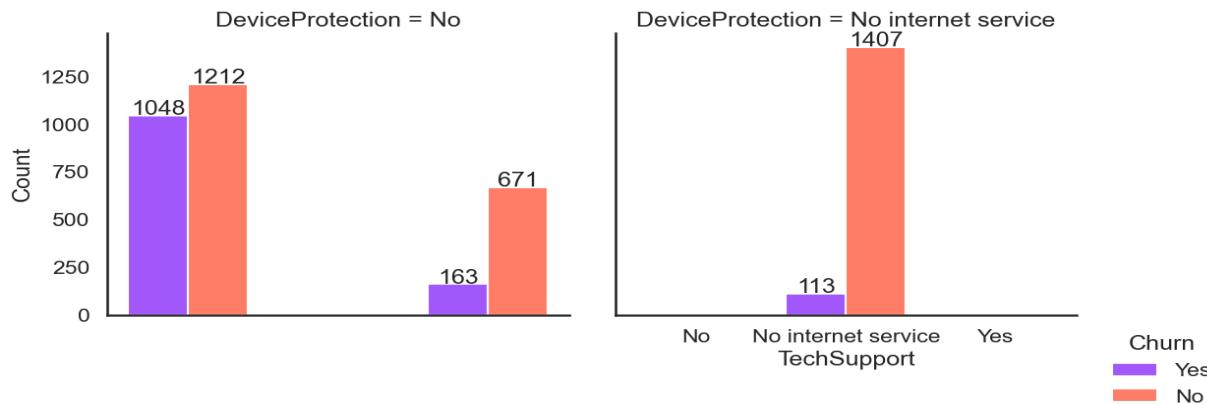
heatmap of Churn-rate for tenure_group and OnlineBackup



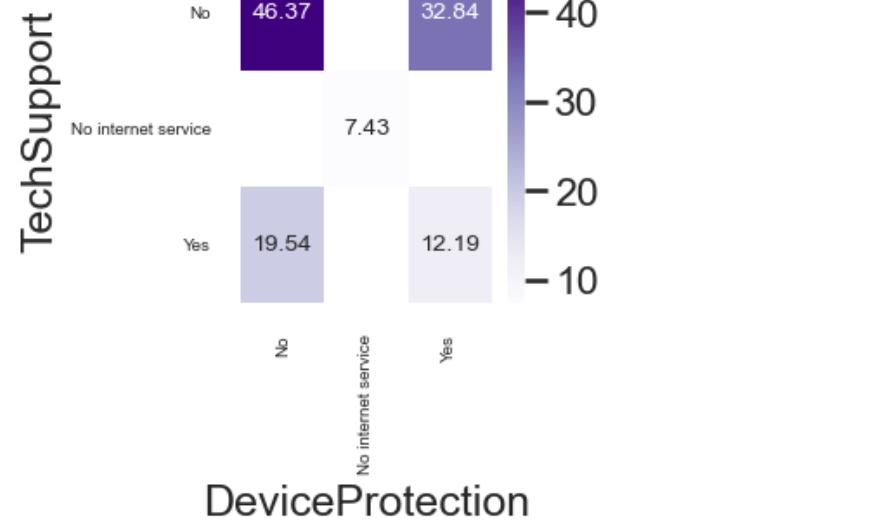
Insight: Customers with no online backup and belonging to 1-12,13-24,25-36,37-48 tenure groups are high churners. Customers with no internet service are low churners.

Customers with Online backup and 1-12,13-24 tenure group are high churners with 48.3% and 32.46%..

1. Bivariate Analysis of TechSupport vs DeviceProtection with Churn as Hue

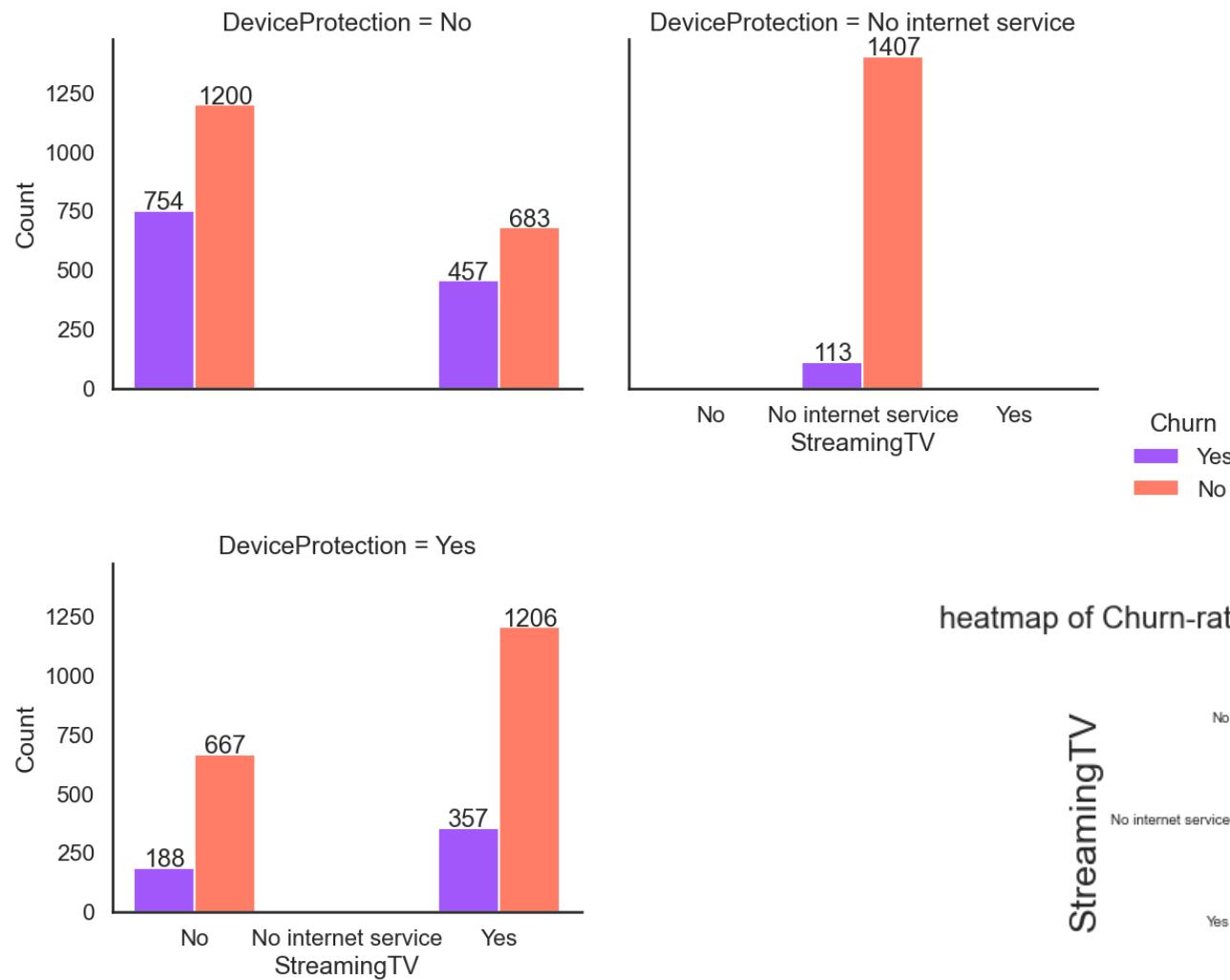


heatmap of Churn-rate for TechSupport and DeviceProtection



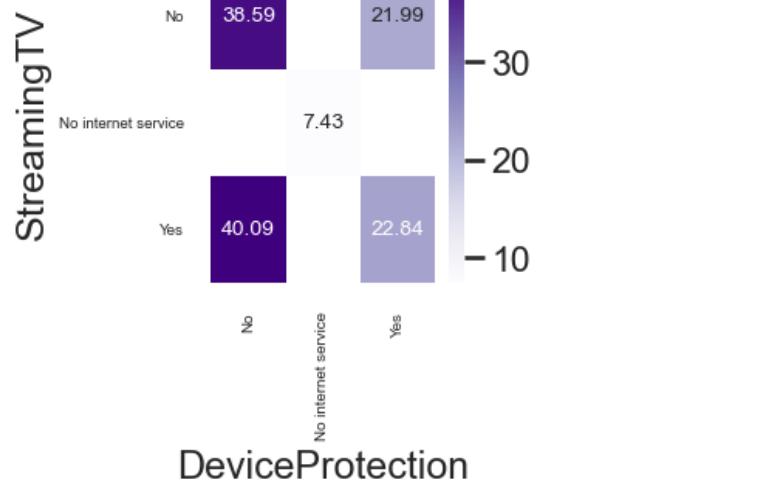
Insight: Customers with no TechSupport, with and without Device Support service are high churners at 32.8% and 46.37%..

2. Bivariate Analysis of StreamingTV vs DeviceProtection with Churn as Hue

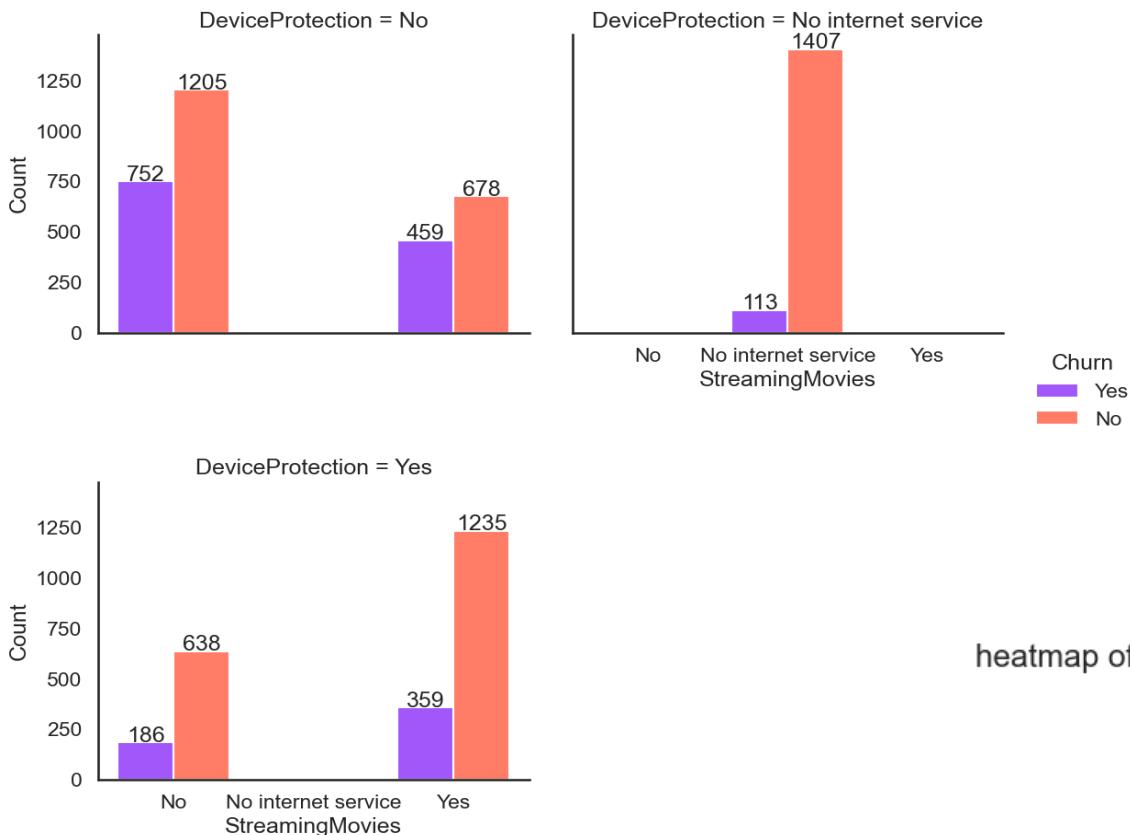


Insight: Customers with no Device Protection, with and without Streaming TV service are high churners at 40% and 38.5%..

heatmap of Churn-rate for StreamingTV and DeviceProtection



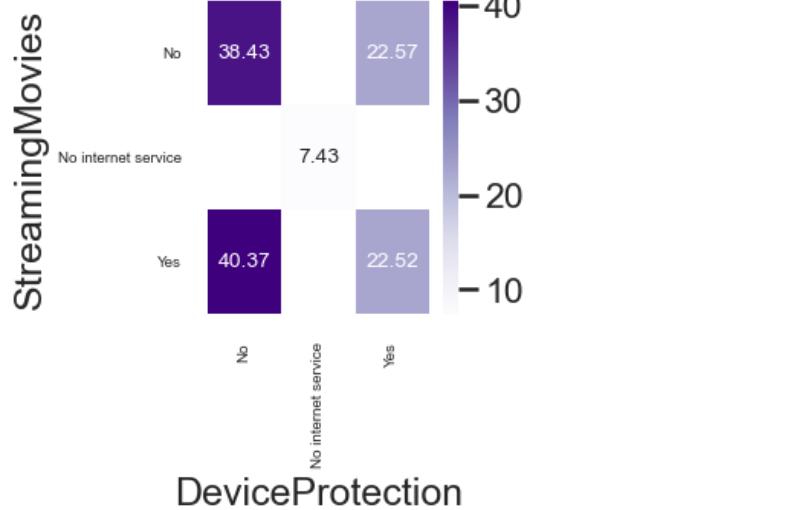
3. Bivariate Analysis of StreamingMovies vs DeviceProtection with Churn as Hue



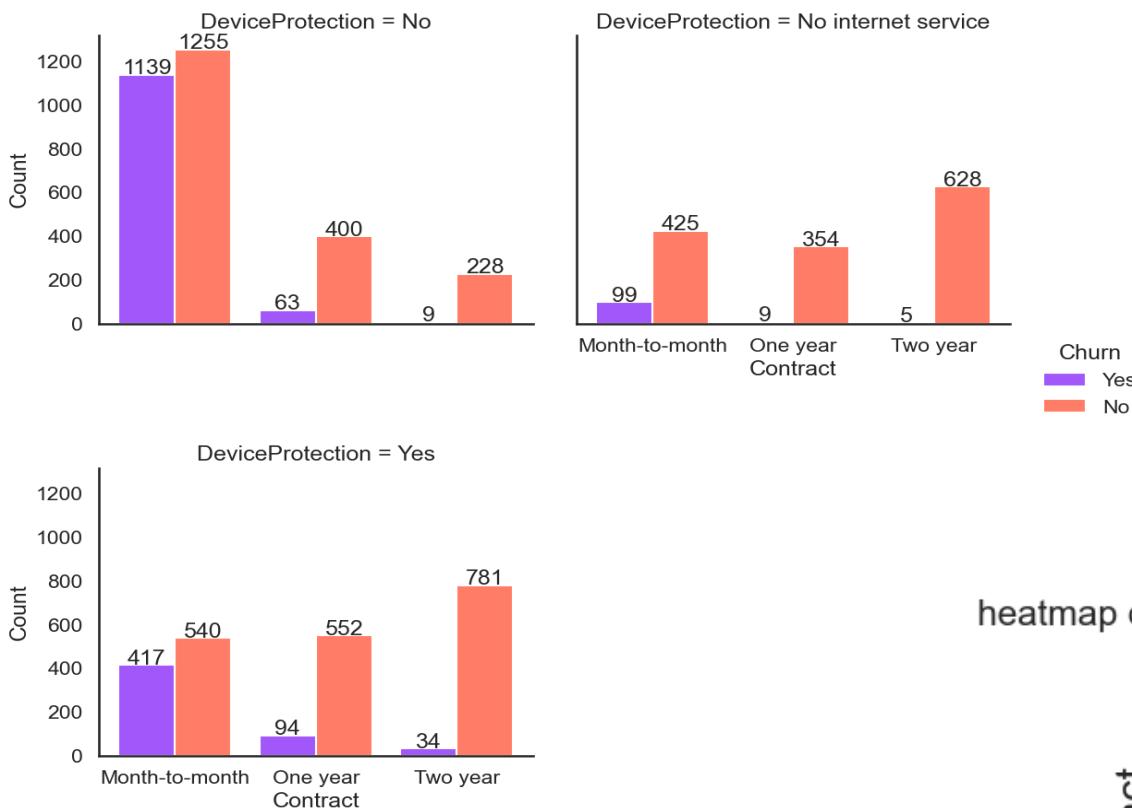
Insight:

Customers with no Device Protection ,with and without Streaming Movies service are high churners at 40.3% and 38.4%..

heatmap of Churn-rate for StreamingMovies and DeviceProtection



4. Bivariate Analysis of Contract vs DeviceProtection with Churn as Hue

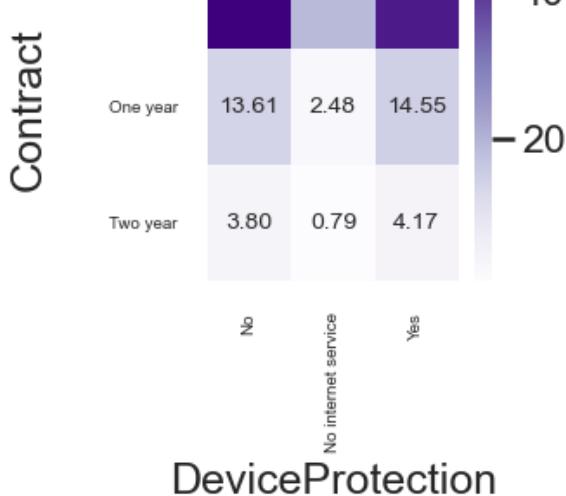


Insight:

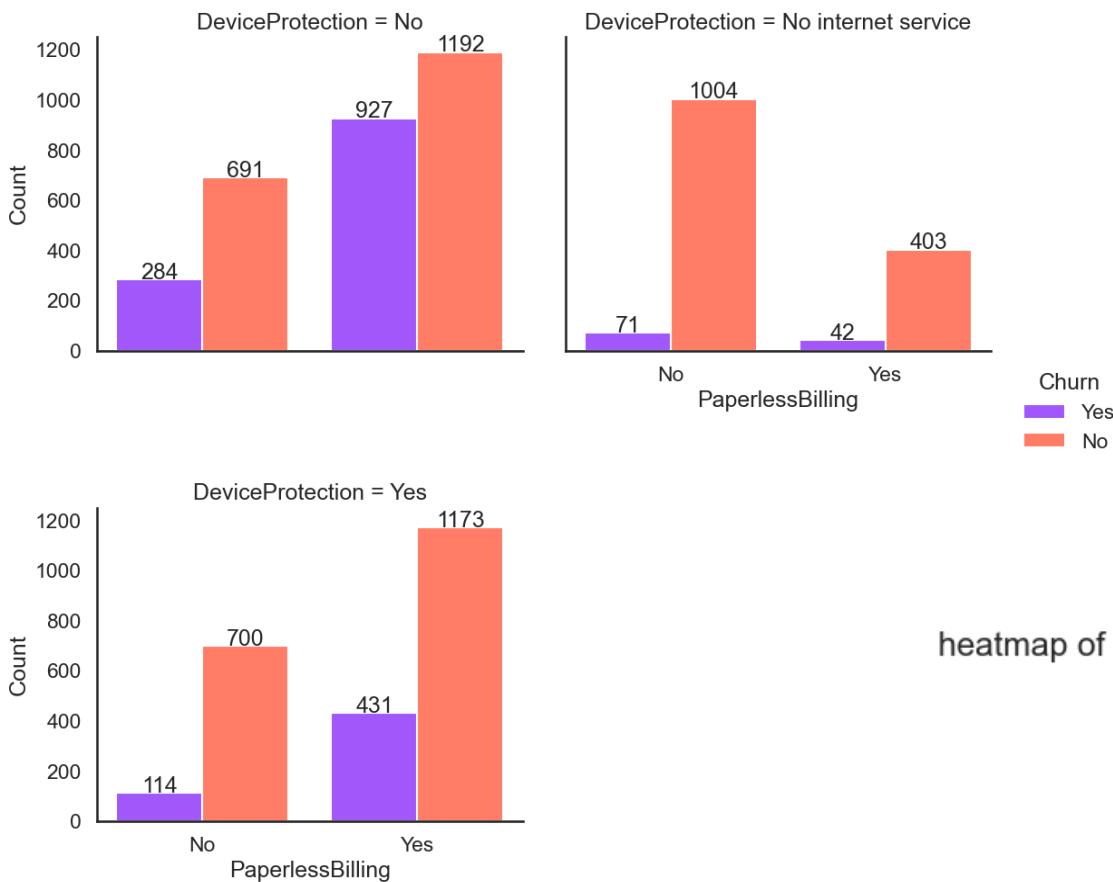
Customers having a month to month contract, with and without Device Protection are high churners at 43.5% and 47.5% respectively.

Customers with two year contracts are low churners , with the lowest being no internet service with 0.79%..

heatmap of Churn-rate for Contract and DeviceProtection



5. Bivariate Analysis of PaperlessBilling vs DeviceProtection with Churn as Hue

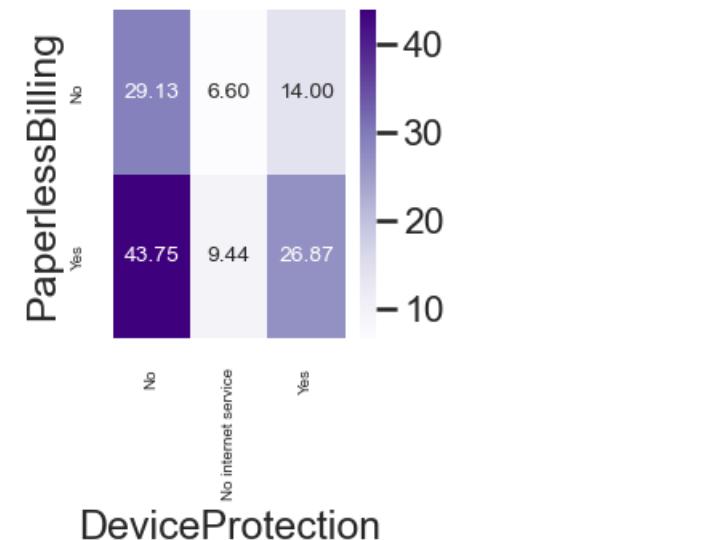


Insight:

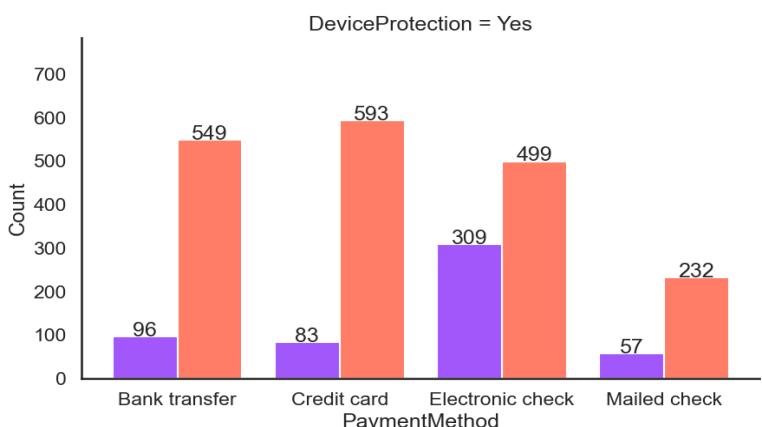
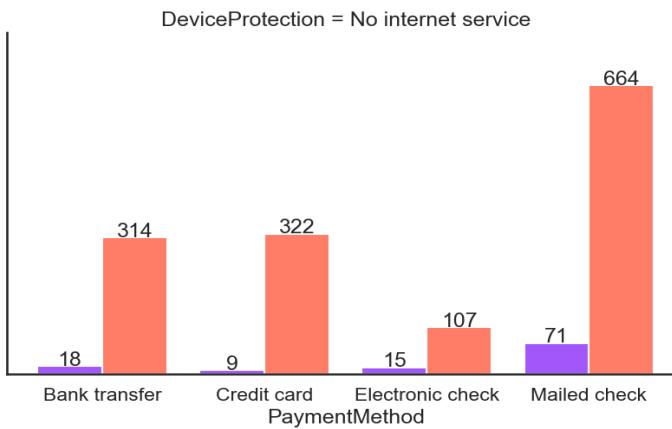
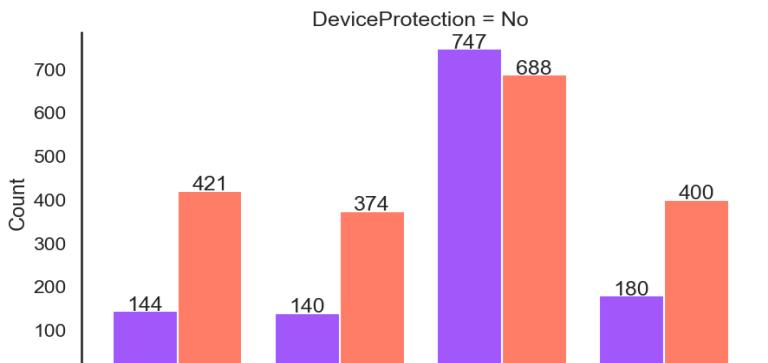
Customers with no Device Protection, with and without Paperless Billing service are high churners at 43.75% and 29.11%.

Customers with no internet service and no paperless billing option are low churners at 6.6%.

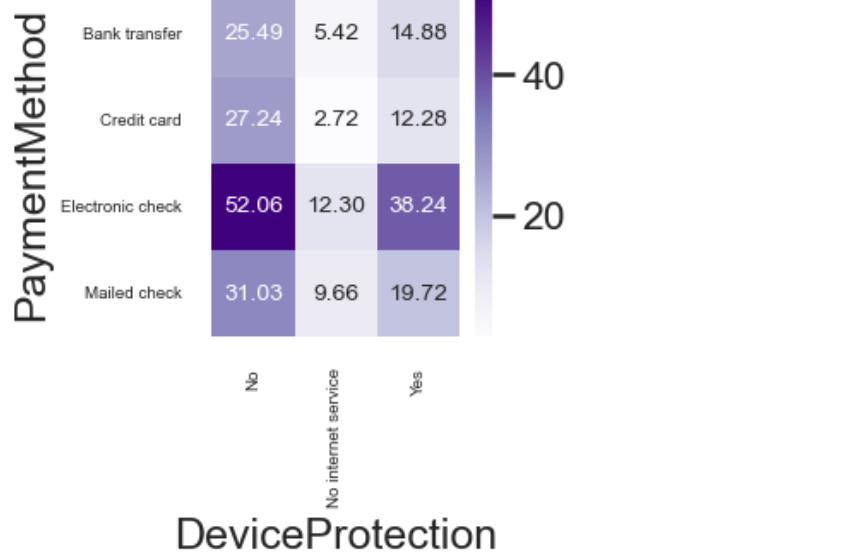
heatmap of Churn-rate for PaperlessBilling and DeviceProtection



6. Bivariate Analysis of PaymentMethod vs DeviceProtection with Churn as Hue



heatmap of Churn-rate for PaymentMethod and DeviceProtection

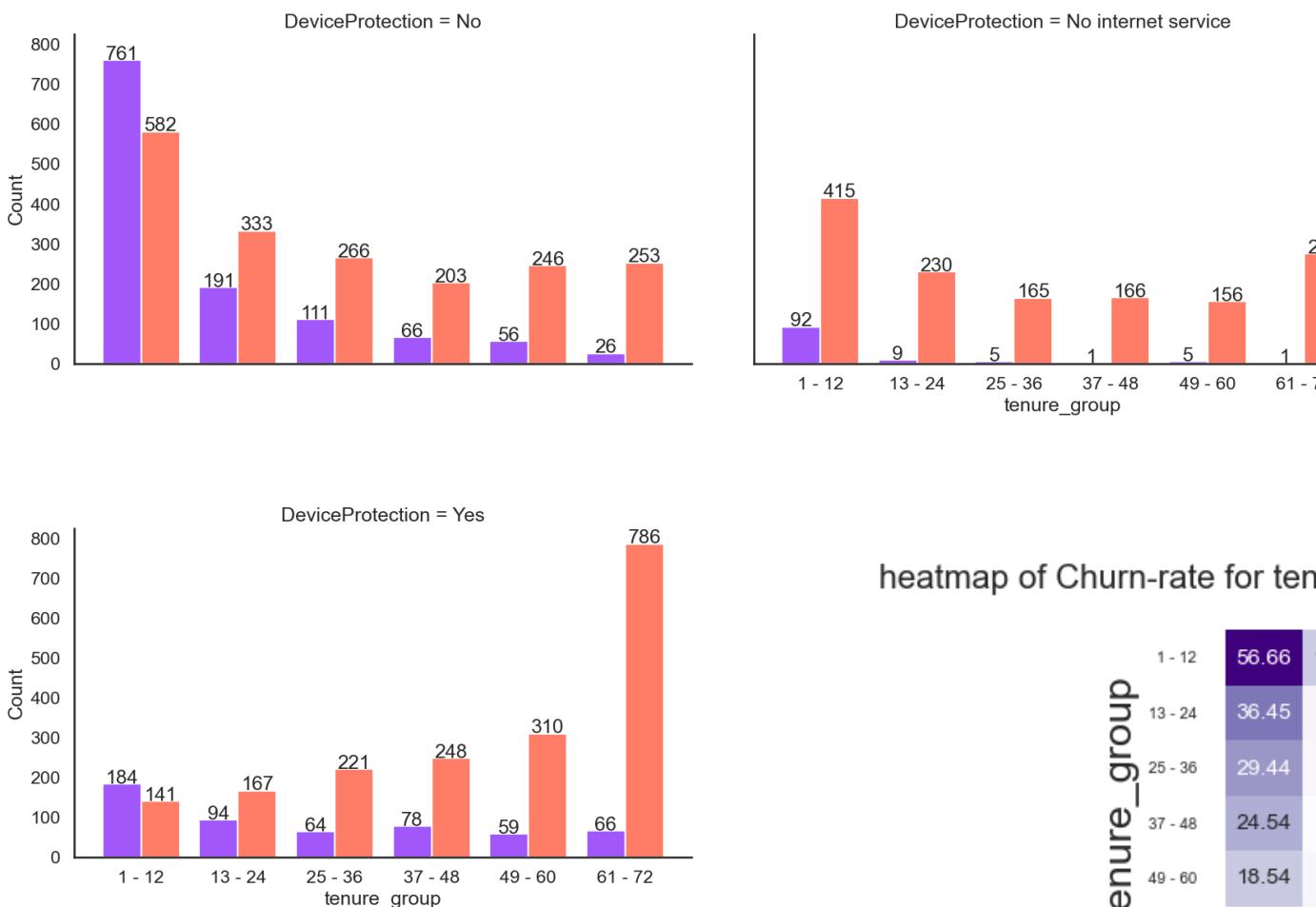


Insight:

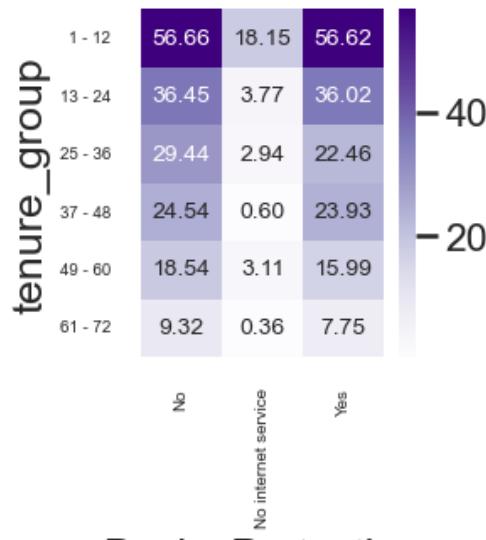
Customers with no Device Protection, with Electronic and mailed check payment method are high churners at 52.09% and 31.03%.

Customers with no internet service and credit card payment method are low churners at 2.72%.

7. Bivariate Analysis of tenure_group vs DeviceProtection with Churn as Hue



heatmap of Churn-rate for tenure_group and DeviceProtection



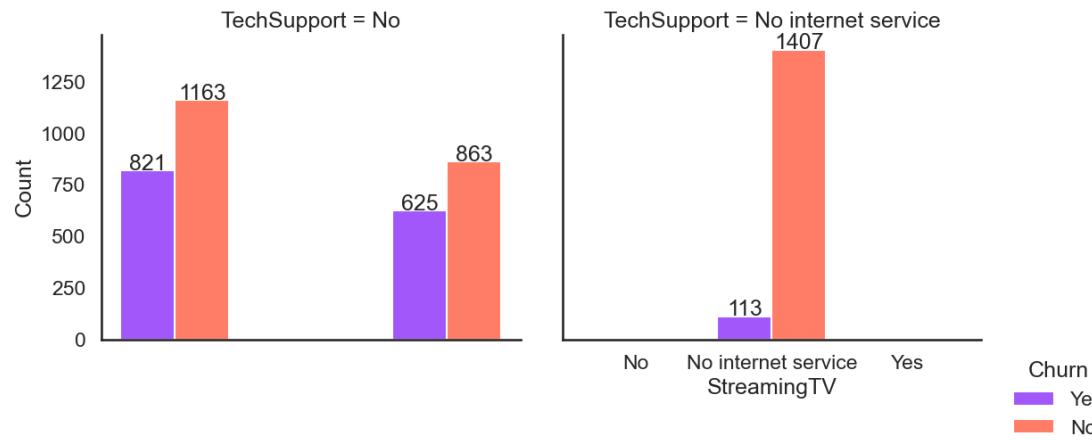
Insight:

Customers with no Device Protection and belonging to 1-12,13-24,25-36,37-48 tenure groups are high churners.

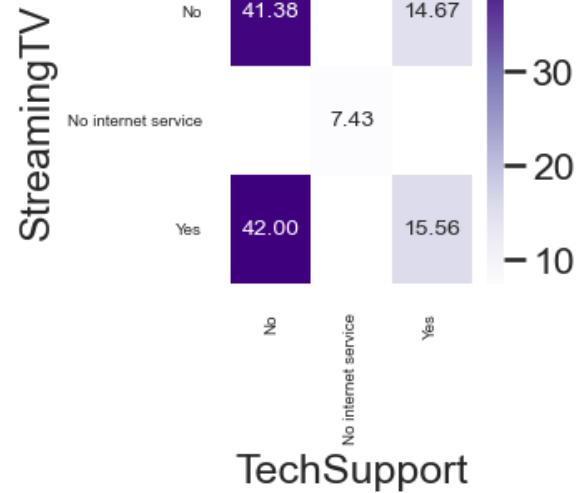
Customers with no internet service are low churners.

Customers with Device Protection and in 1-12,13-24 tenure group are high churners with 56.6% and 36%..

1. Bivariate Analysis of StreamingTV vs TechSupport with Churn as Hue



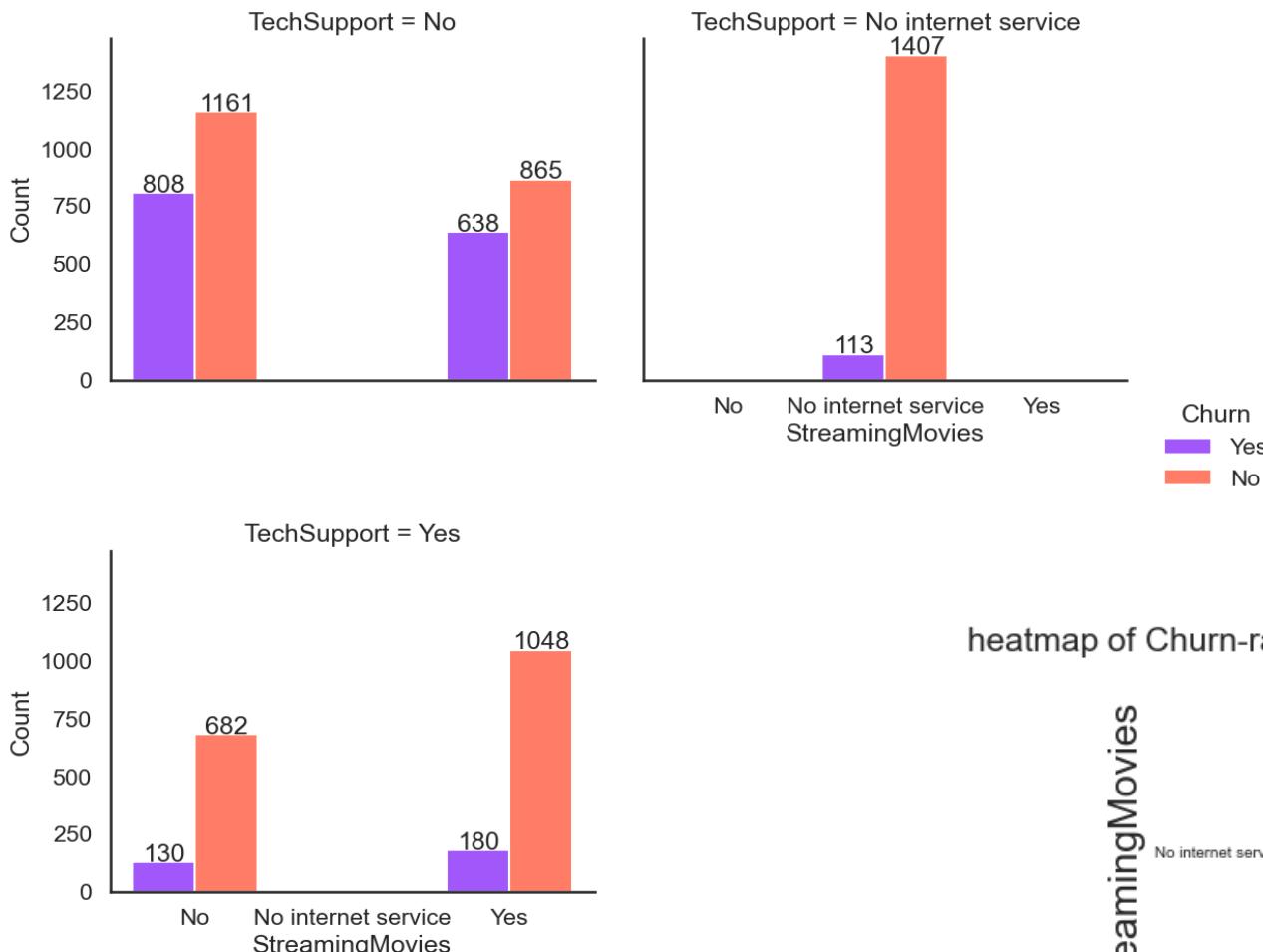
heatmap of Churn-rate for StreamingTV and TechSupport



Insight:

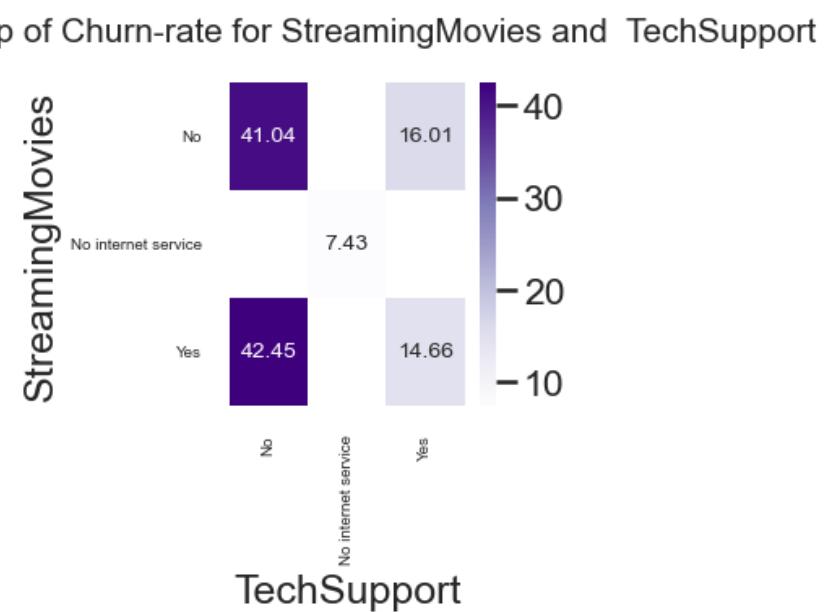
1. Customers with no Tech Support, with and without Streaming TV service are high churners at 42% and 41%..

2. Bivariate Analysis of StreamingMovies vs TechSupport with Churn as Hue

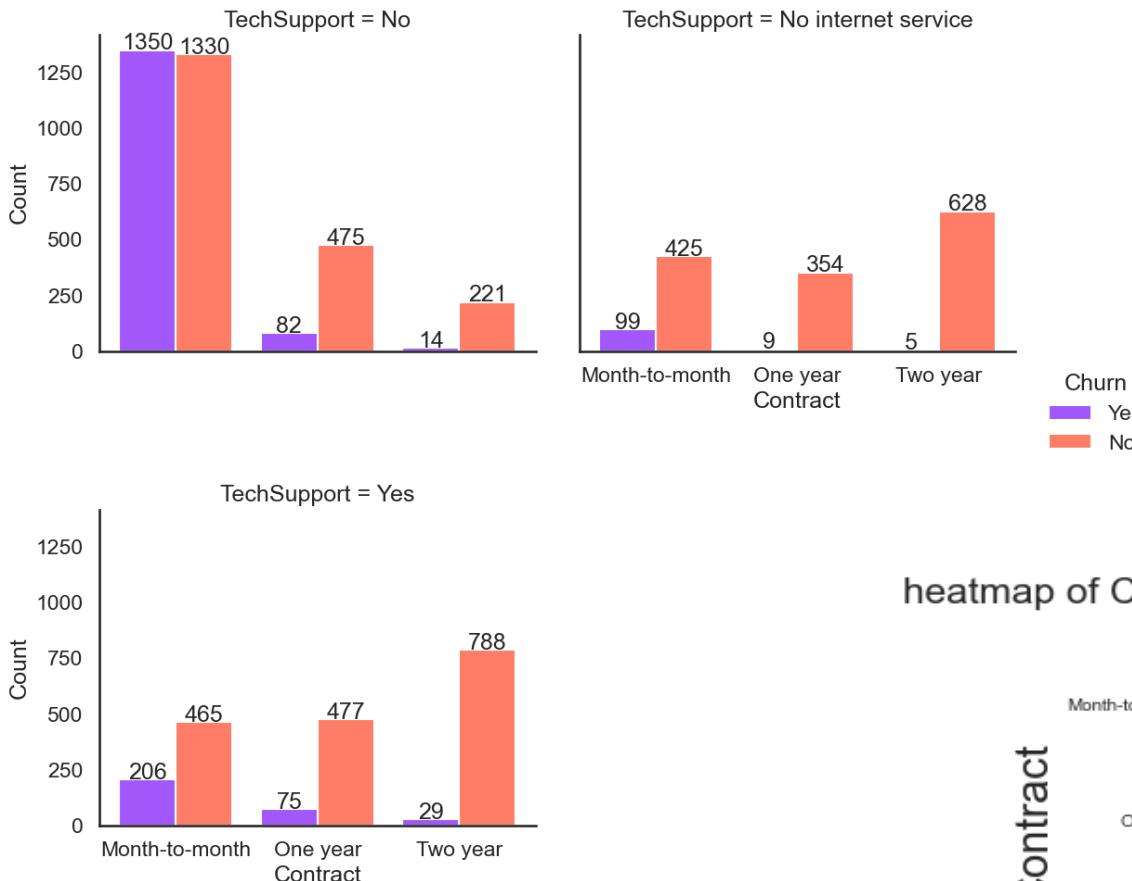


Insight:

Customers with no Tech Support, with and without Streaming Movies service are high churners at 42.3% and 41.04%..



3. Bivariate Analysis of Contract vs TechSupport with Churn as Hue

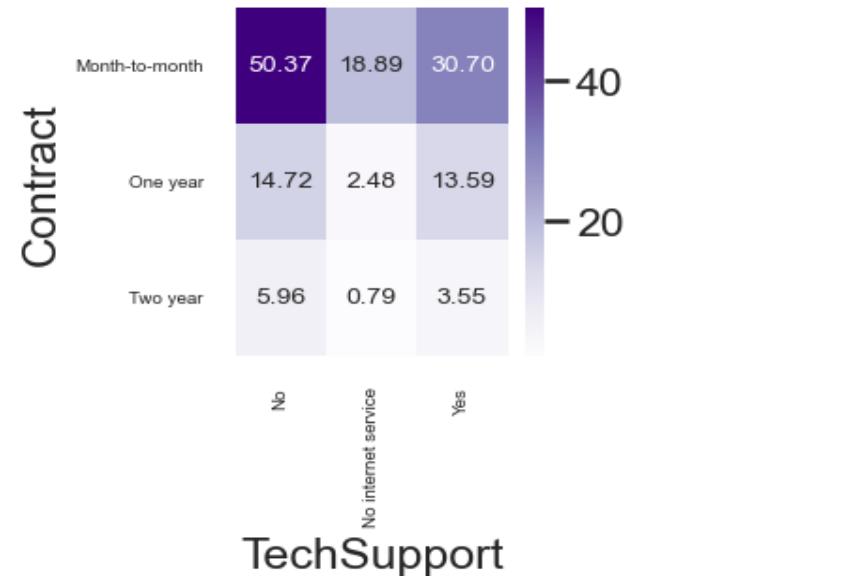


Insight:

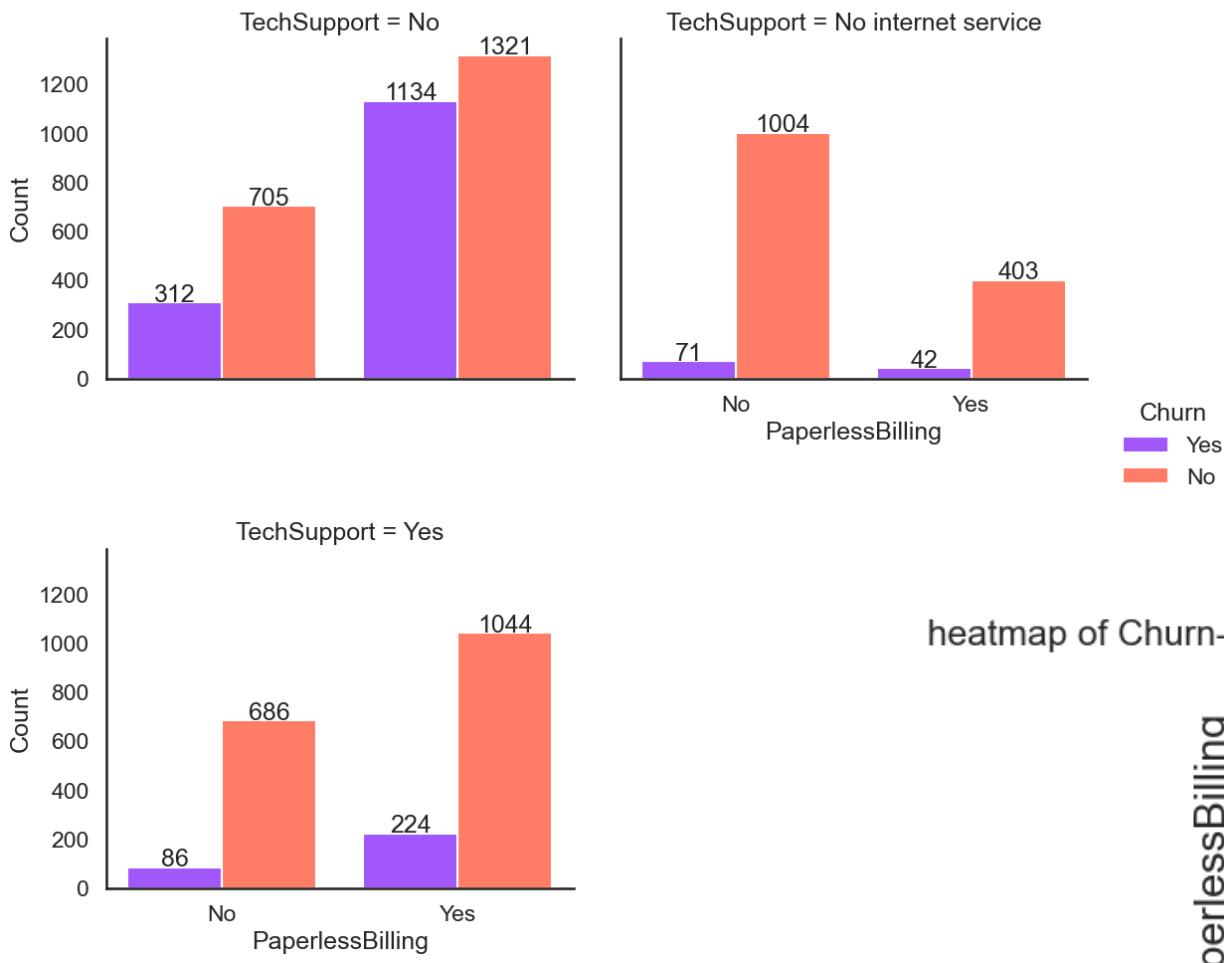
Customers having a month to month contract, with and without Tech Support are high churners at 30.7% and 50.37% respectively.

Customers with two year contracts are low churners , with the lowest being no internet service with 0.79%..

heatmap of Churn-rate for Contract and TechSupport



4. Bivariate Analysis of PaperlessBilling vs TechSupport with Churn as Hue

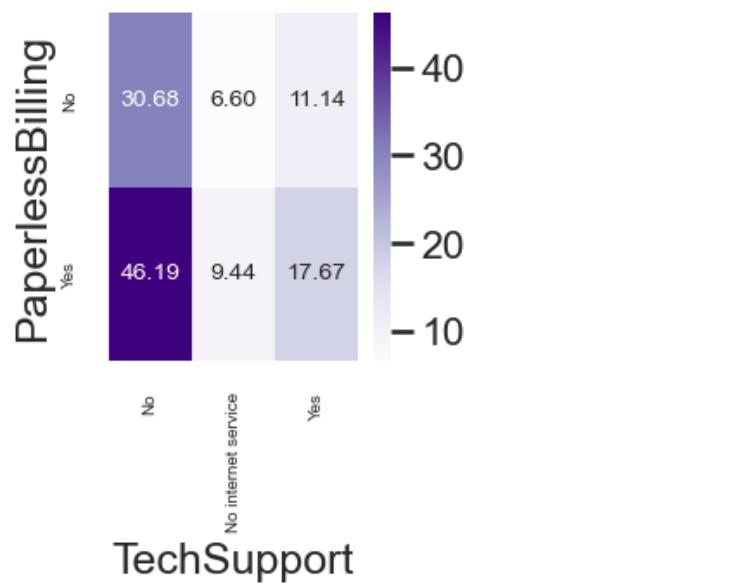


Insight:

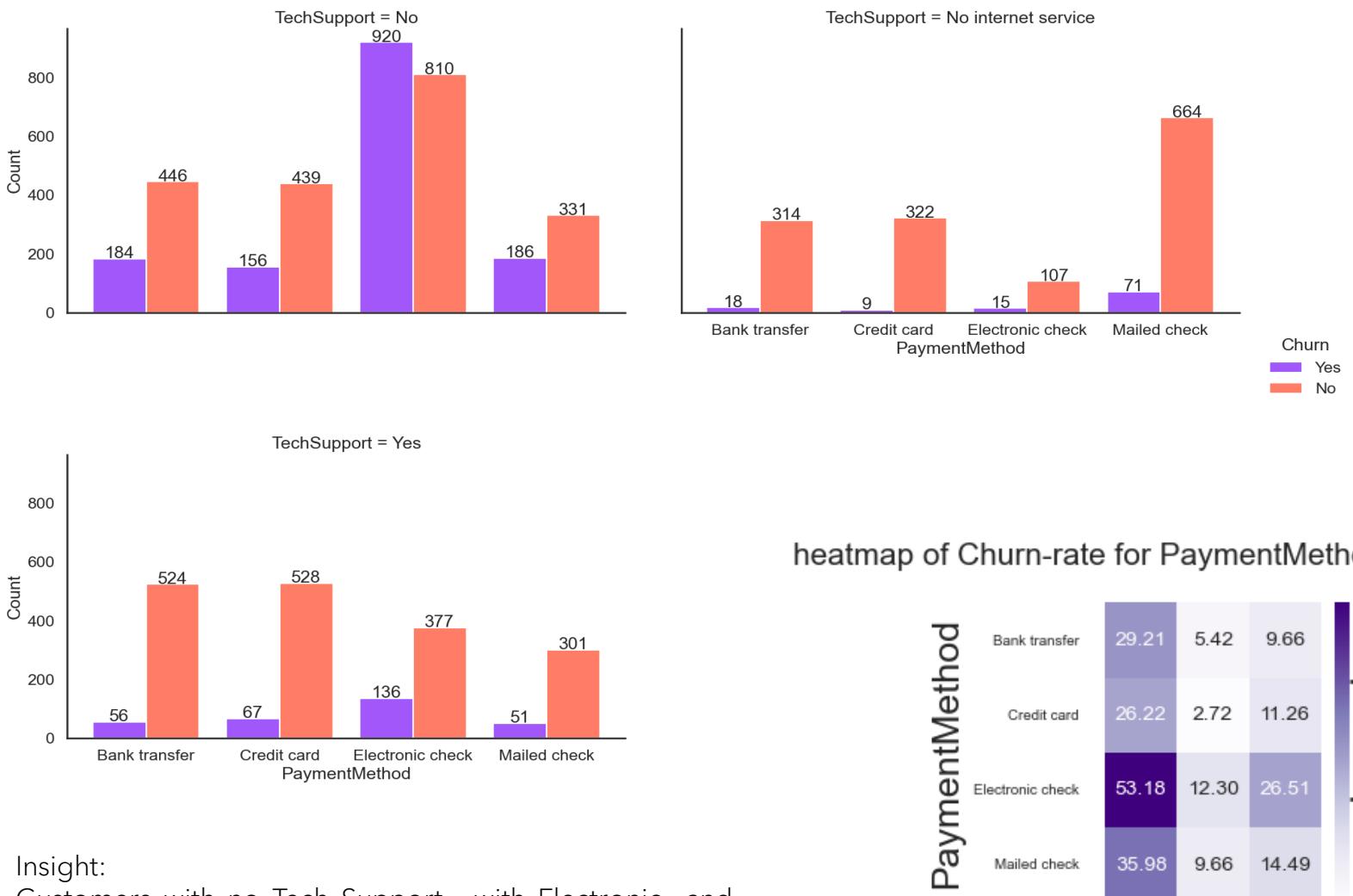
Customers with no Tech Support, with and without Paperless Billing service are high churners at 46.19% and 30.68%.

Customers with no internet service and no paperless billing option are low churners at 6.6%.

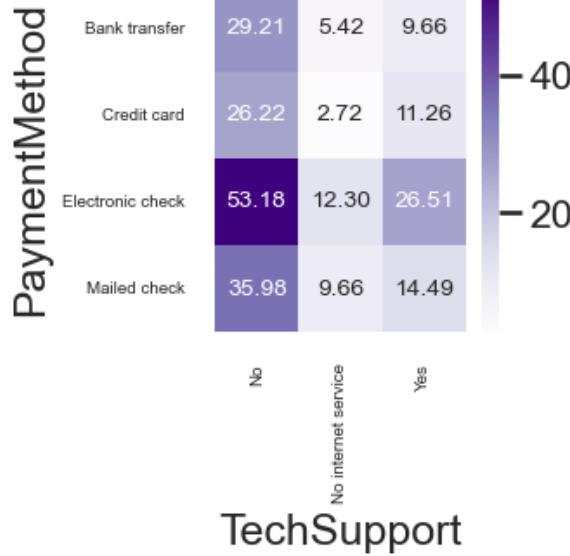
heatmap of Churn-rate for PaperlessBilling and TechSupport



5. Bivariate Analysis of PaymentMethod vs TechSupport with Churn as Hue



heatmap of Churn-rate for PaymentMethod and TechSupport

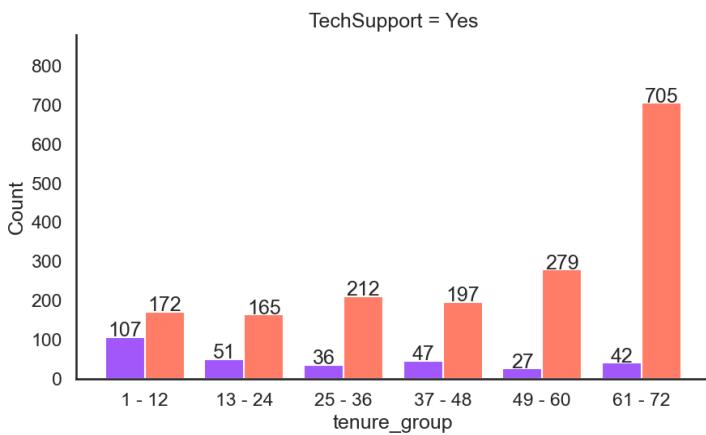
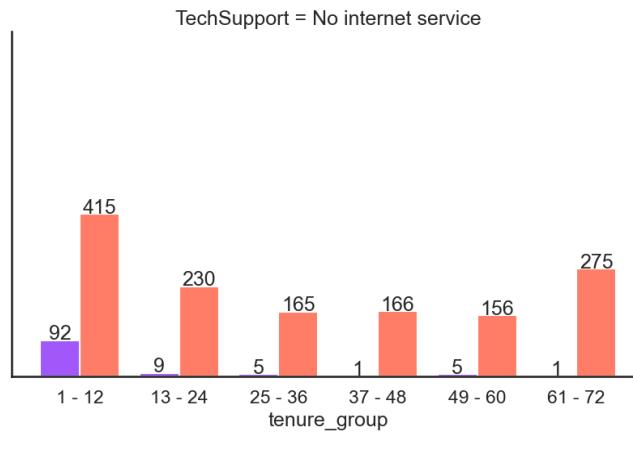
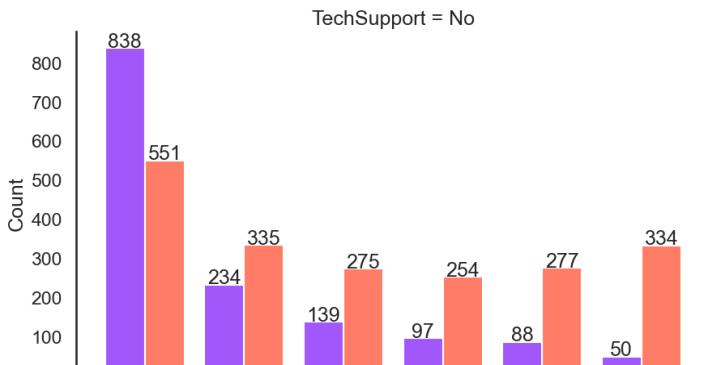


Insight:

Customers with no Tech Support, with Electronic and mailed check payment method are high churners at 53.18% and 35.9%.

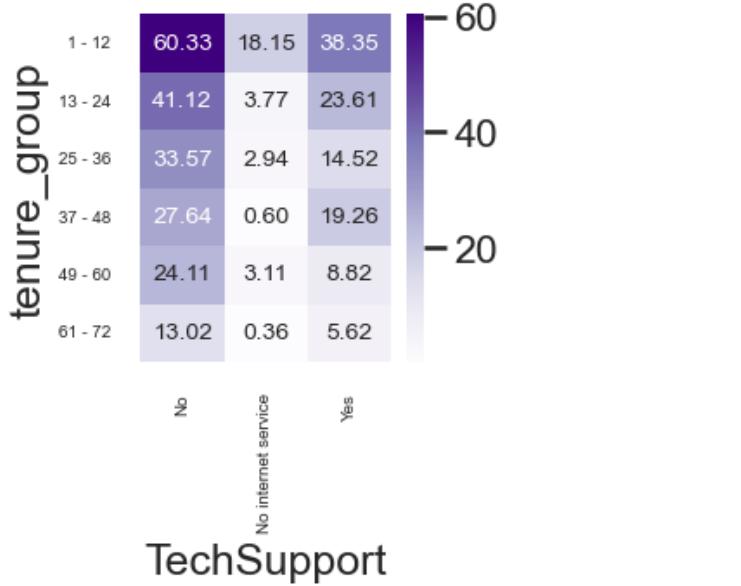
Customers with no internet service and credit card payment method are low churners at 2.72%.

6. Bivariate Analysis of tenure_group vs TechSupport with Churn as Hue

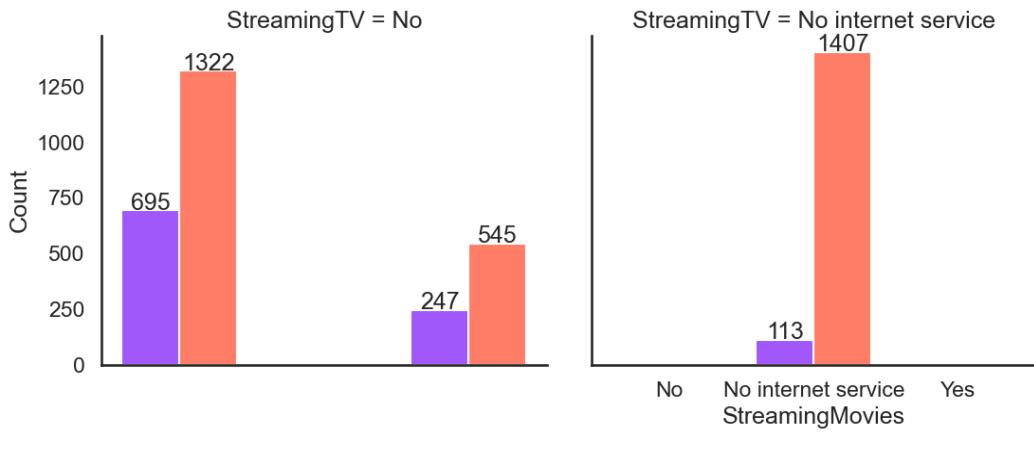


Insight: Customers with no Tech Support and belonging to 1-12, 13-24, 25-36, 37-48, 49-60 tenure groups are high churners. Customers with no internet service are low churners. Customers with Tech Support and in 1-12, 13-24 tenure group are high churners with 38.35% and 23.6%..

heatmap of Churn-rate for tenure_group and TechSupport

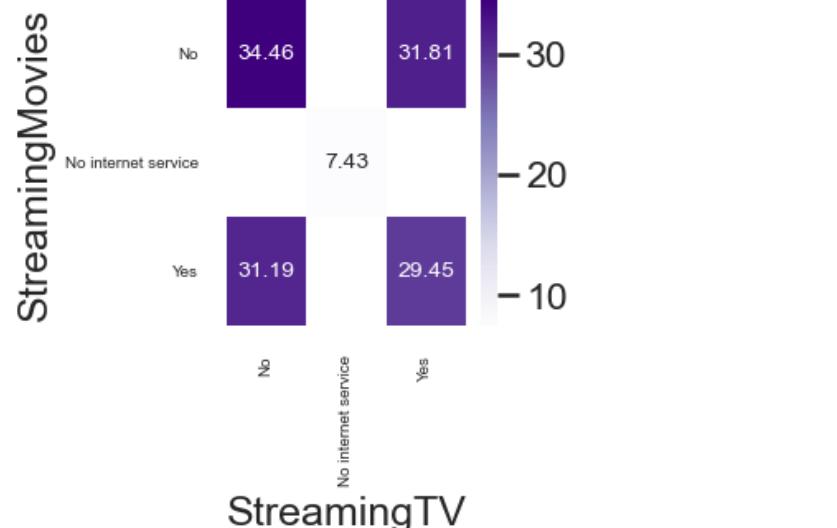


1. Bivariate Analysis of StreamingMovies vs StreamingTV with Churn as Hue

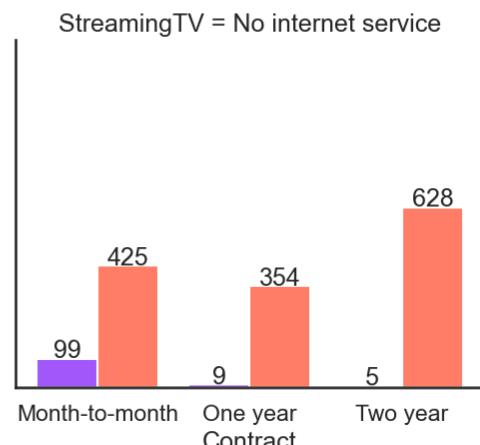
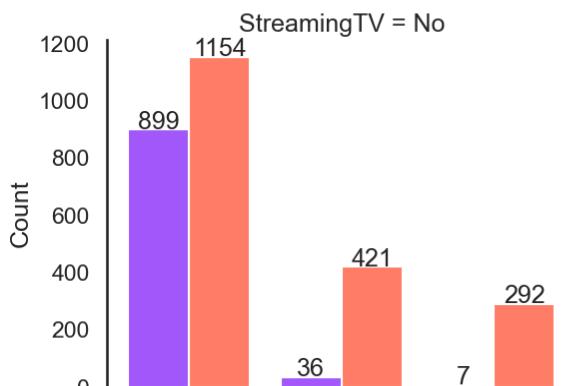


Insight:
Customers with no Streaming TV services ,with and without Streaming Movies service are high churners at 31.19% and 34.4%..

heatmap of Churn-rate for StreamingMovies and StreamingTV



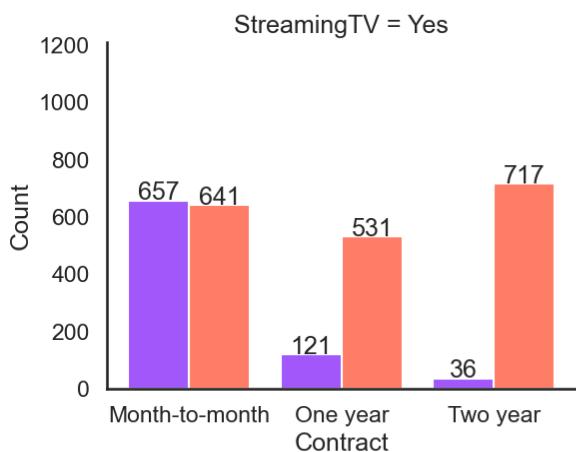
2. Bivariate Analysis of Contract vs StreamingTV with Churn as Hue



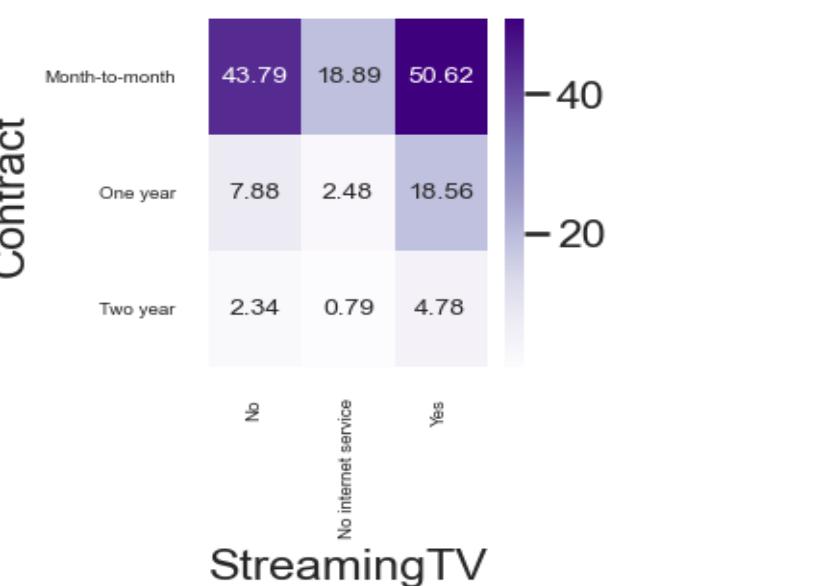
Insight:

Customers having a month to month contract, with and without Streaming TV services are high churners at 50.6% and 43.7% respectively.

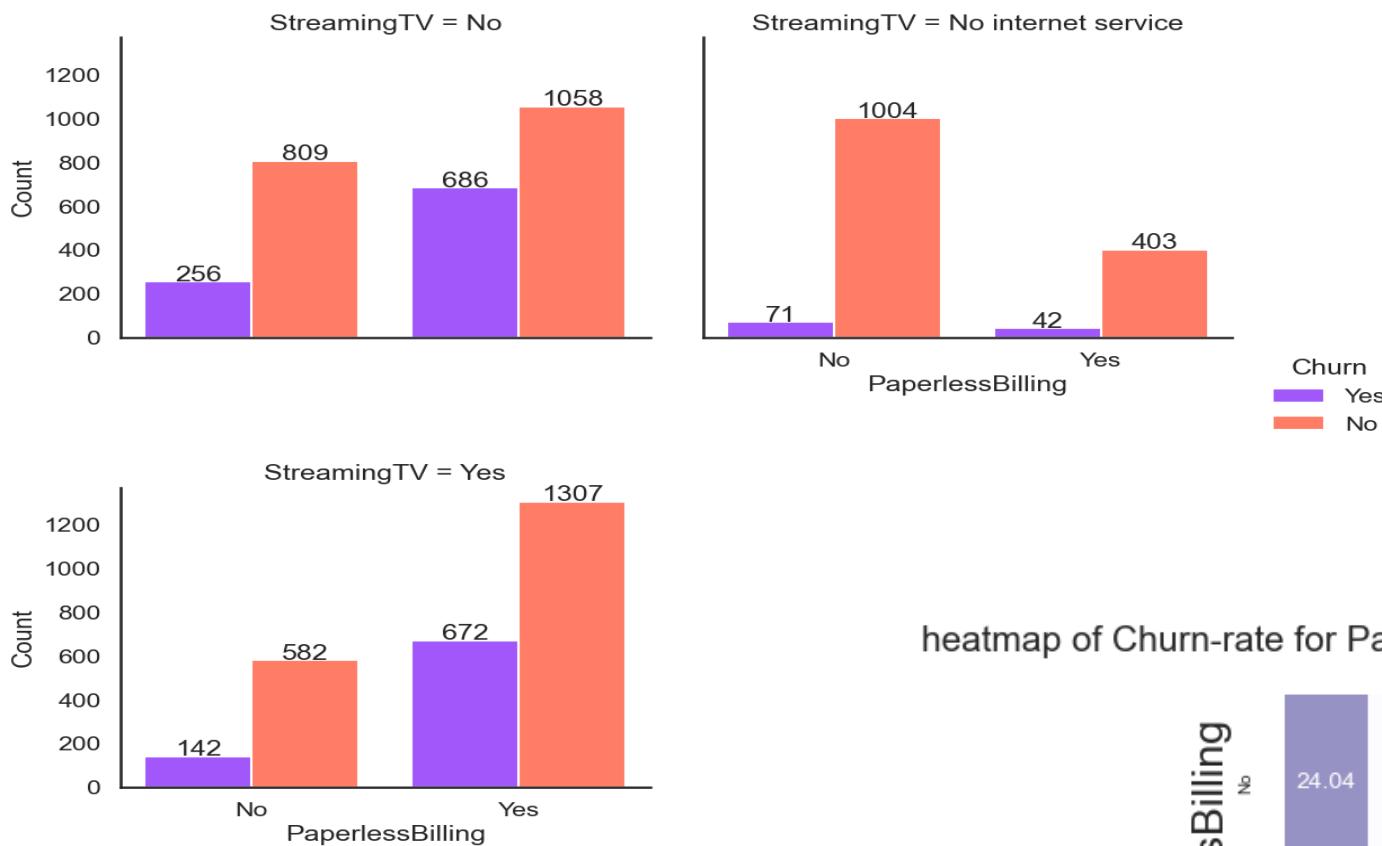
Customers with two year contracts are low churners , with the lowest being no internet service with 0.79%..



heatmap of Churn-rate for Contract and StreamingTV



3. Bivariate Analysis of PaperlessBilling vs StreamingTV with Churn as Hue

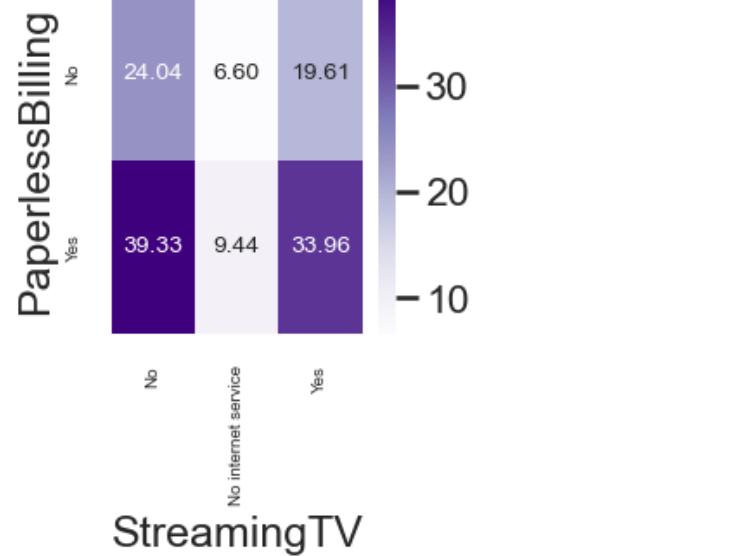


Insight:

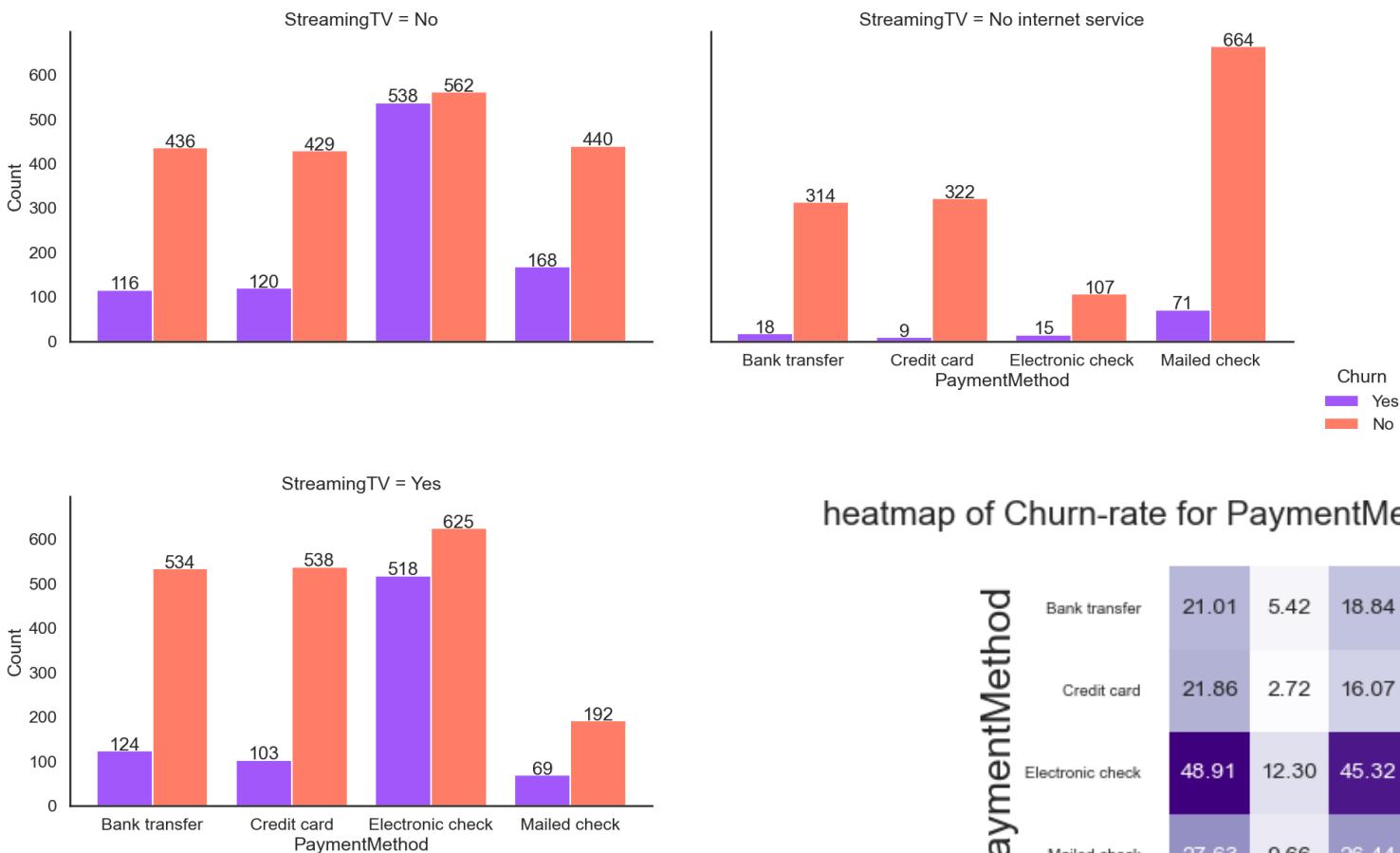
Customers with no Streaming TV services, with and without Paperless Billing service are high churners at 39.33% and 24.04%.

Customers with no internet service and no paperless billing option are low churners at 6.6%.

heatmap of Churn-rate for PaperlessBilling and StreamingTV



4. Bivariate Analysis of PaymentMethod vs StreamingTV with Churn as Hue

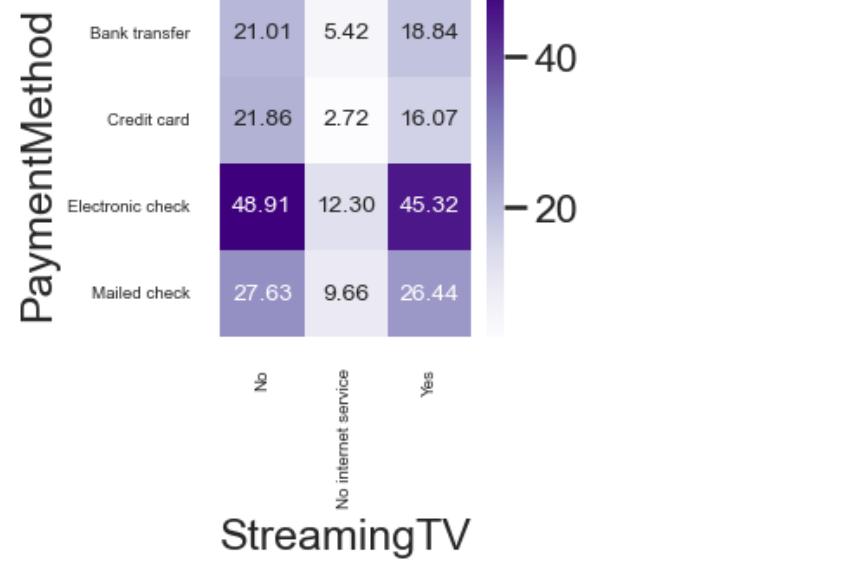


Insight:

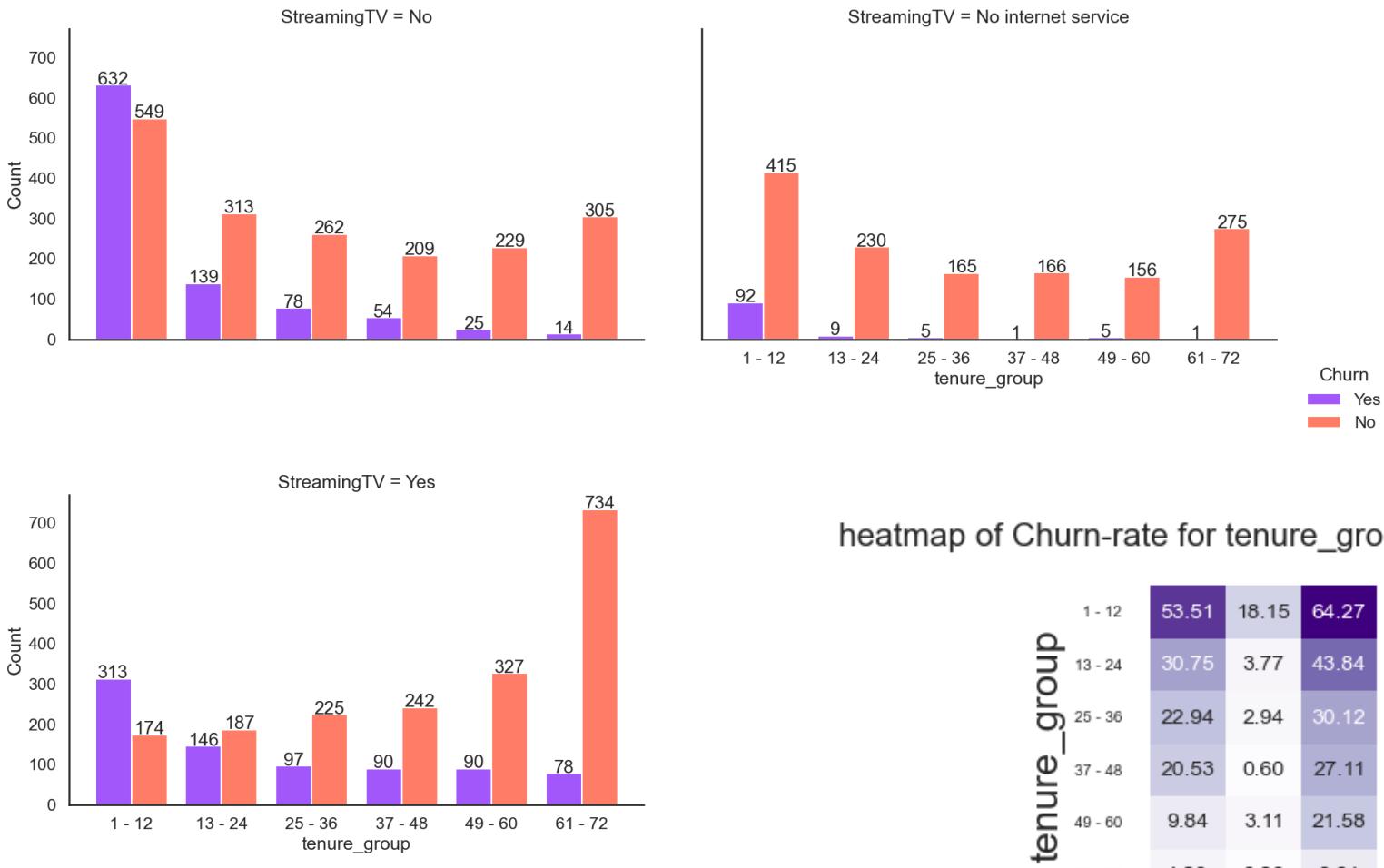
Customers with no Streaming TV services , with Electronic and mailed check payment method are high churners at 48.9% and 27.63%.

Customers with no internet service and credit card payment method are low churners at 2.72%.

heatmap of Churn-rate for PaymentMethod and StreamingTV



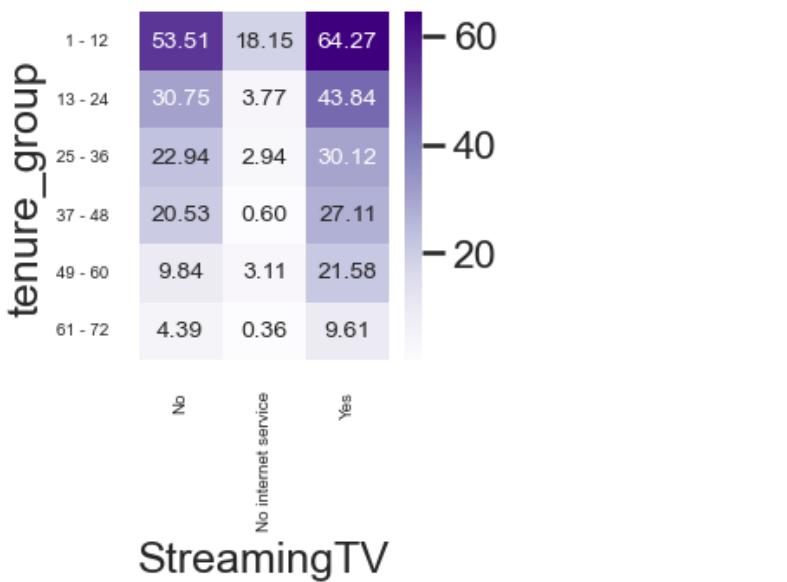
5. Bivariate Analysis of tenure_group vs StreamingTV with Churn as Hue



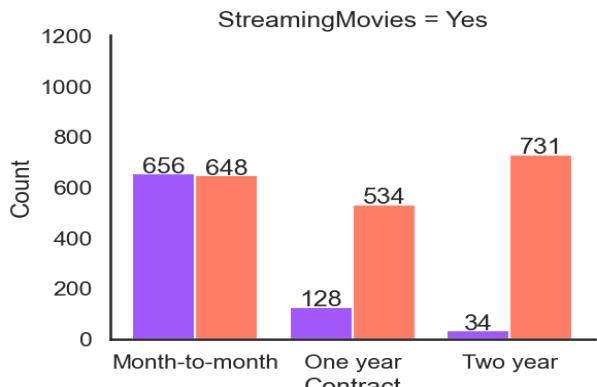
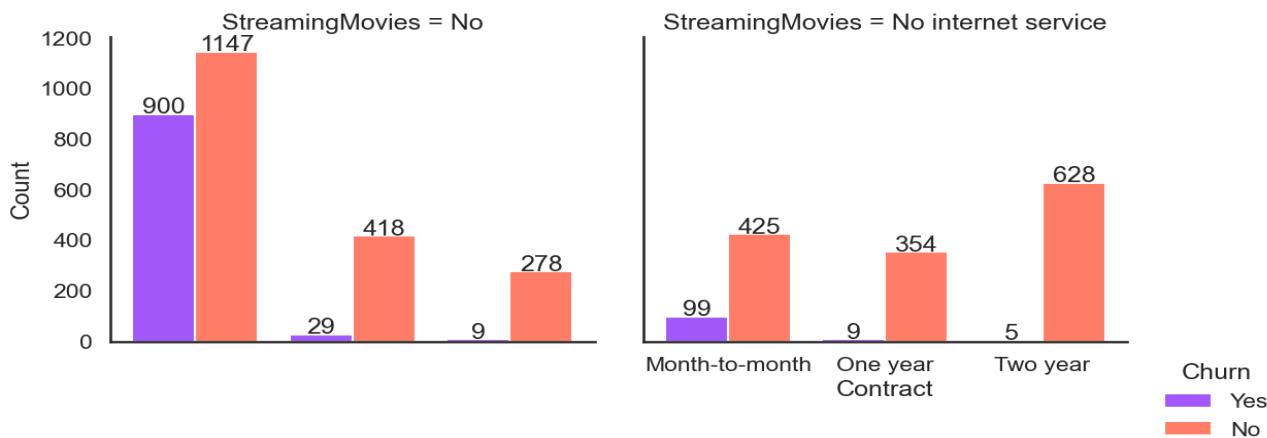
Insight:

Customers with and without Streaming TV services and belonging to 1-12, 13-24, 25-36, 37-48 tenure groups are high churners.
Customers with no internet service are low churners..

heatmap of Churn-rate for tenure_group and StreamingTV



1. Bivariate Analysis of Contract vs StreamingMovies with Churn as Hue

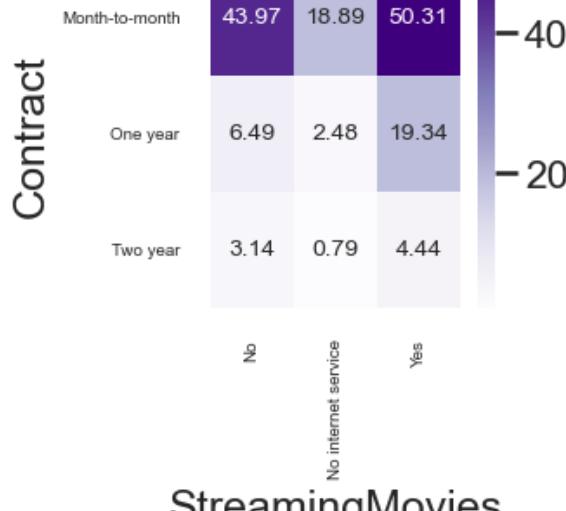


Insight:

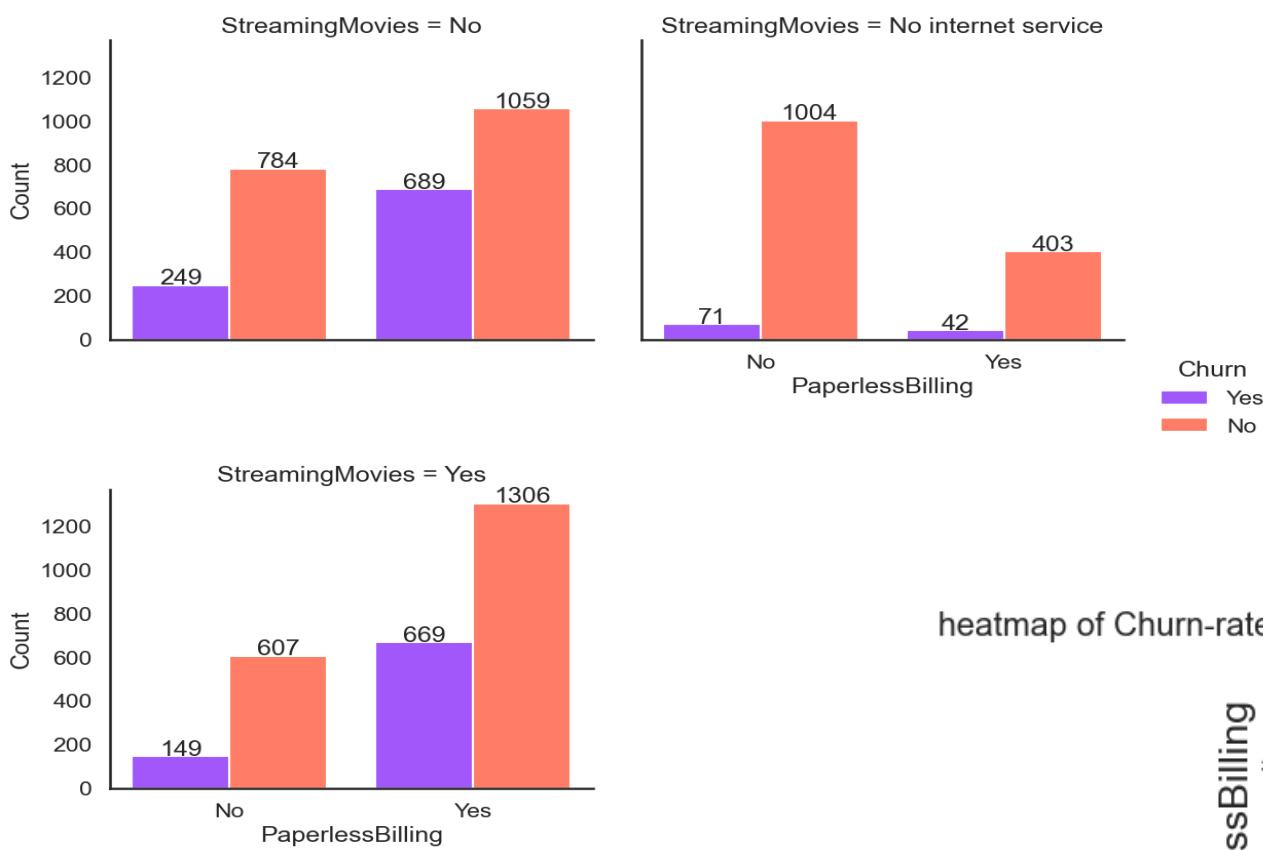
Customers having a month to month contract, with and without Streaming Movies services are high churners at 50.3% and 43.97% respectively.

Customers with two year contracts are low churners , with the lowest being no internet service with 0.79%..

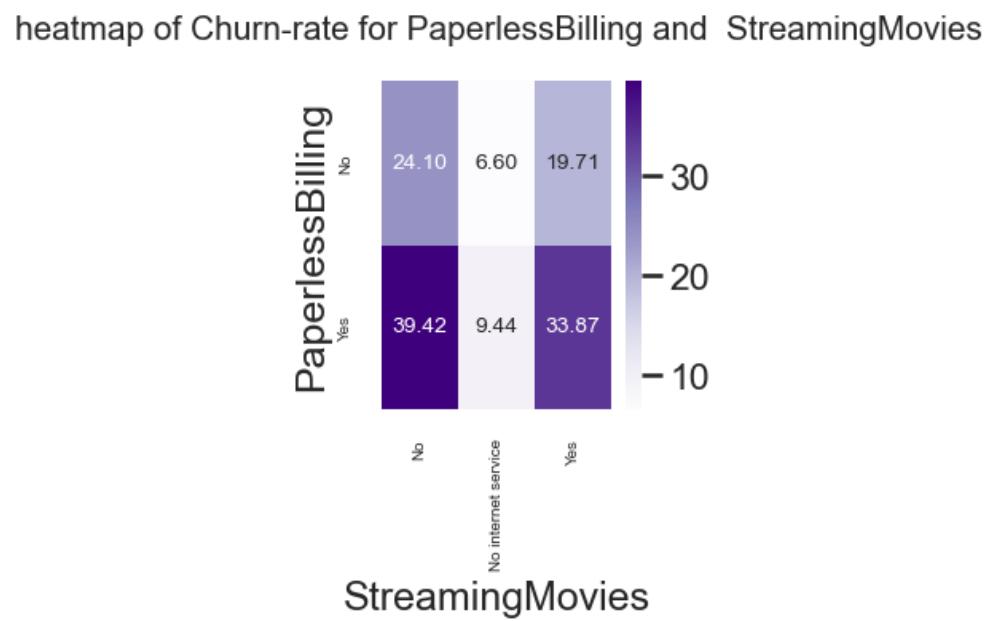
heatmap of Churn-rate for Contract and StreamingMovies



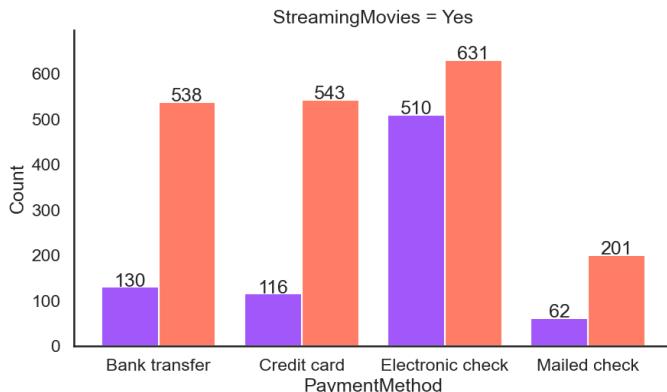
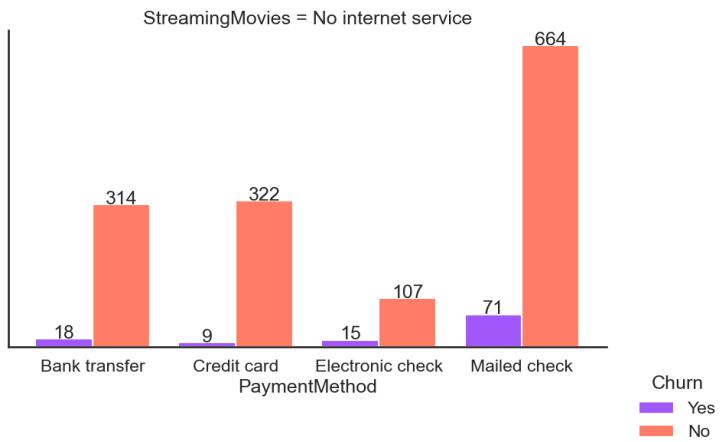
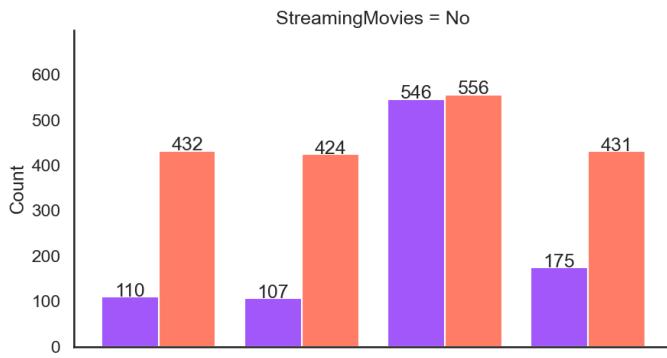
2. Bivariate Analysis of PaperlessBilling vs StreamingMovies with Churn as Hue



Insight: Customers with no Streaming Movies services, with and without Paperless Billing service are high churners at 39.4% and 24.1%.
 Customers with no internet service and no paperless billing option are low churners at 6.6%.
 Customers with a Streaming Movies service and paperless billing option are high churners at 33.87%..



3. Bivariate Analysis of PaymentMethod vs StreamingMovies with Churn as Hue



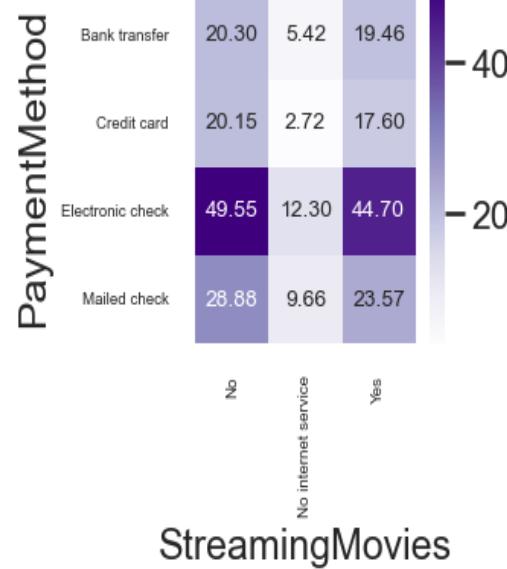
Insight:

Customers with no Streaming TV services , with Electronic and mailed check payment method are high churners at 49.5% and 28.83%.

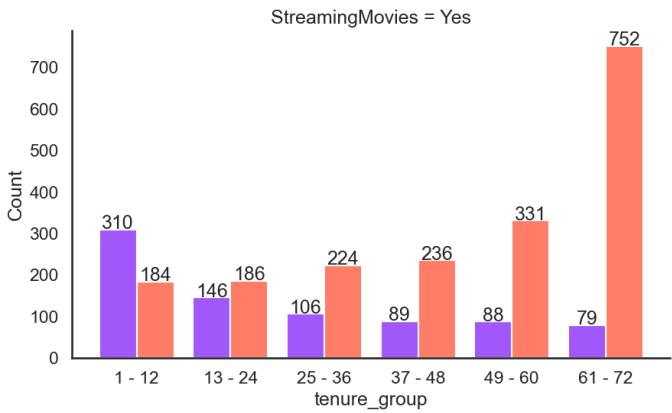
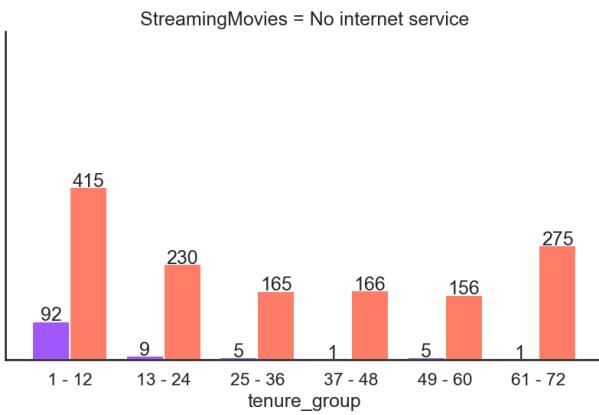
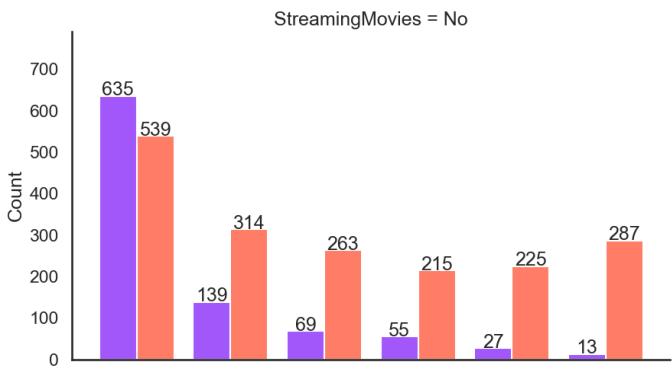
Customers with no internet service and credit card payment method are low churners at 2.72%.

Customers with Streaming TV services , with Electronic check payment method are high churners at 44.7%.

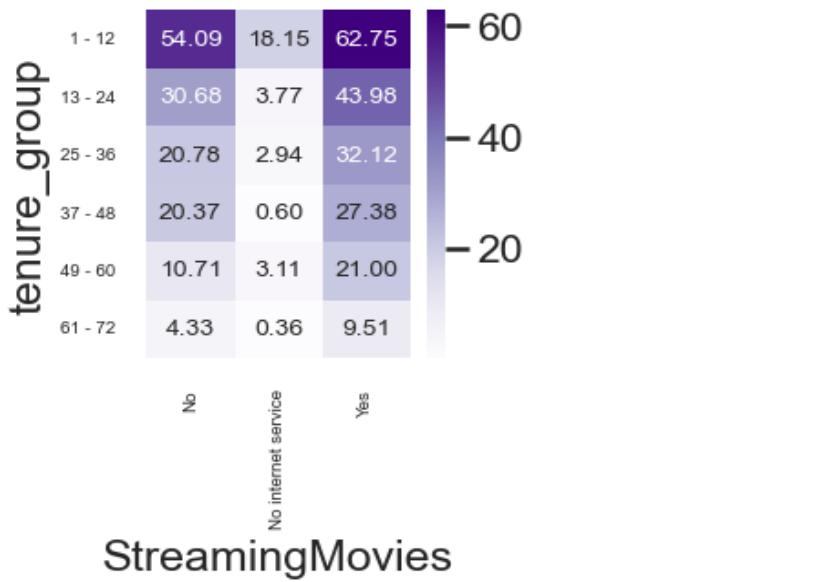
heatmap of Churn-rate for PaymentMethod and StreamingMovies



4. Bivariate Analysis of tenure_group vs StreamingMovies with Churn as Hue



heatmap of Churn-rate for tenure_group and StreamingMovies

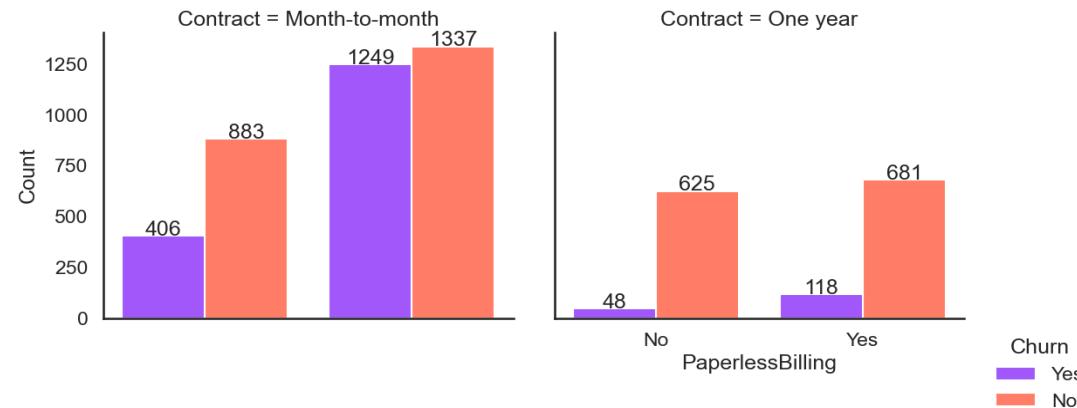


Insight:

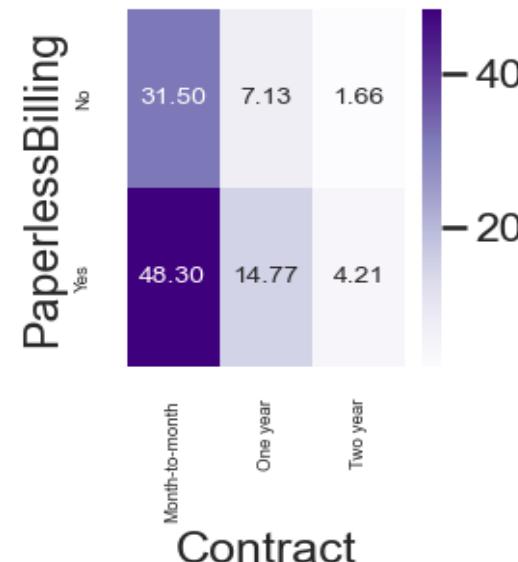
Customers with and without Streaming Movies services and belonging to 1-12,13-24,25-36,37-48 tenure groups are high churners.

Customers with no internet service are low chuners..

1. Bivariate Analysis of PaperlessBilling vs Contract with Churn as Hue



heatmap of Churn-rate for PaperlessBilling and Contract

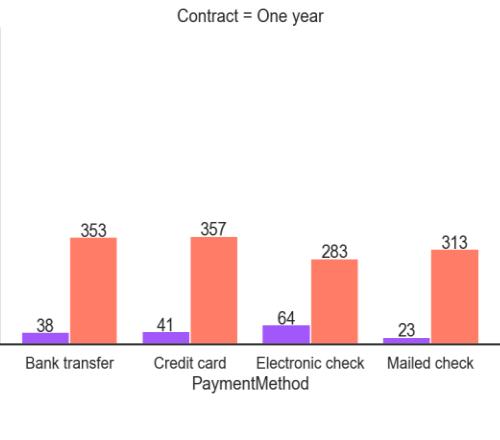


Insight:

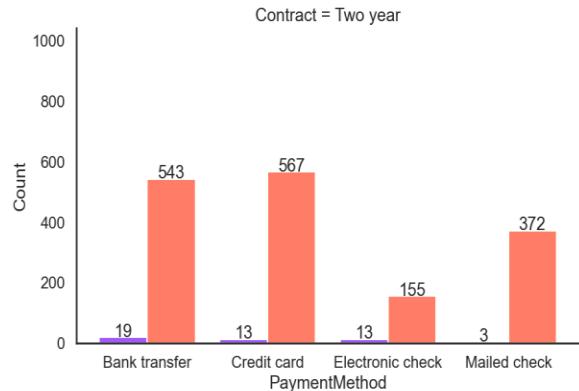
Customers with month to month contract, with and without Paperless Billing service are high churners at 48.3% and 31.5%.

Customers with two year contract and no paperless billing option are low churners at 1.6%..

2. Bivariate Analysis of PaymentMethod vs Contract with Churn as Hue



Churn
Yes
No

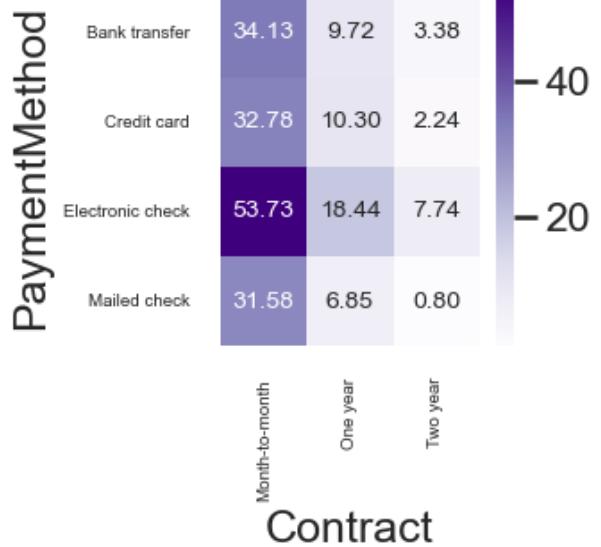


Insight:

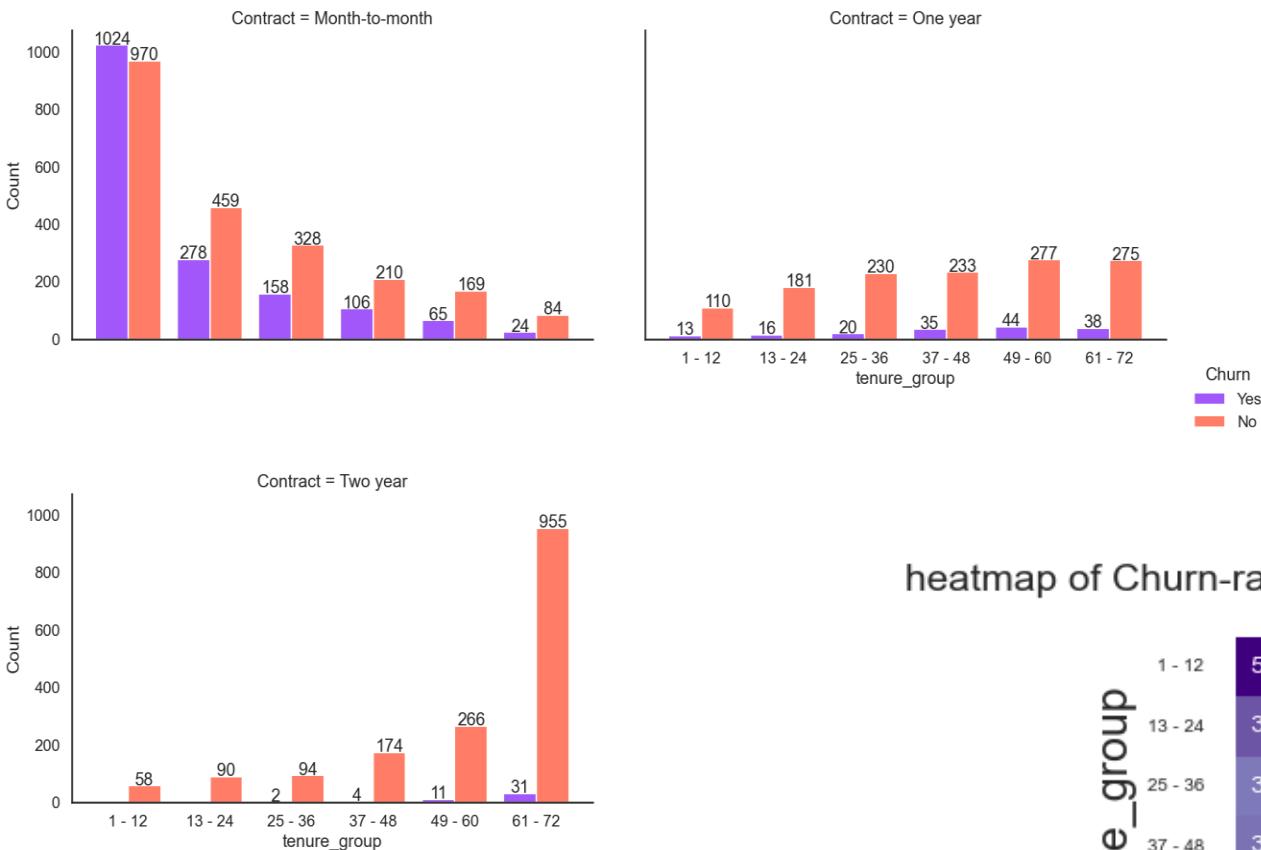
Customers with month to month contract with all payment options are high churners, the highest being 53.73 churn rate for Electronic check.

Customers in two year contract are low churners, the lowest being Mailed Check with 0.8%..

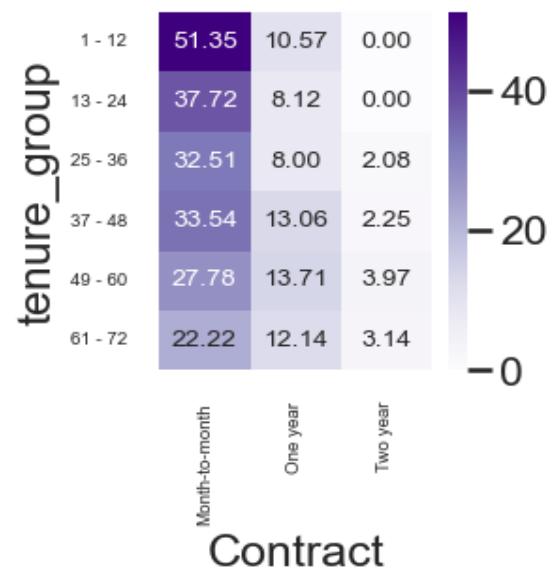
heatmap of Churn-rate for PaymentMethod and Contract



3. Bivariate Analysis of tenure_group vs Contract with Churn as Hue



heatmap of Churn-rate for tenure_group and Contract

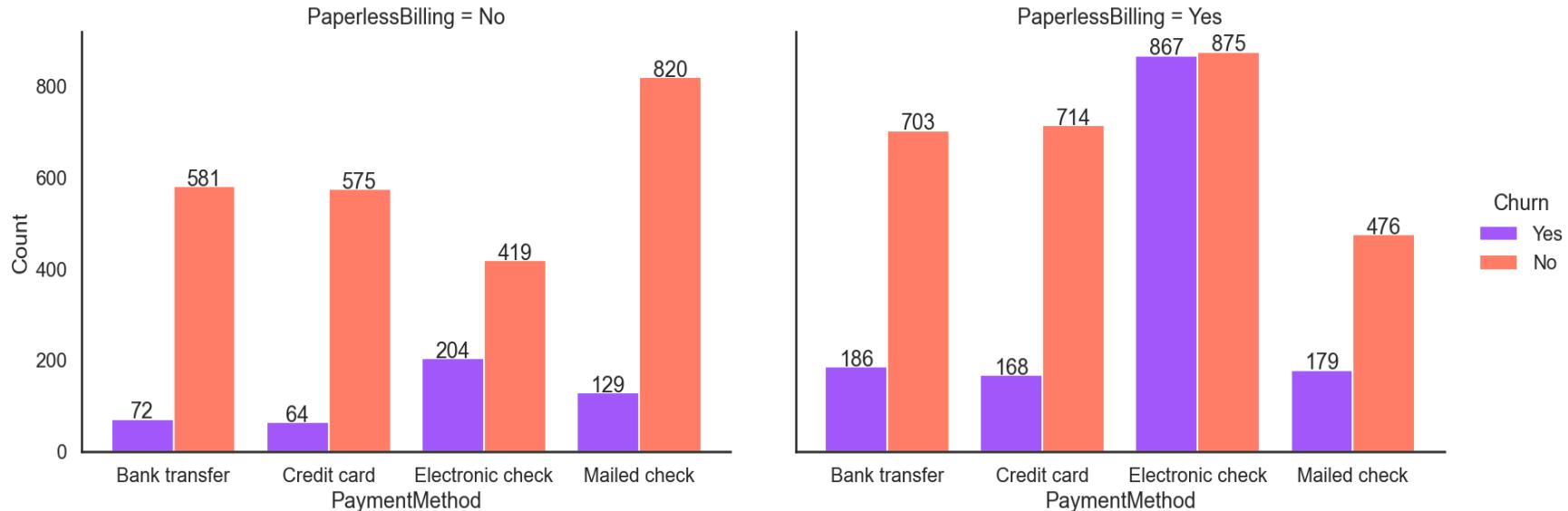


Insight:

Customers with month to month contract are high churners, with highest being 51.35% in 1-12 tenure.

Customers in two year contract are low churners, the lowest being 25-36 tenure at 2.08..

1. Bivariate Analysis of PaymentMethod vs PaperlessBilling with Churn as Hue



Insight:

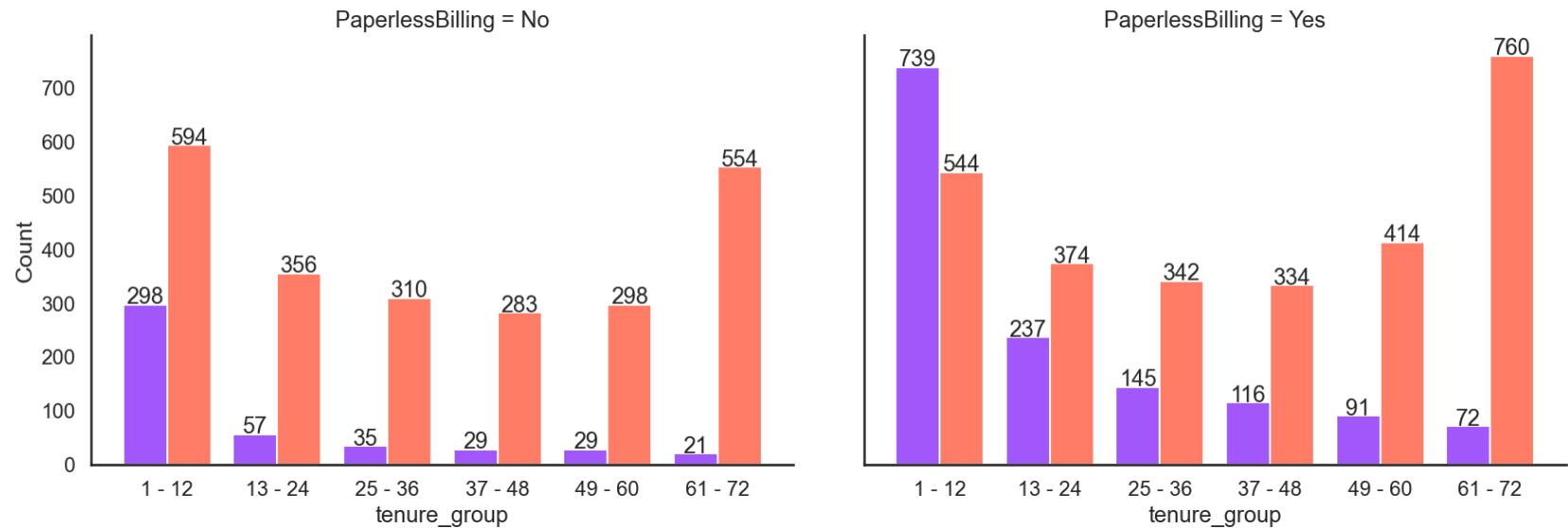
Customers with and without Electronic check are high churners, with 49.77% and 32.74%.

Customers with paperless Billing and mailed check are high churners at 27.33%.

heatmap of Churn-rate for PaymentMethod and PaperlessBilling



2. Bivariate Analysis of tenure_group vs PaperlessBilling with Churn as Hue

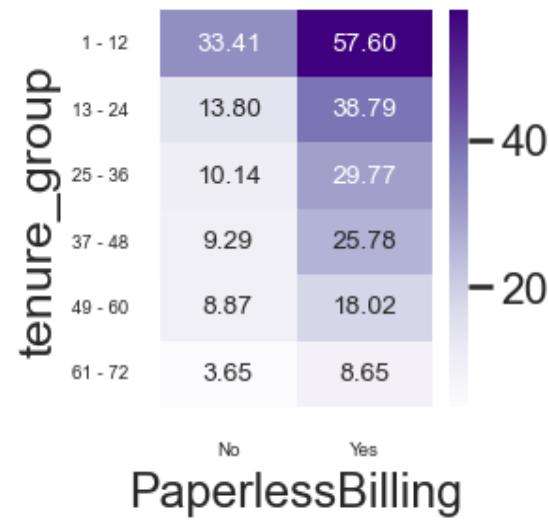


Insight:

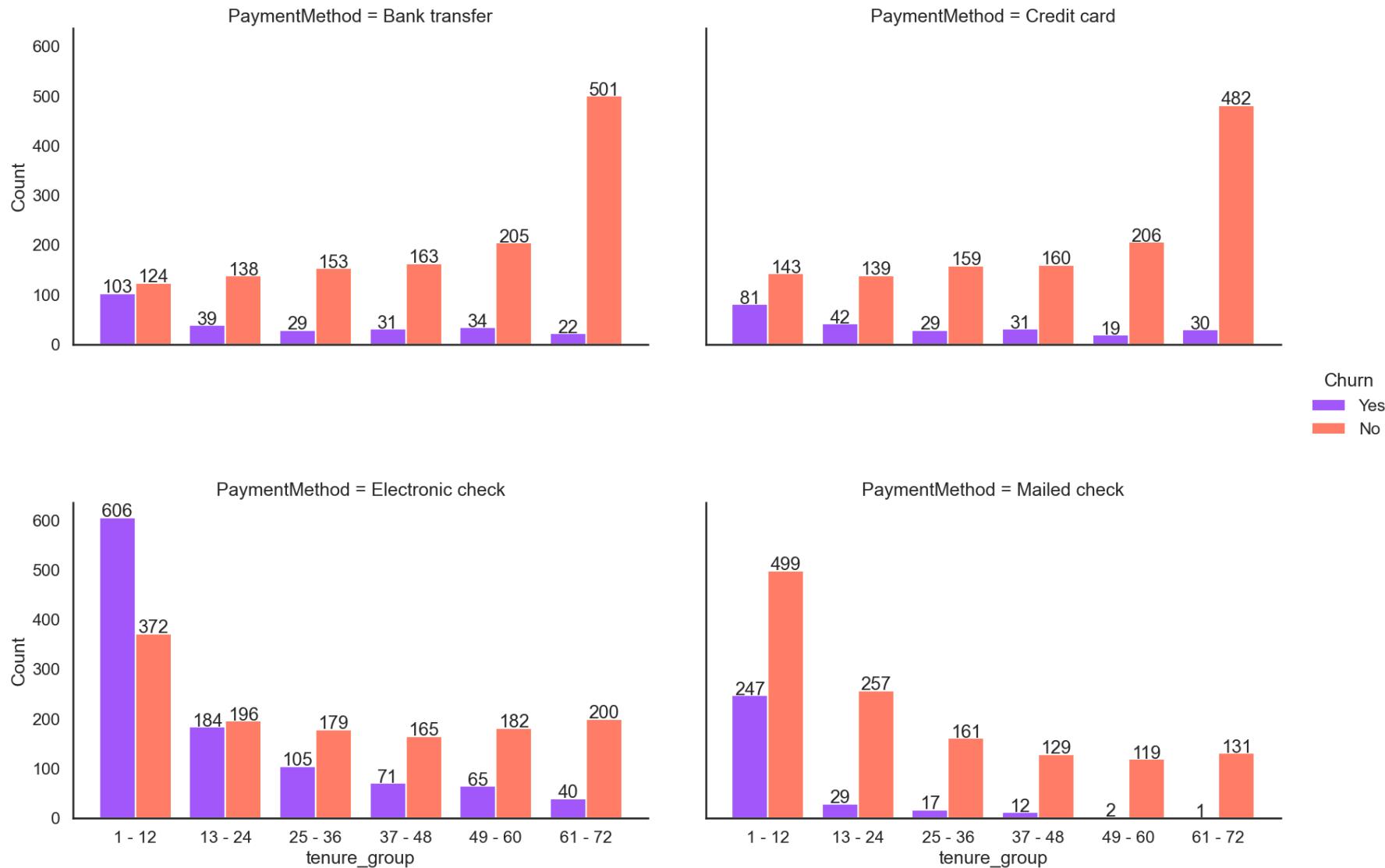
Customers with paperless billing option are high churners in tenure groups 1-12, 13-24, 25-36, 37-48 with highest being 57.6% .

Customers in paperless billing option and 1-12 tenure group are high churners at 33.4% ..

heatmap of Churn-rate for tenure_group and PaperlessBilling



1. Bivariate Analysis of tenure_group vs PaymentMethod with Churn as Hue



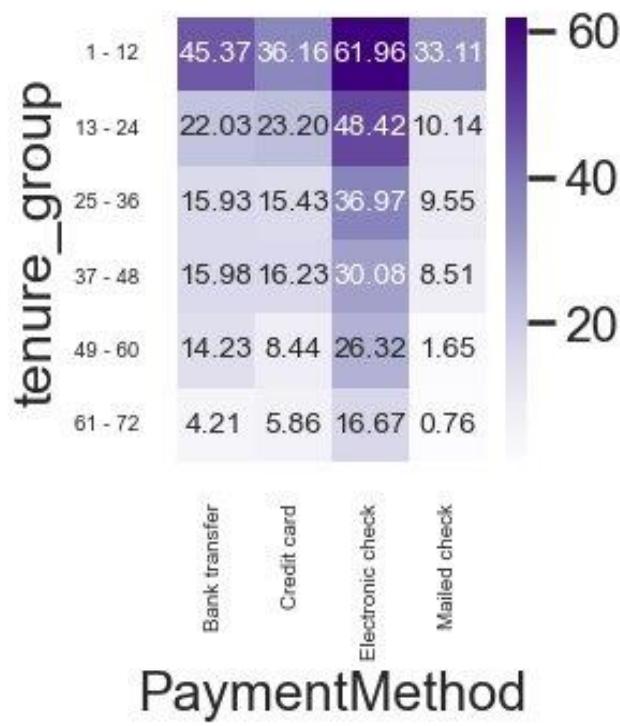
Insight:

Customers in tenure 1-12 are high churners with all payment methods, the highest being electronic check at 61.96%.

Customers in tenure group 13-24, 25-36, 37-48 and electronic check payment are high churners.

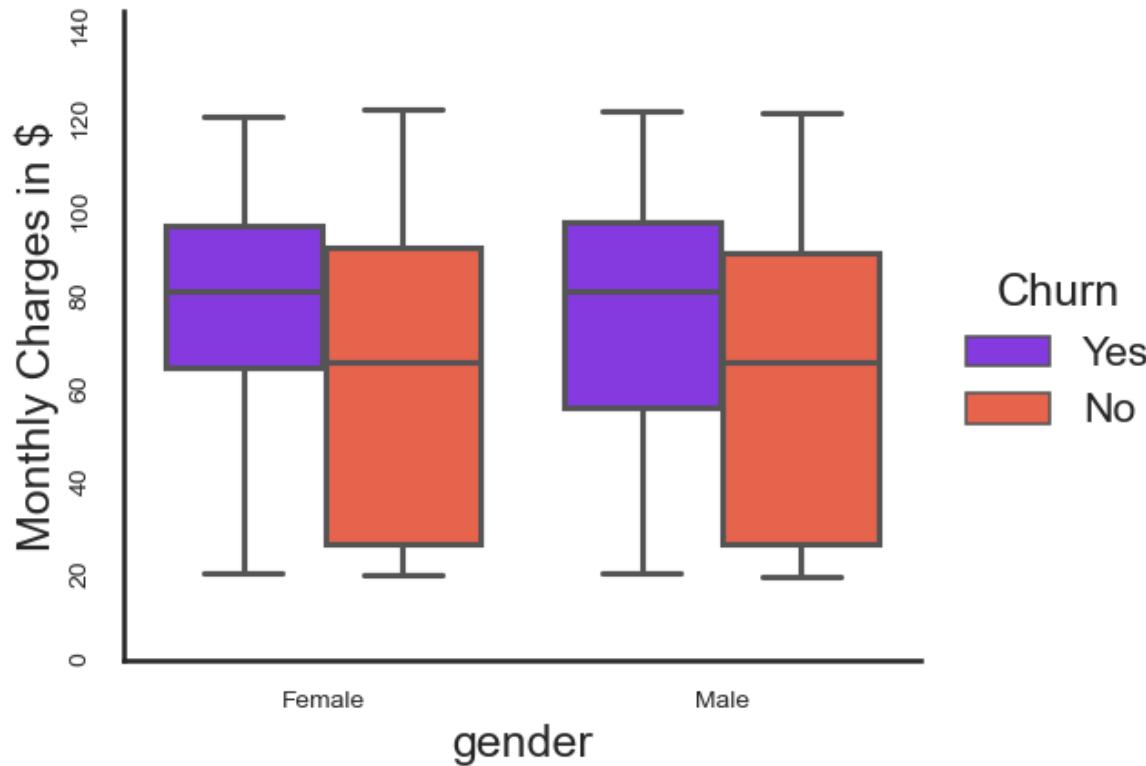
Customers in tenure group 61-72 are low churners..

heatmap of Churn-rate for tenure_group and PaymentMethod



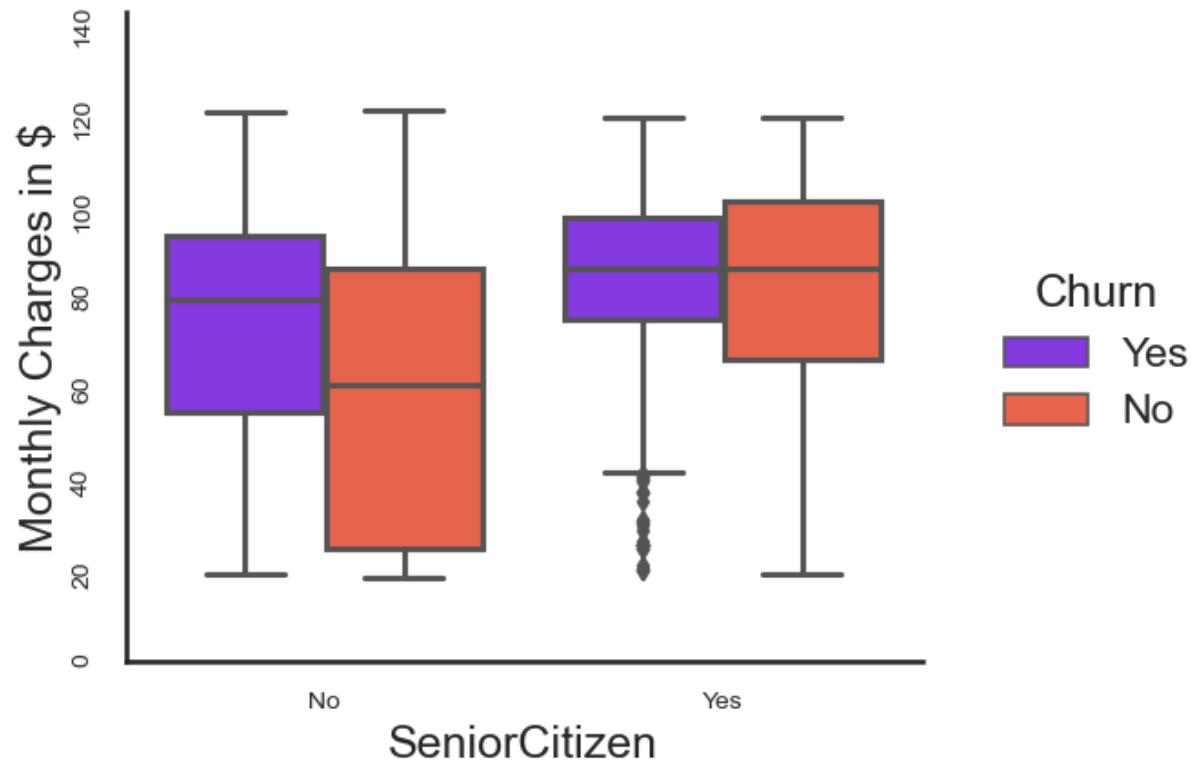
2B. BIVARIATE ANALYSIS BETWEEN CATEGORICAL AND NUMERICAL COLUMNS

1. Box Plot of Monthly Charges and gender wrt Churn



Insight: Both male and female have high monthly charges and are likely to churn..

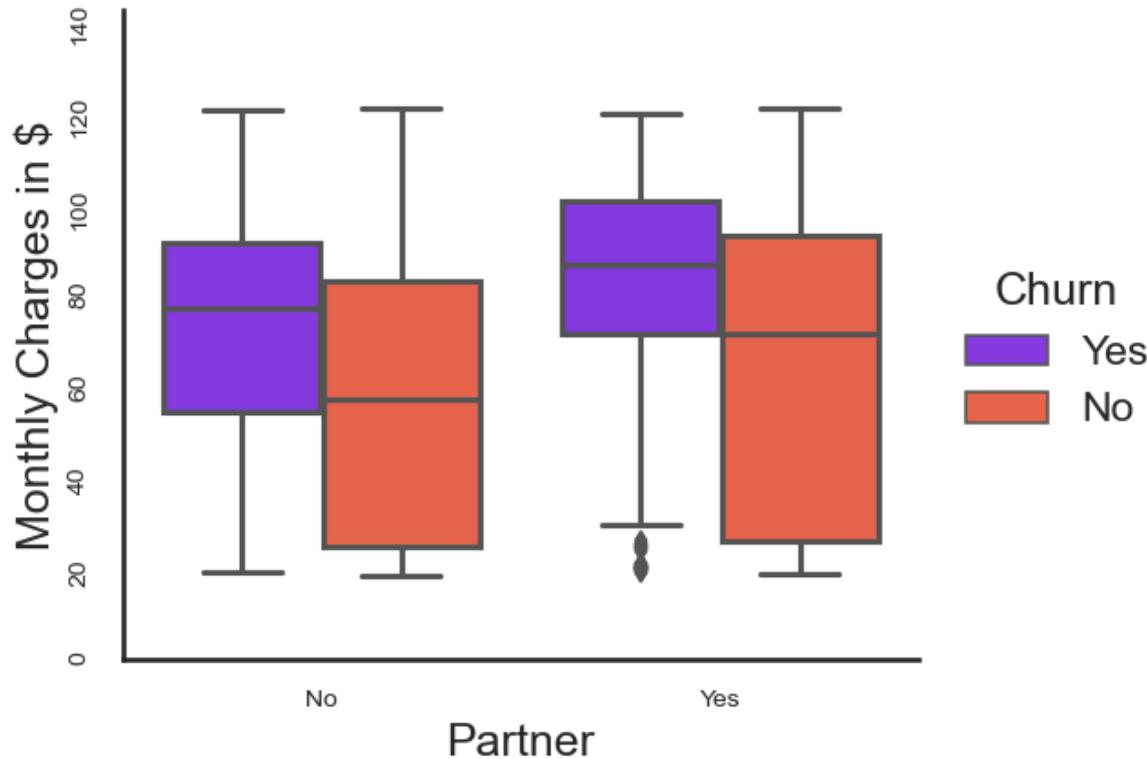
2. Box Plot of Monthly Charges and SeniorCitizen wrt Churn



Insight:

Monthly charges are significantly higher for Senior Citizens compared to Non-Senior Citizens and they are higher churn rate too.

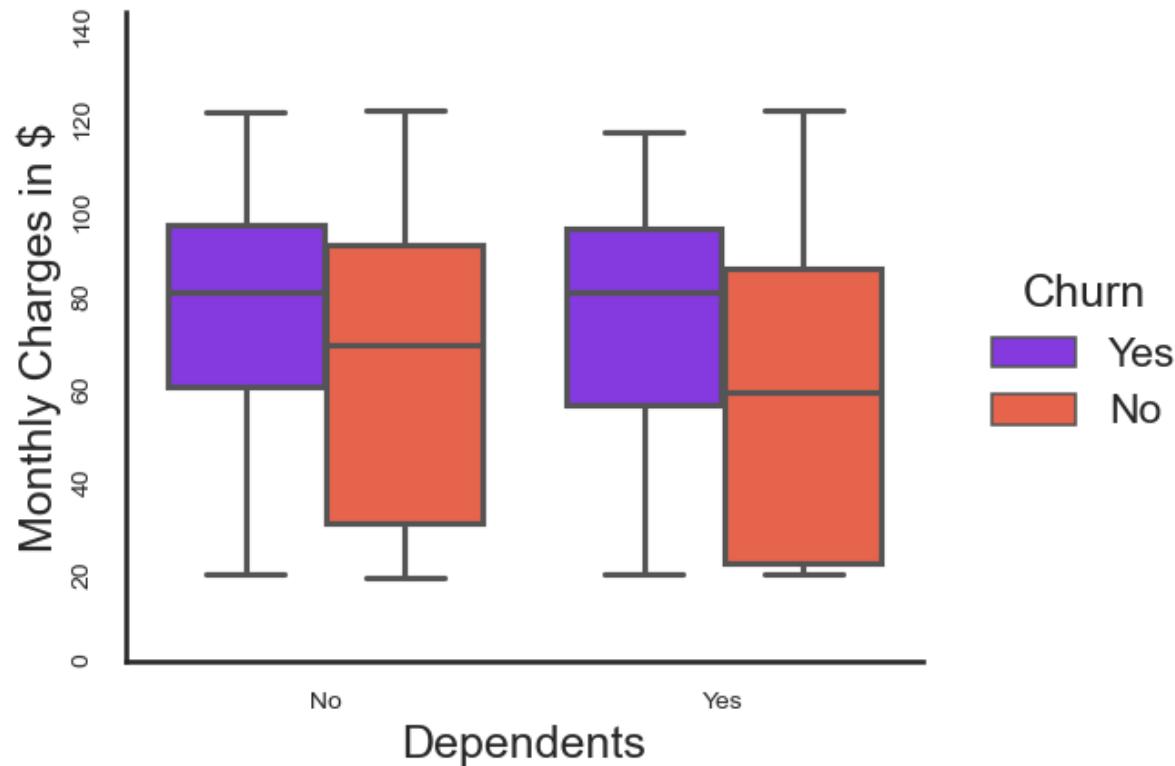
3. Box Plot of Monthly Charges and Partner wrt Churn



Insight:

Customers with partners have higher monthly charges when compared to customers without partners.
They have higher churn rate also..

4. Box Plot of Monthly Charges and Dependents wrt Churn

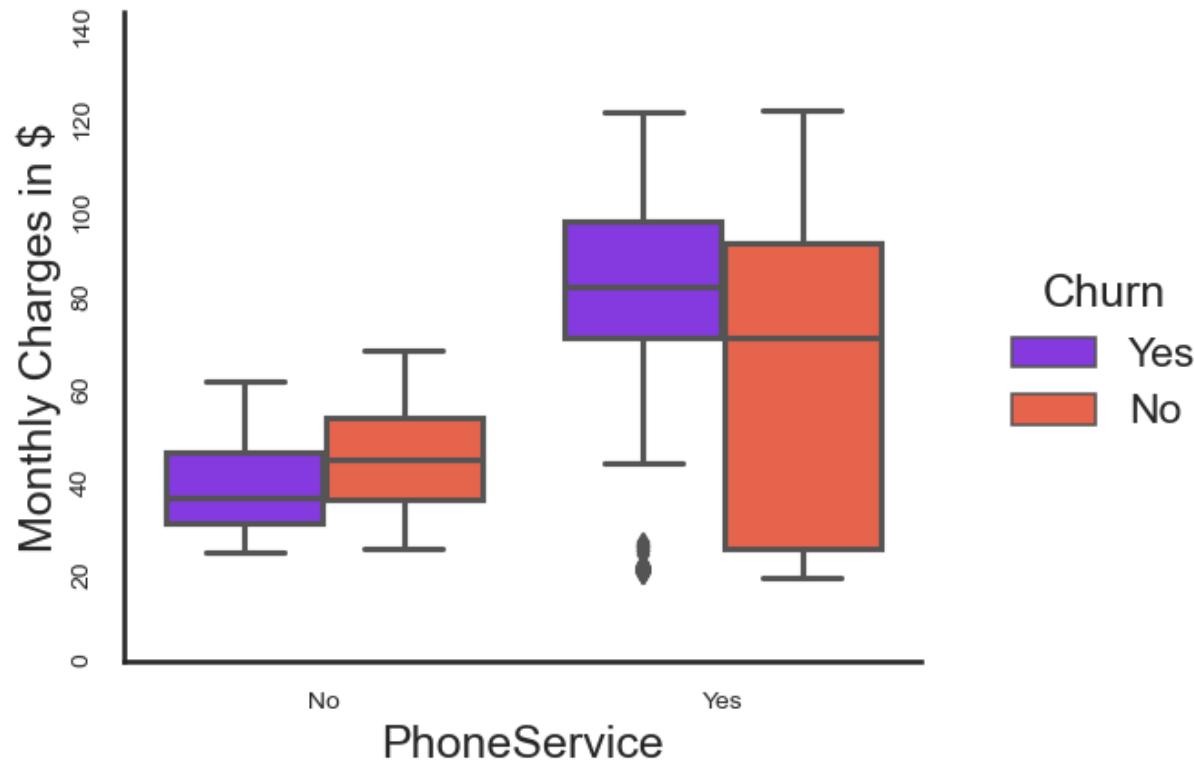


Insight:

Customers with dependents have low Monthly charges when compared to customers without dependents.

The churn rate is almost the same for both type of customers..

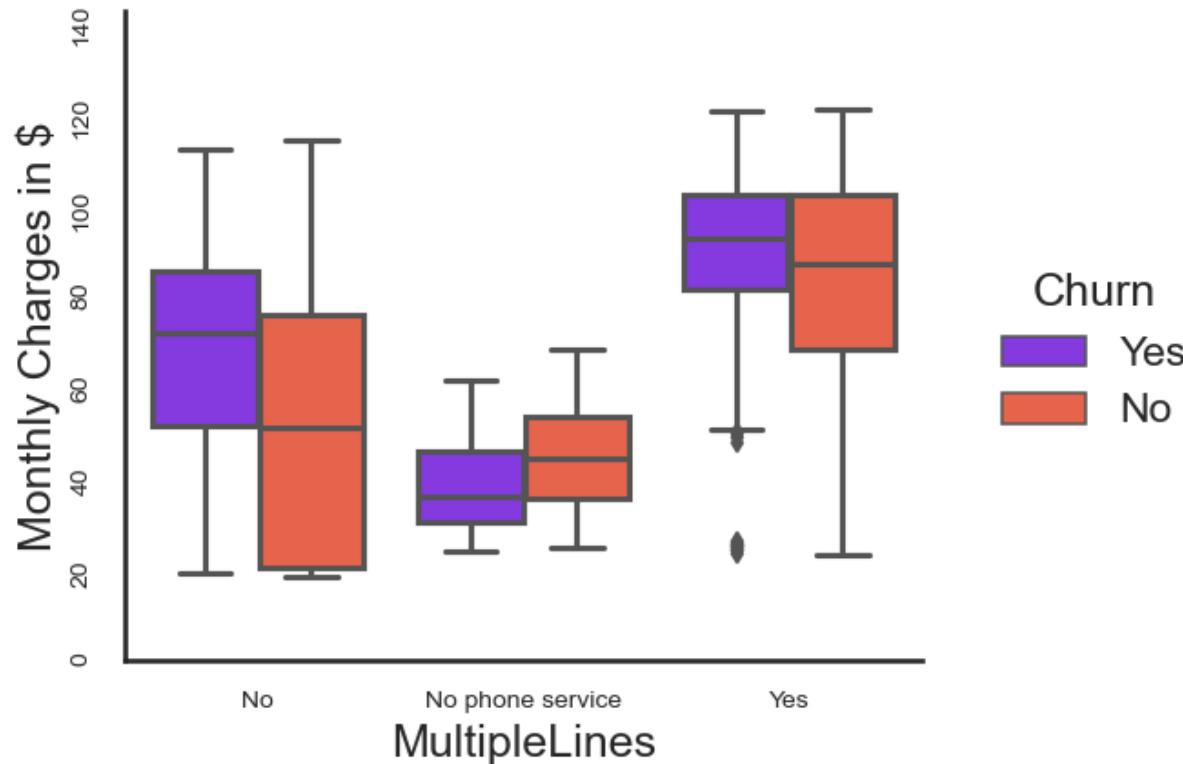
5. Box Plot of Monthly Charges and PhoneService wrt Churn



Insight:

People with a phone service have a high monthly charges and their churn rate is also higher when compared to customers without a phone service..

6. Box Plot of Monthly Charges and MultipleLines wrt Churn



Insight:

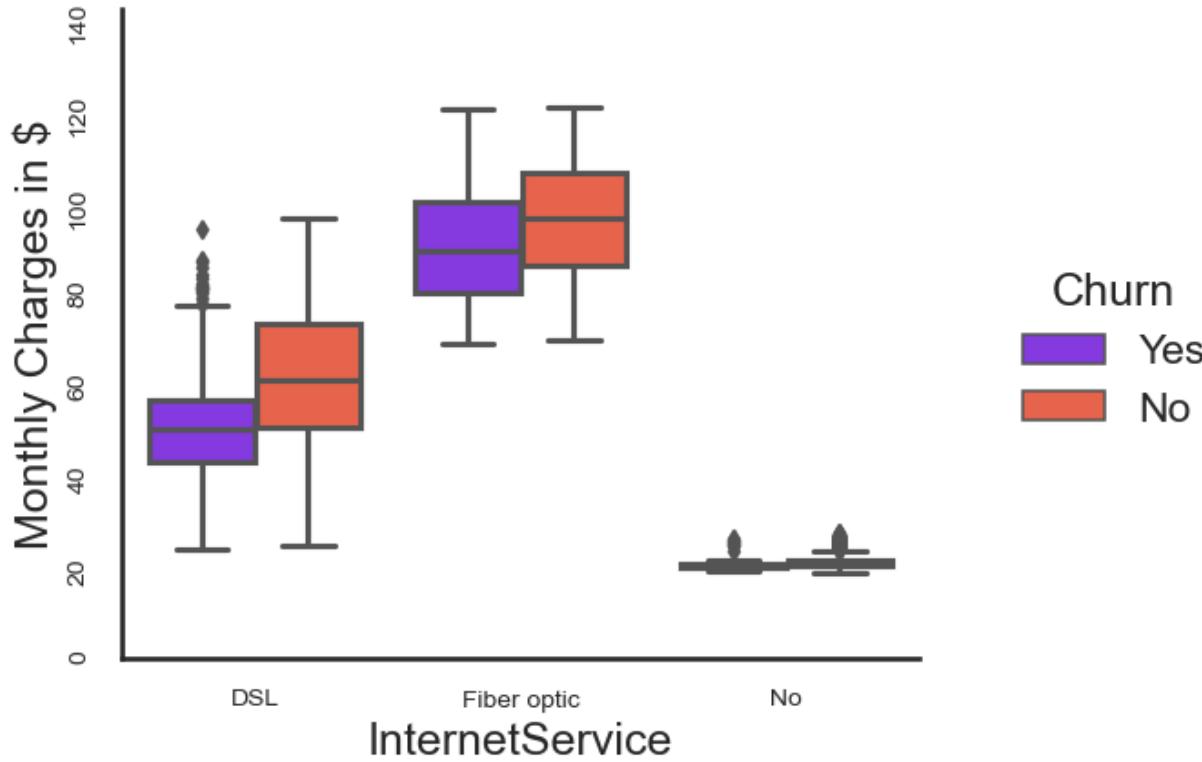
Customers with multiple lines have higher monthly charges.

Their churn rate is also higher when compared to other two categories.

Customers who have dont have multiple lines have significantly lower monthly charges .

As expected, customers who do not enroll in the phone service have low charges..

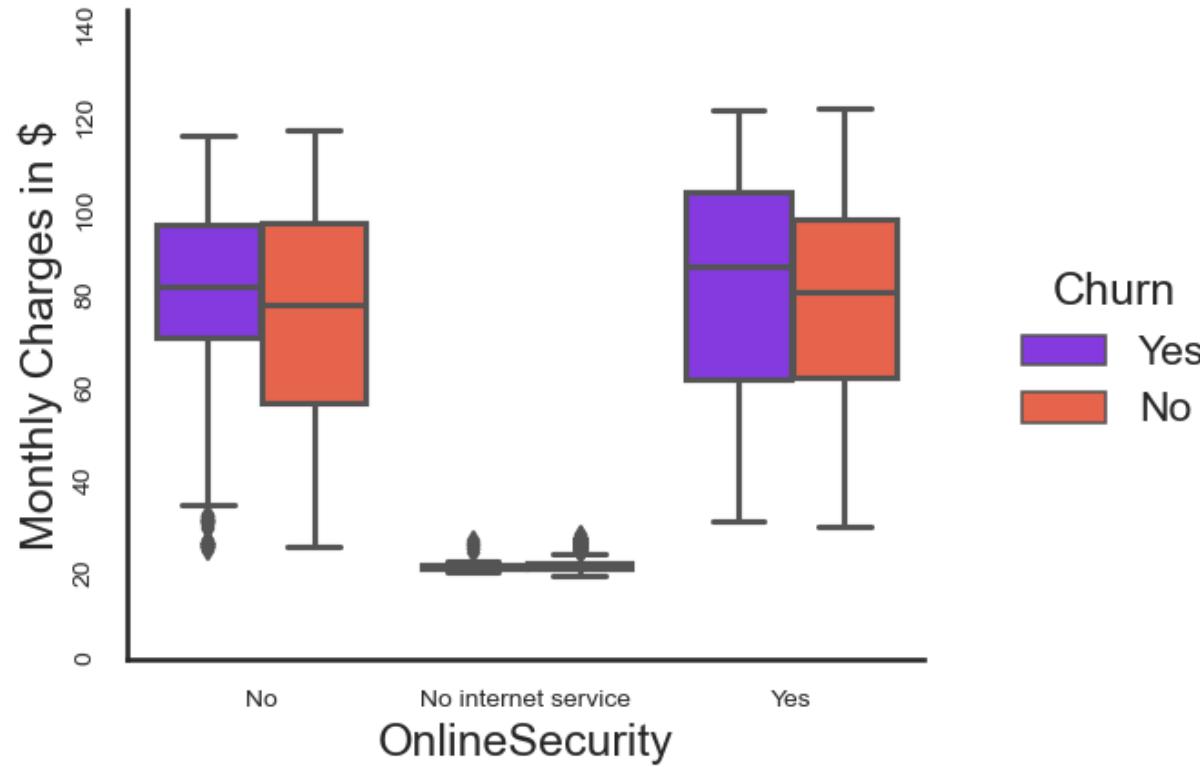
7. Box Plot of Monthly Charges and InternetService wrt Churn



Insight:

Customers who opted for 'Fiber optic' service have higher monthly charges.
Customers who opted for 'DSL' service has significantly lower monthly charges.
As expected, customers who do not enroll in the internet service have low charges.
Higher the charges, higher is the churn rate..

8. Box Plot of Monthly Charges and OnlineSecurity wrt Churn



Insight:

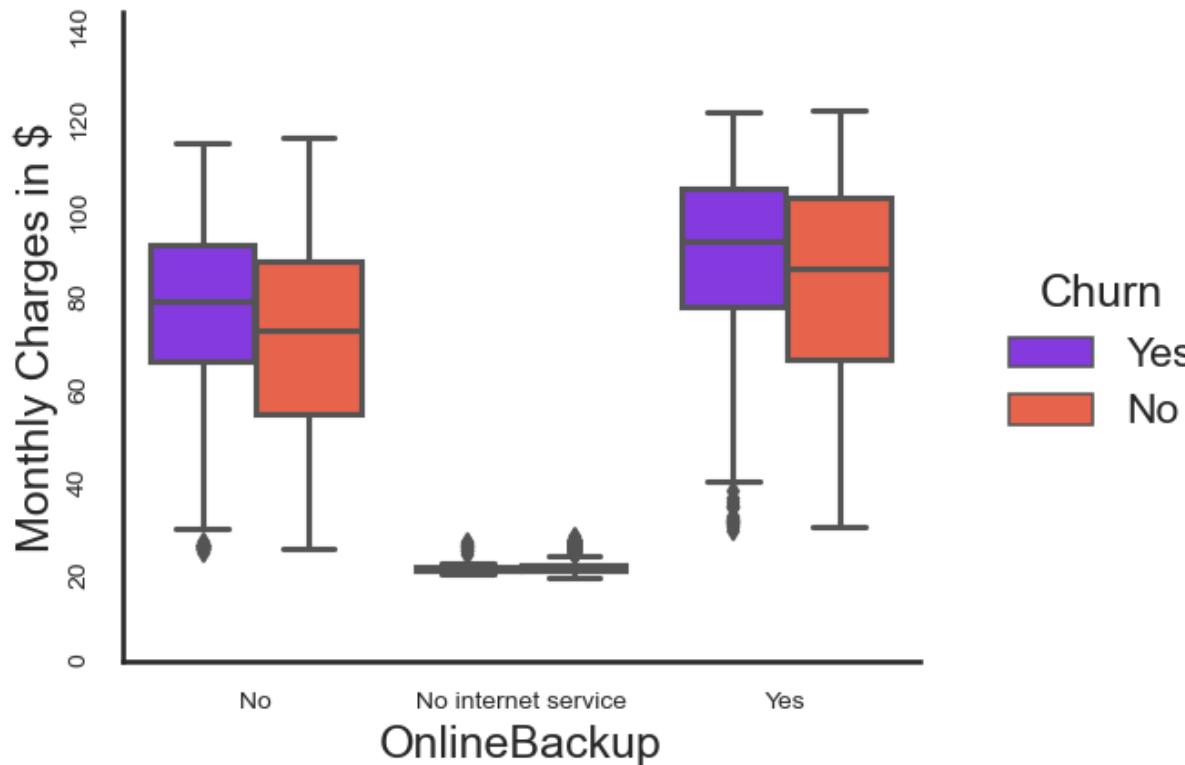
Customers who opted for 'Online security' service have slightly higher monthly charges.

Customers who didnt opt for 'Online security' service has slightly lower monthly charges .

As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges, higher is the churn rate..

9. Box Plot of Monthly Charges and OnlineBackup wrt Churn



Insight:

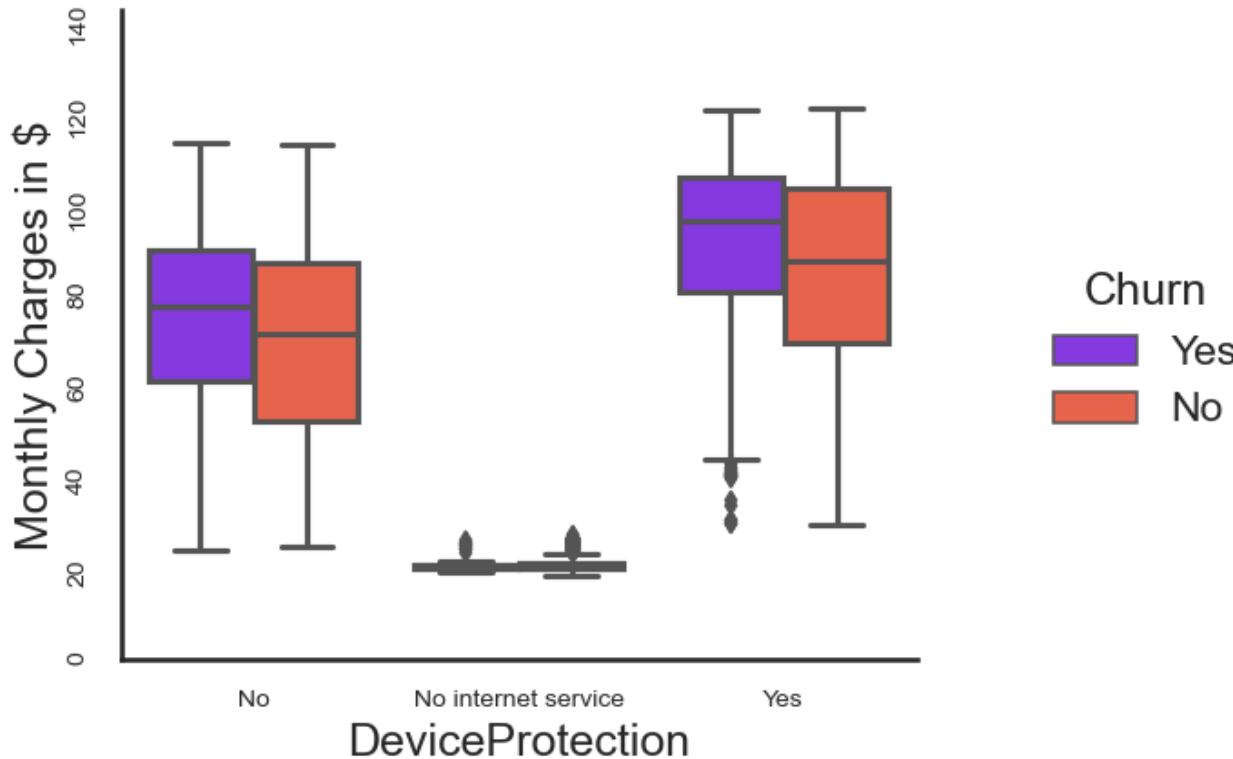
Customers who opted for 'Online Backup' service have higher monthly charges.

Customers who didnt opt for 'Online Backup' service has lower monthly charges .

As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges, higher is the churn rate..

10. Box Plot of Monthly Charges and DeviceProtection wrt Churn



Insight:

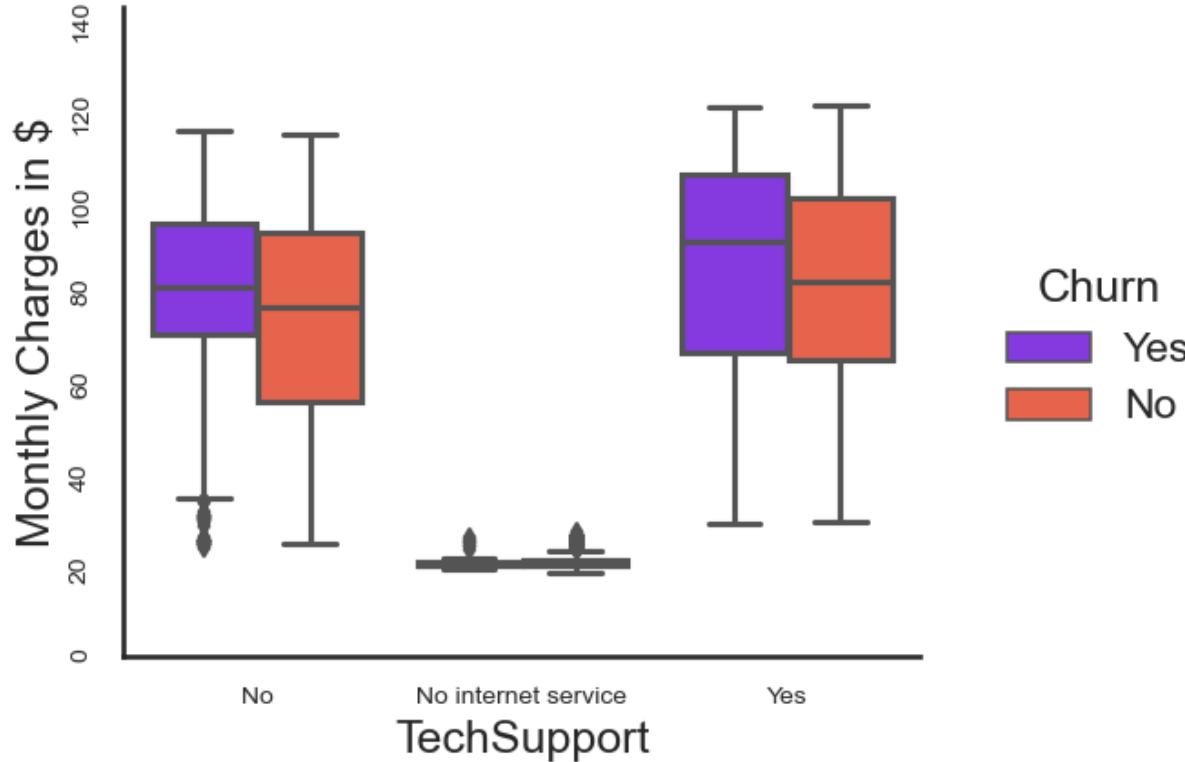
Customers who opted for 'Device Protection' service have higher monthly charges.

Customers who didnt opt for 'Device Protection' service has lower monthly charges .

As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges, higher is the churn rate..

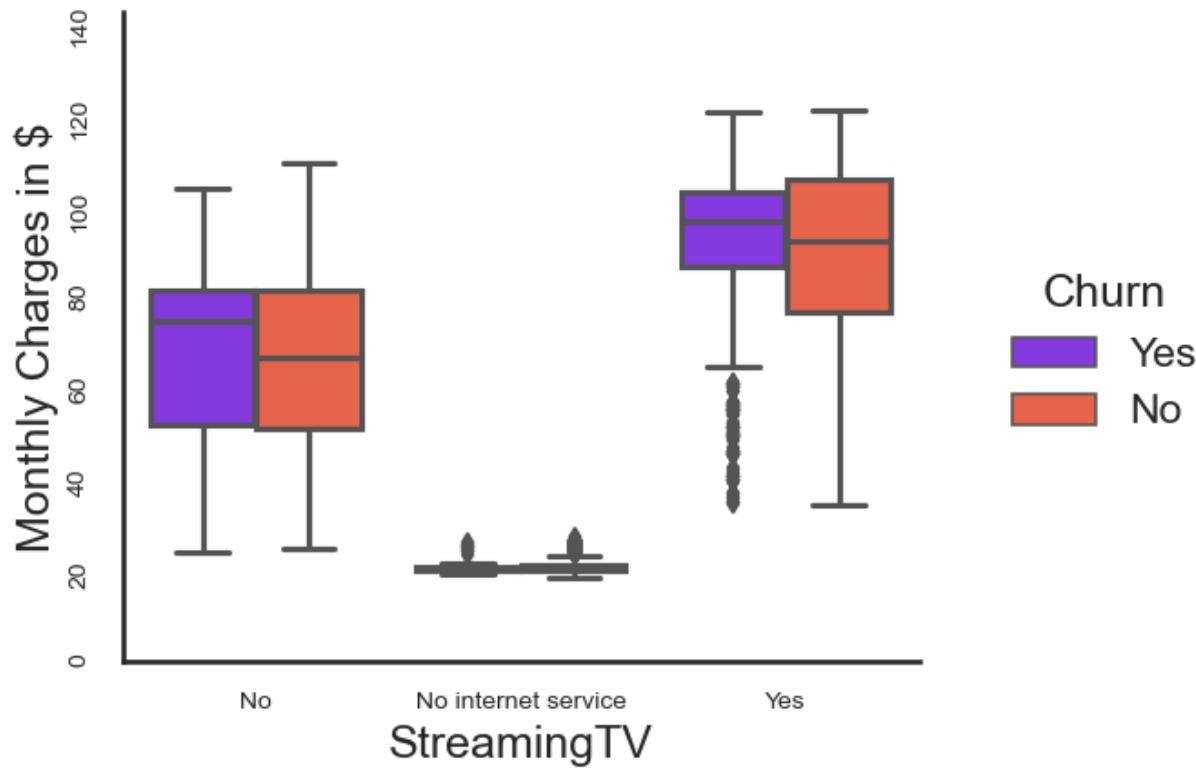
11. Box Plot of Monthly Charges and TechSupport wrt Churn



Insight:

Customers who opted for 'Tech support' service have slightly higher monthly charges.
Customers who didnt opt for 'Tech support' service has slightly lower monthly charges .
As expected, customers who do not enroll in the internet service have minimal charges.
Higher the charges,higher is the churn rate..

12. Box Plot of Monthly Charges and StreamingTV wrt Churn



Insight:

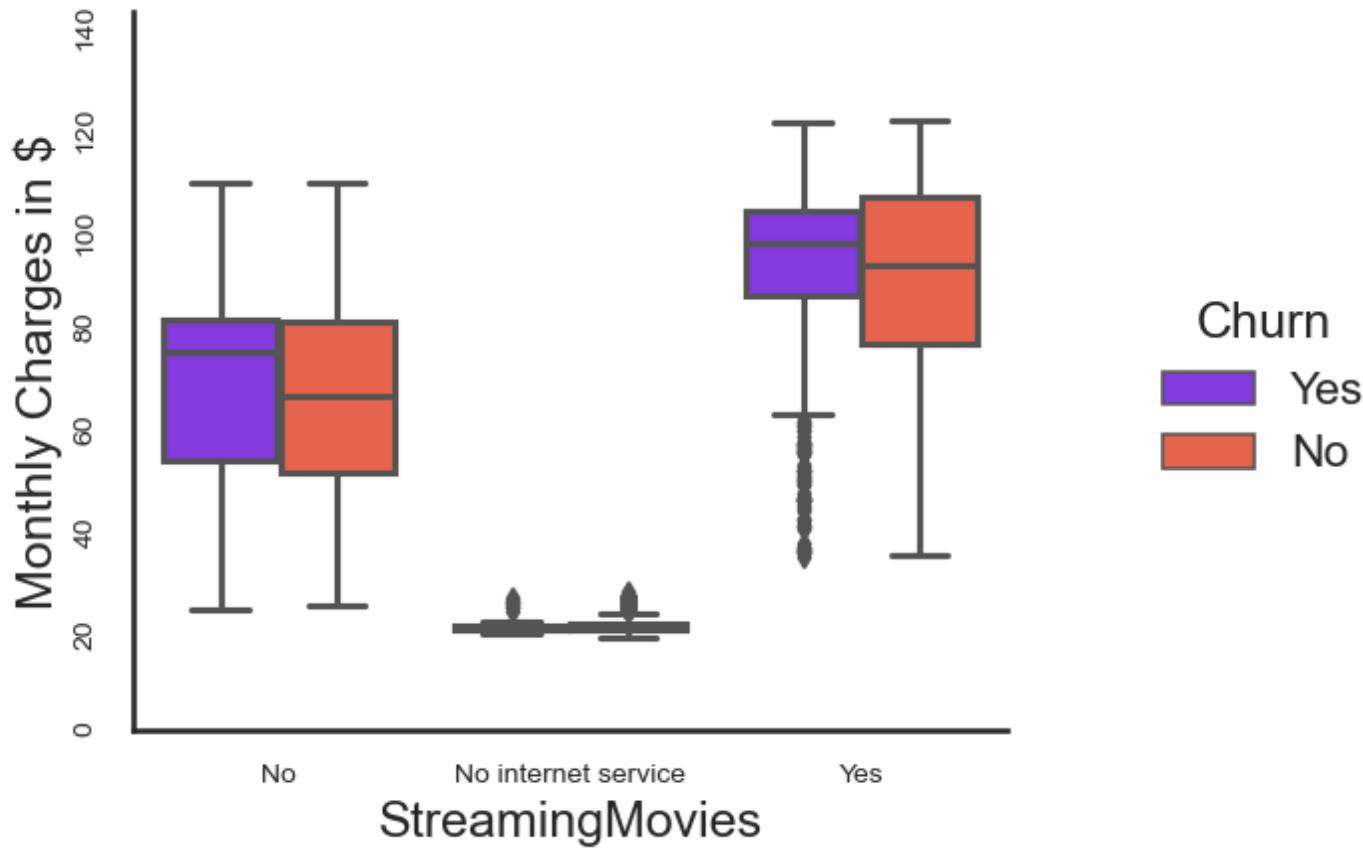
Customers who opted for 'Streaming TV' service have higher monthly charges.

Customers who didn't opt for 'Streaming TV' service has lower monthly charges .

As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges,higher is the churn rate..

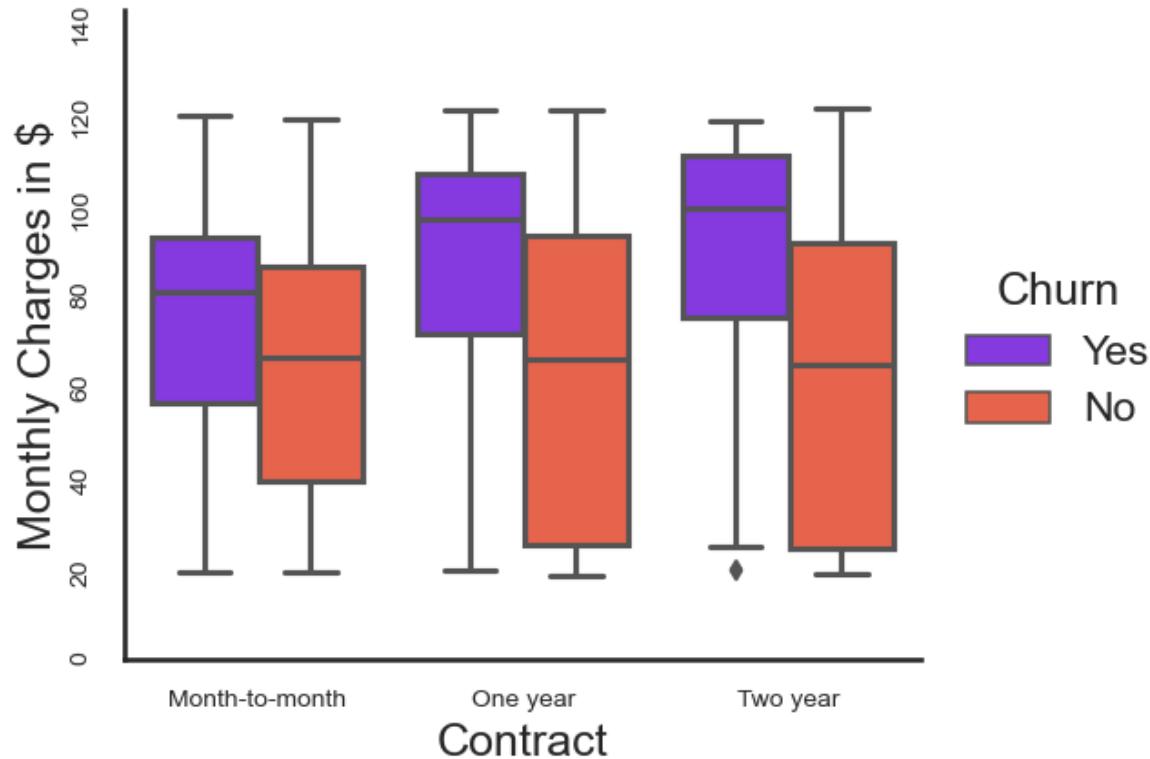
13. Box Plot of Monthly Charges and StreamingMovies wrt Churn



Insight:

Customers who opted for 'Streaming Movies' service have higher monthly charges.
Customers who didnt opt for 'Streaming Movies' service has lower monthly charges .
As expected, customers who do not enroll in the internet service have minimal charges.
Higher the charges,higher is the churn rate..

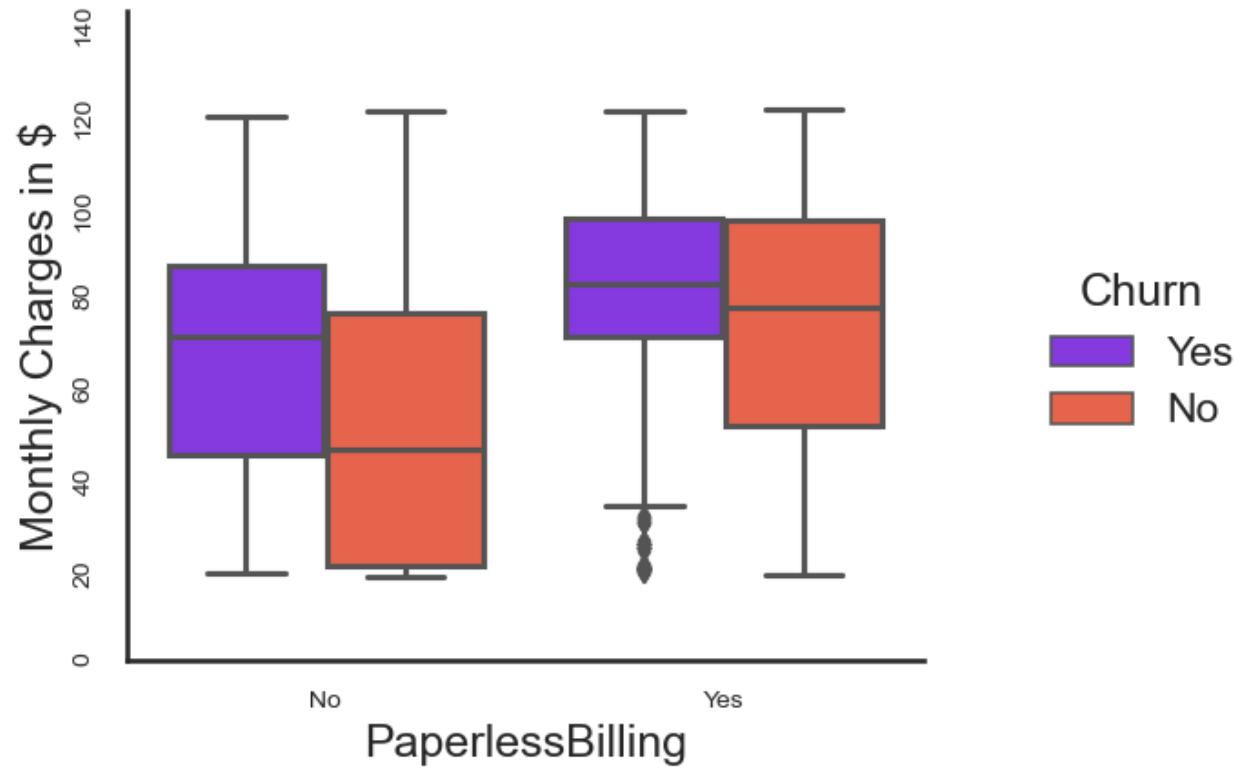
14. Box Plot of Monthly Charges and Contract wrt Churn



Insight:

Customers who opted for 'Two year' contract and higher monthly charges have higher churn rate.
Customers who opted for 'one year' contract has slightly lower monthly charges.
As expected, customers who do not enroll in the contract or on a month to month basis, have lower monthly charges. Higher the charges, higher is the churn rate..

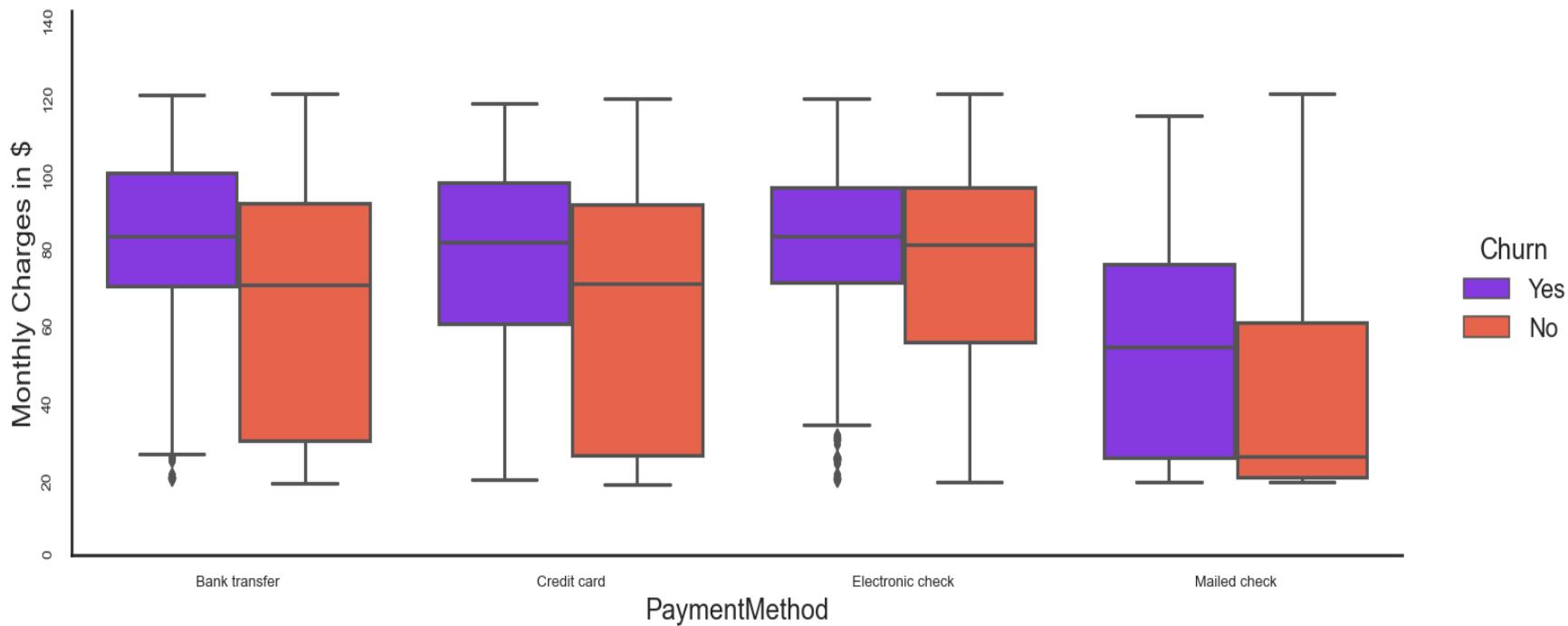
15. Box Plot of Monthly Charges and PaperlessBilling wrt Churn



Insight:

Customers who opted for 'Paperless Billing' service have higher monthly charges.
Customers who didnt opt for 'Paperless Billing' service has lower monthly charges .
Higher the charges, higher is the churn rate..

16. Box Plot of Monthly Charges and PaymentMethod wrt Churn

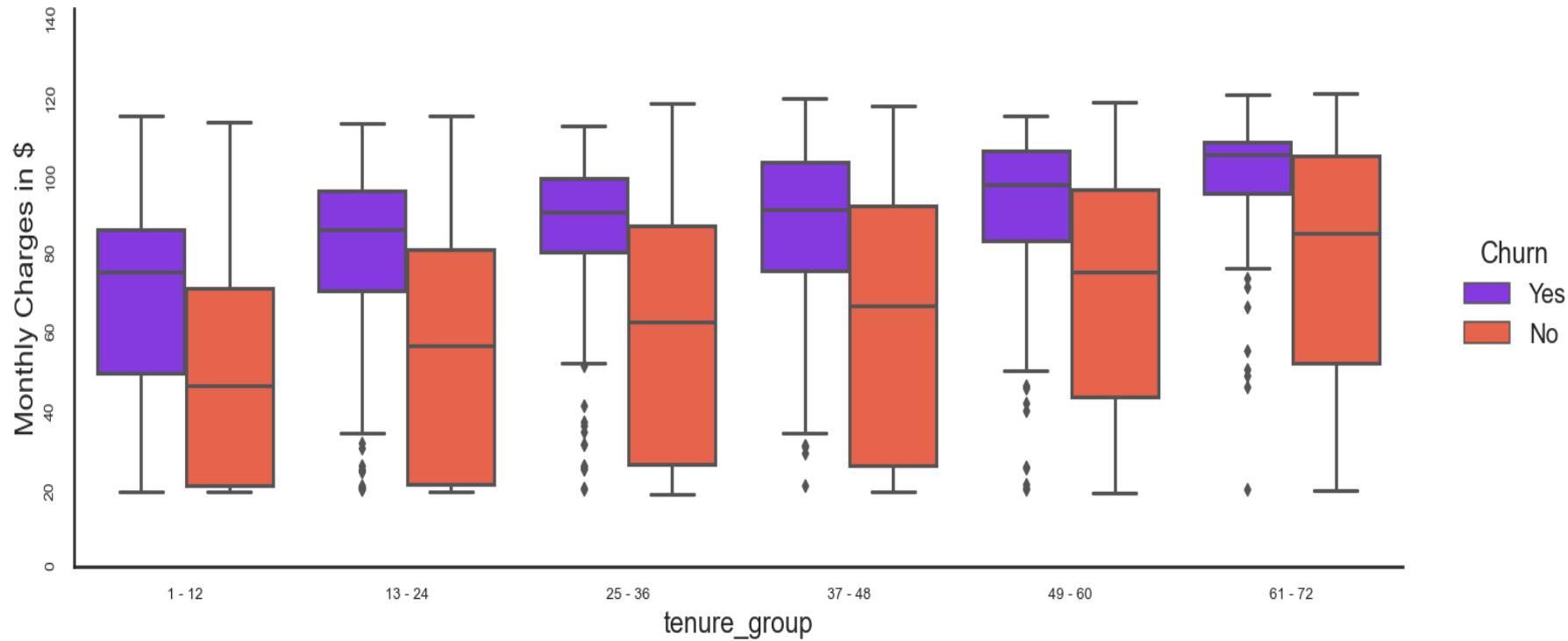


Insight:

Customers who opted for 'Mailed check' payment method are low churners as their monthly charges are low.

Rest other methods have higher monthly charges and that signifies a higher churn rate .

17. Box Plot of Monthly Charges and tenure_group wrt Churn



Insight:

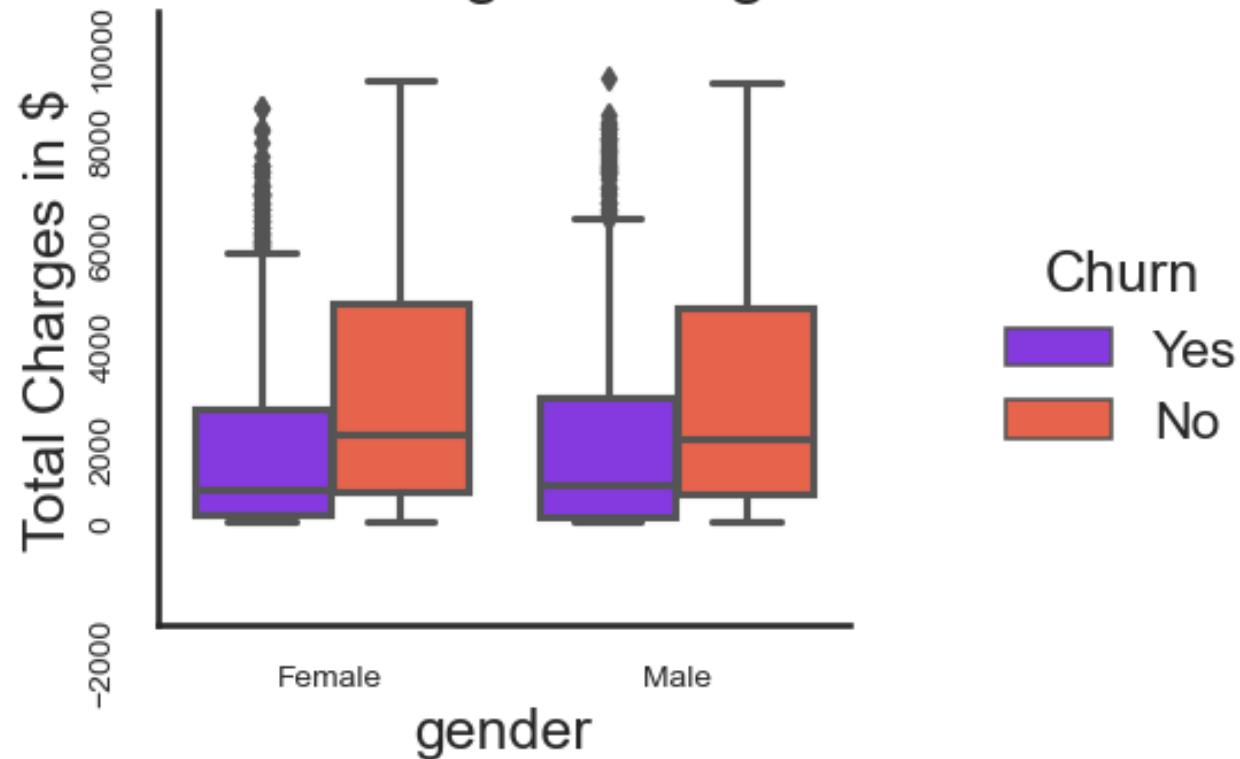
Customers in tenure group 61-72 have the highest monthly charges and have higher churn rate.

In tenure 1-12 months , monthly charges are lowest and so is the churn rate.

As the length of tenure increases ,monthly charges and churn rate also increases..

BIVARIATE PLOTS BETWEEN TOTAL CHARGES AND CATEGORICAL COLUMNS WRT CHURN

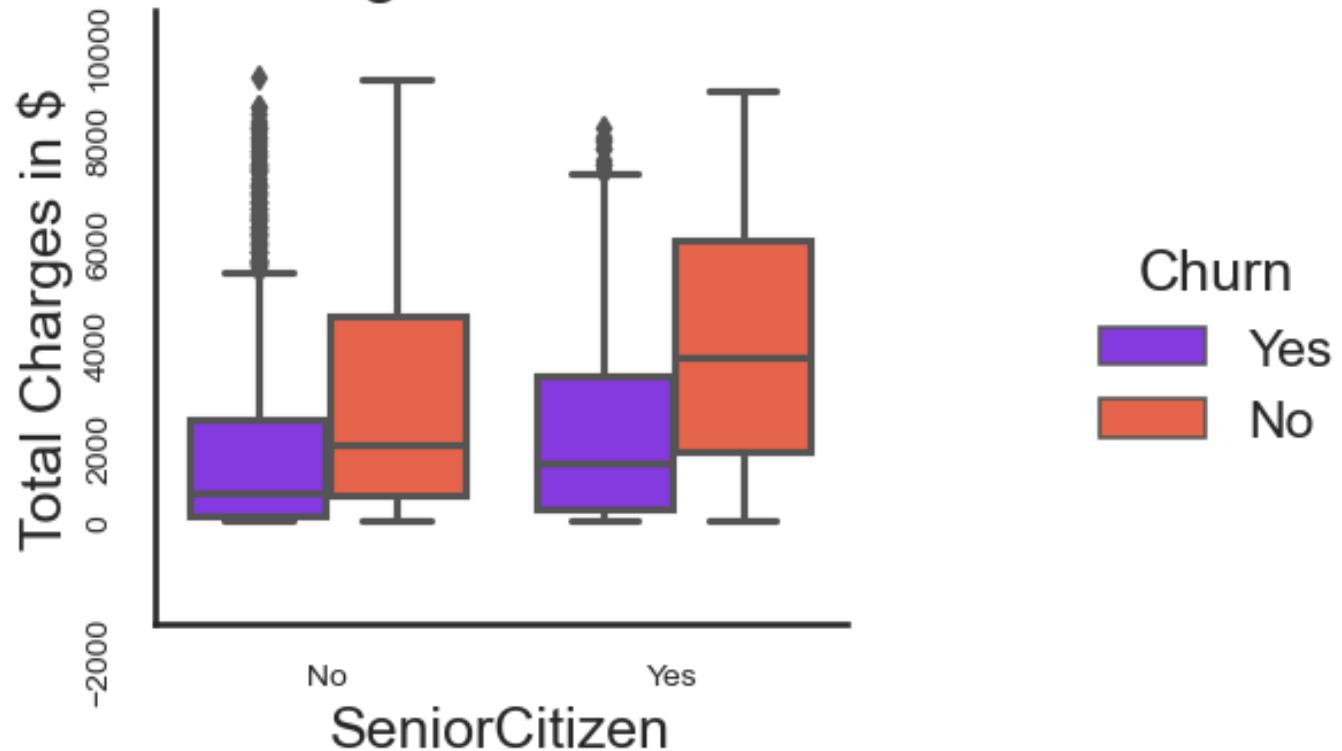
1. Box Plot of Total Charges and gender wrt Churn



Insight:

Both male and female customers who have lower total charges are likely to churn..

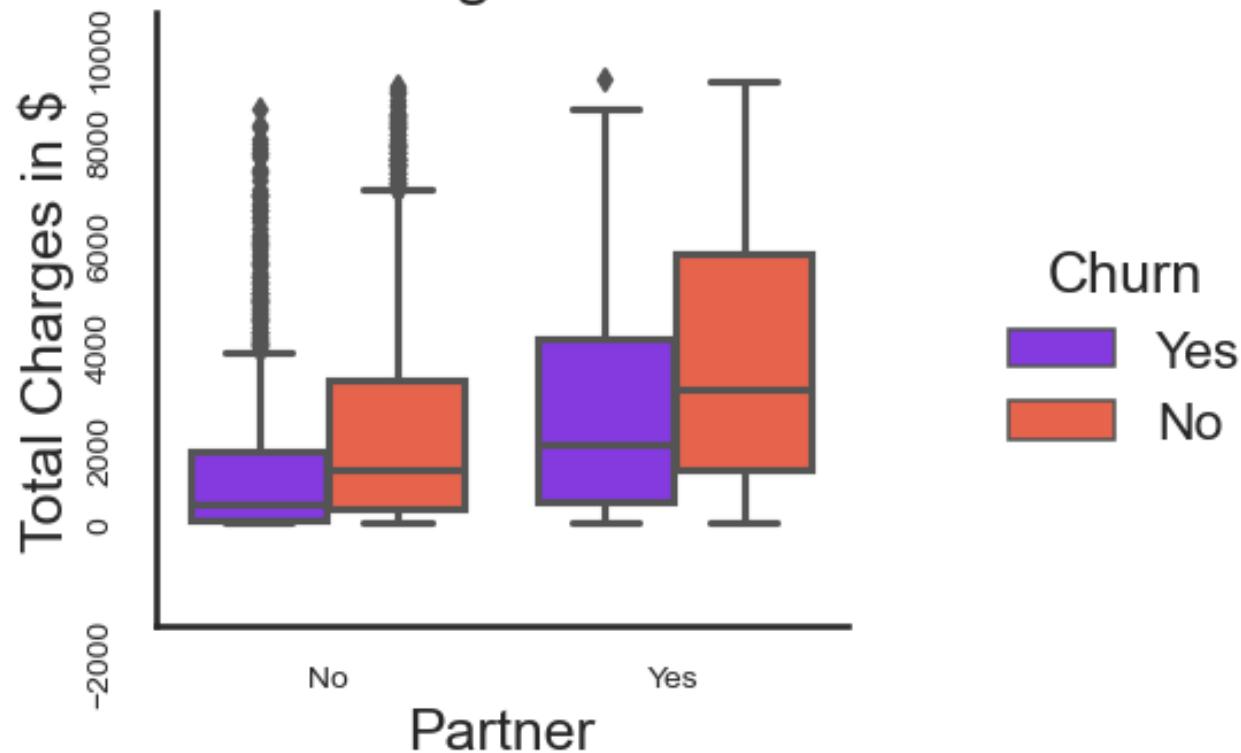
2. Box Plot of Total Charges and SeniorCitizen wrt Churn



Insight:

Total charges are significantly higher for Senior Citizens compared to non-Senior Citizens and they have higher churn rate too..

3. Box Plot of Total Charges and Partner wrt Churn

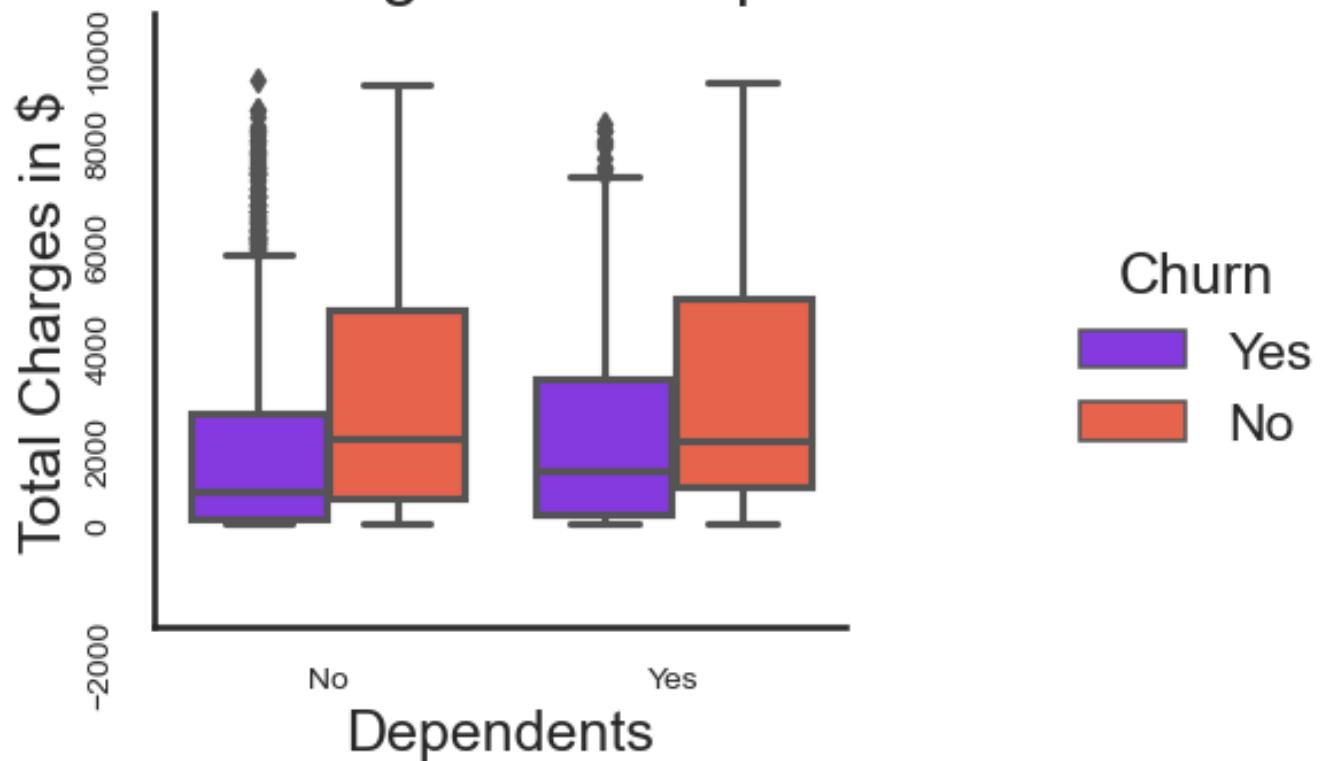


Insight:

Customers with partners have higher Total charges when compared to customers without partners.

They have higher churn rate also..

4. Box Plot of Total Charges and Dependents wrt Churn

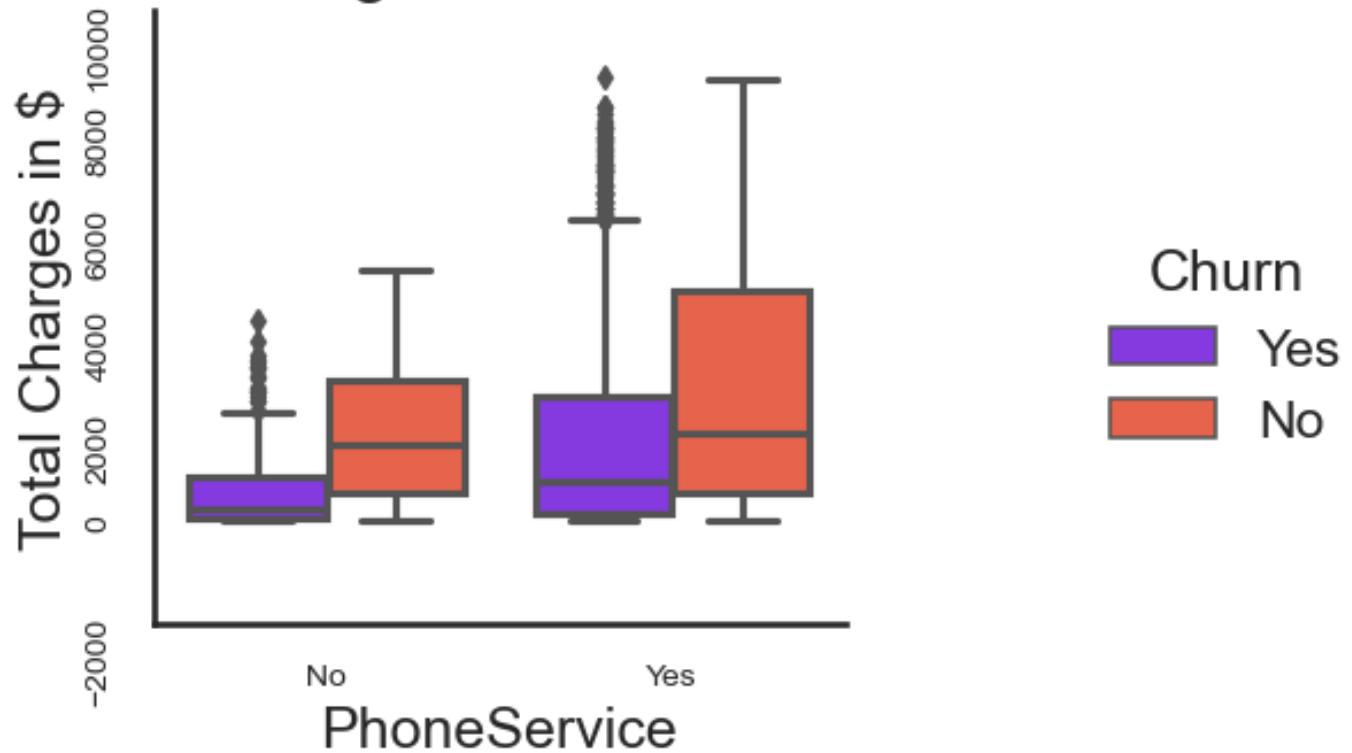


Insight:

Customers with dependents have high total charges when compared to customers without dependents.

The churn rate is almost the same for both type of customers..

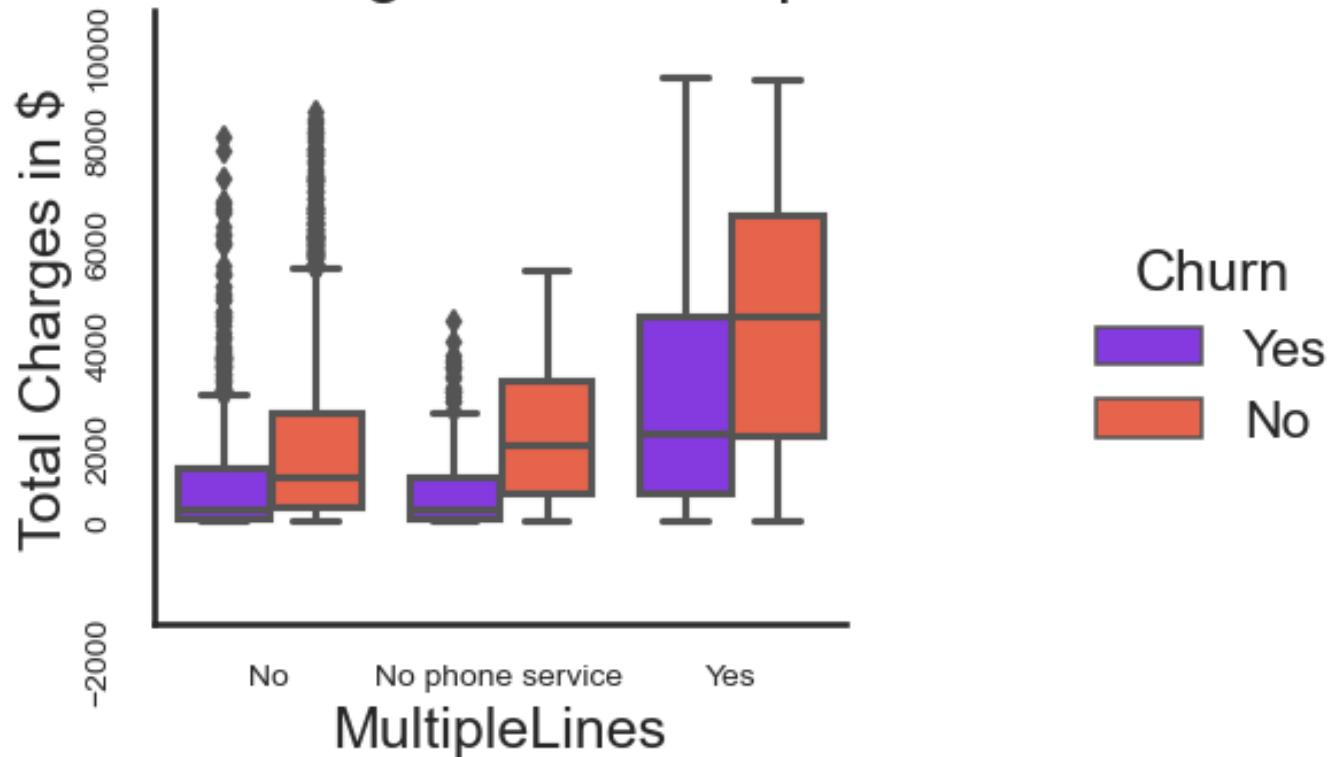
5. Box Plot of Total Charges and PhoneService wrt Churn



Insight:

People with a phone service have a high total charges and their churn rate is also higher when compared to customers without a phone service..

6. Box Plot of Total Charges and MultipleLines wrt Churn



Insight:

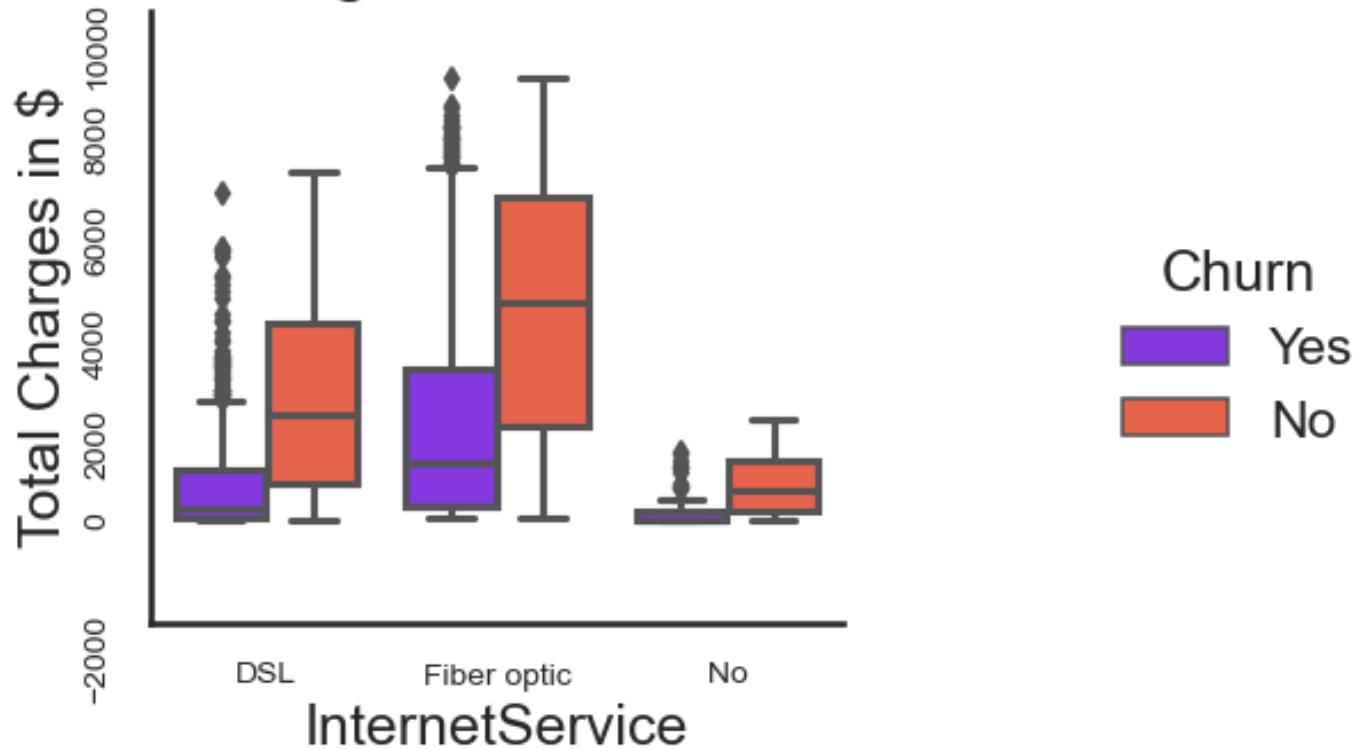
Customers with multiple lines have higher total charges.

Their churn rate is also higher when compared to other two categories.

Customers who have dont have multiple lines have significantly lower total charges.

As expected, customers who do not enroll in the phone service have low charges..

7. Box Plot of Total Charges and InternetService wrt Churn



Insight:

Customers who opted for 'Fiber optic' service have significantly higher Total charges.

Customers who opted for 'DSL' service has significantly lower total charges .

As expected, customers who do not enroll in the internet service have low charges.

Higher the charges, higher is the churn rate..

8. Box Plot of Total Charges and OnlineSecurity wrt Churn



Insight:

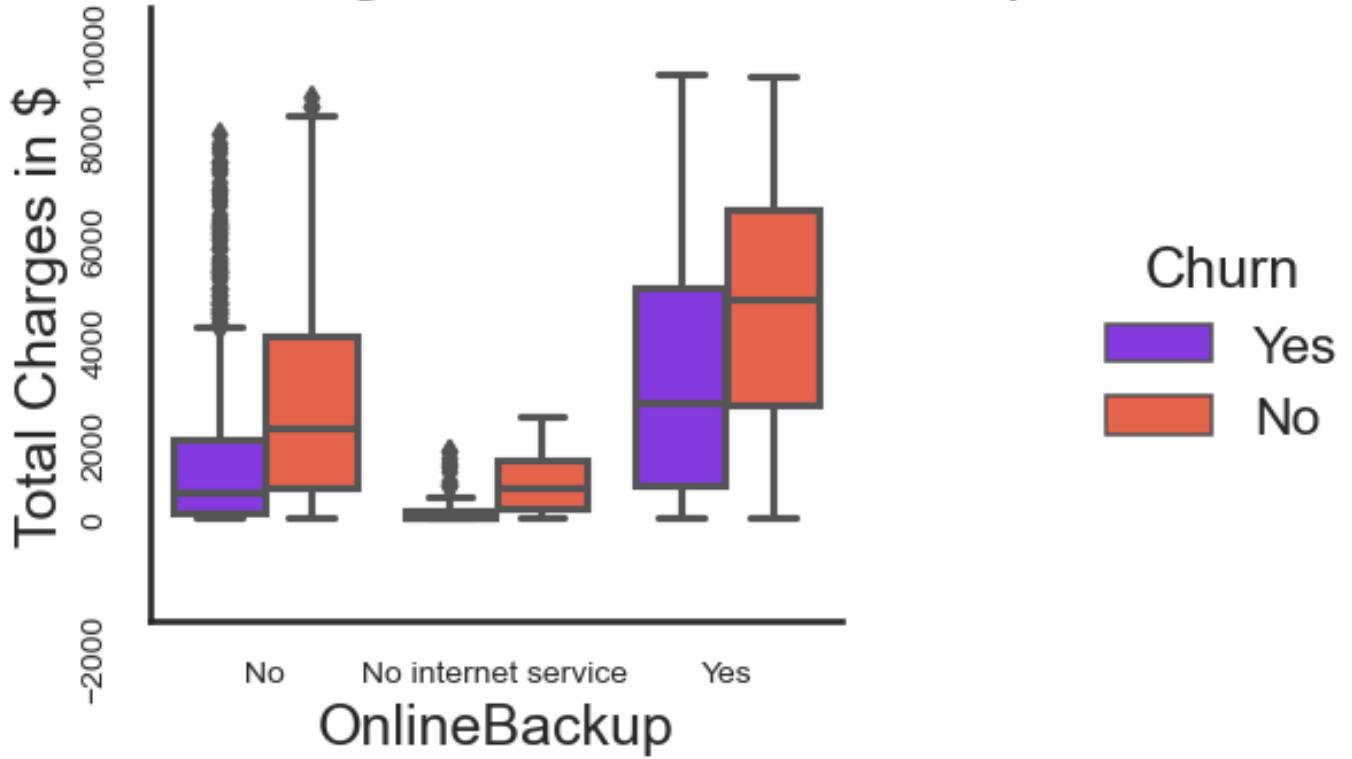
Customers who opted for 'Online security' service have higher total charges.

Customers who didnt opt for 'Online security' service has slightly lower total charges .

As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges,higher is the churn rate..

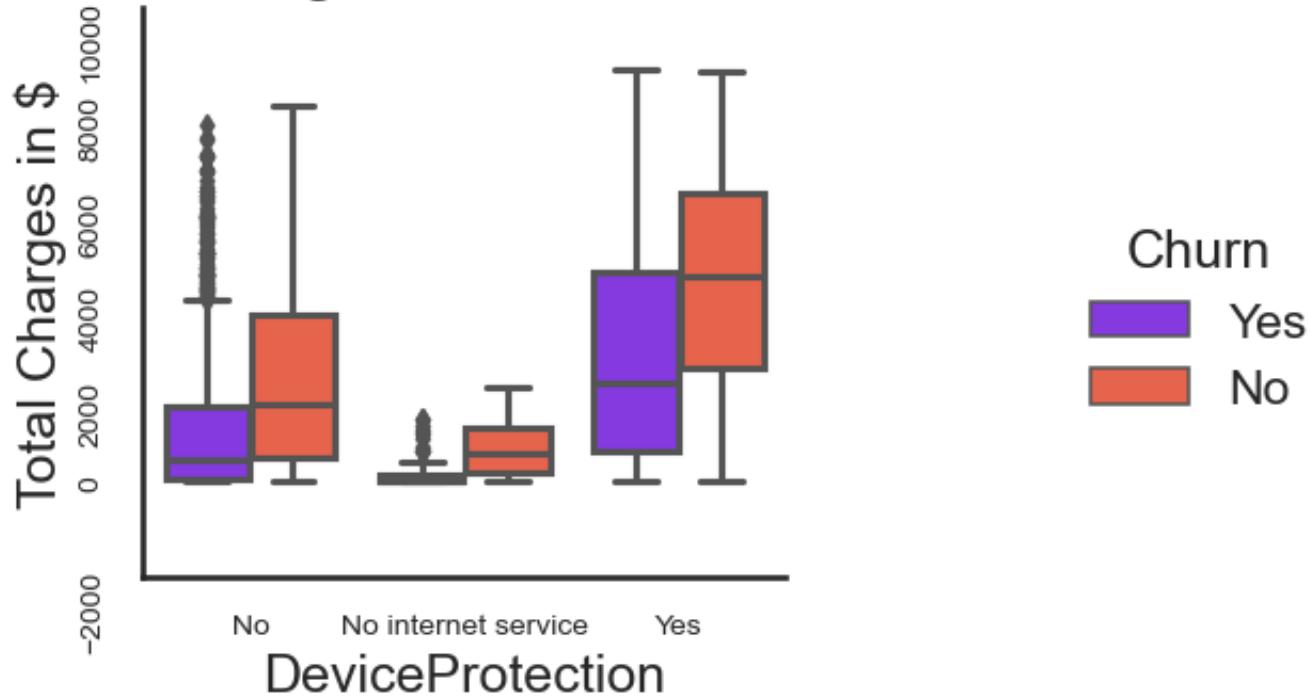
9. Box Plot of Total Charges and OnlineBackup wrt Churn



Insight:

Customers who opted for 'Online Backup' service have higher total charges.
Customers who didn't opt for 'Online Backup' service has lower total charges .
As expected, customers who do not enroll in the internet service have minimal charges. Higher the charges, higher is the churn rate..

10. Box Plot of Total Charges and DeviceProtection wrt Churn

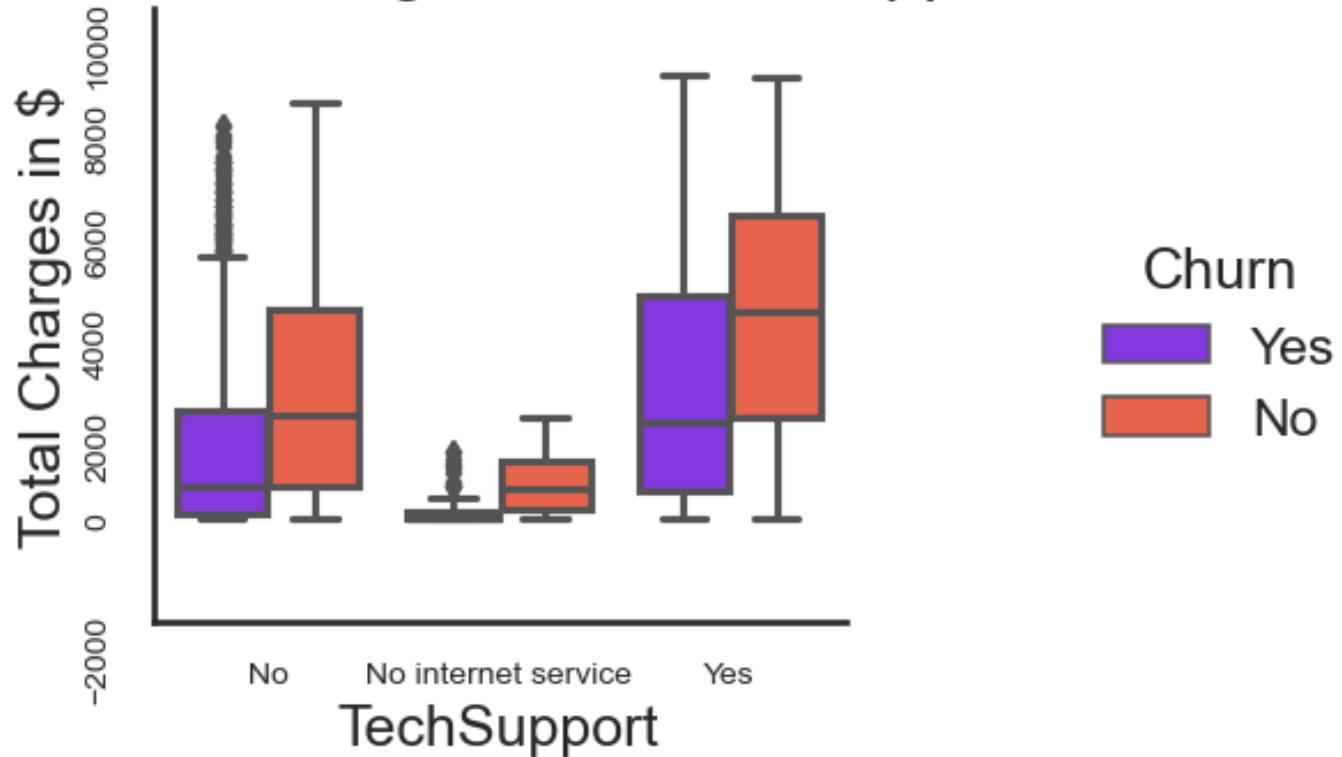


Insight:

Customers who opted for 'Device Protection' service have higher total charges.
Customers who didnt opt for 'Device Protection' service has lower total charges .
As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges, higher is the churn rate..

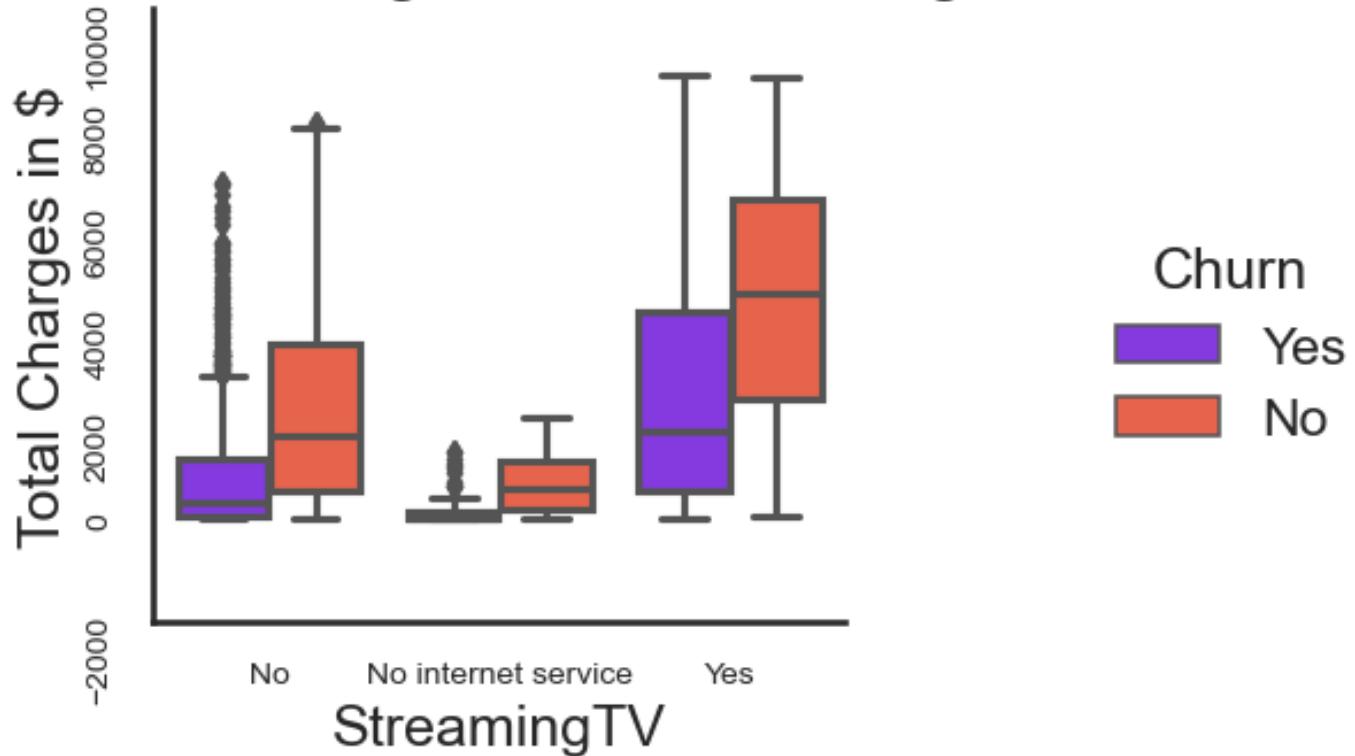
11. Box Plot of Total Charges and TechSupport wrt Churn



|
Insight:

Customers who opted for 'Tech support' service have higher total charges.
Customers who didnt opt for 'Tech support' service has lower total charges .
As expected, customers who do not enroll in the internet service have minimal charges. Higher the charges, higher is the churn rate..

12. Box Plot of Total Charges and StreamingTV wrt Churn



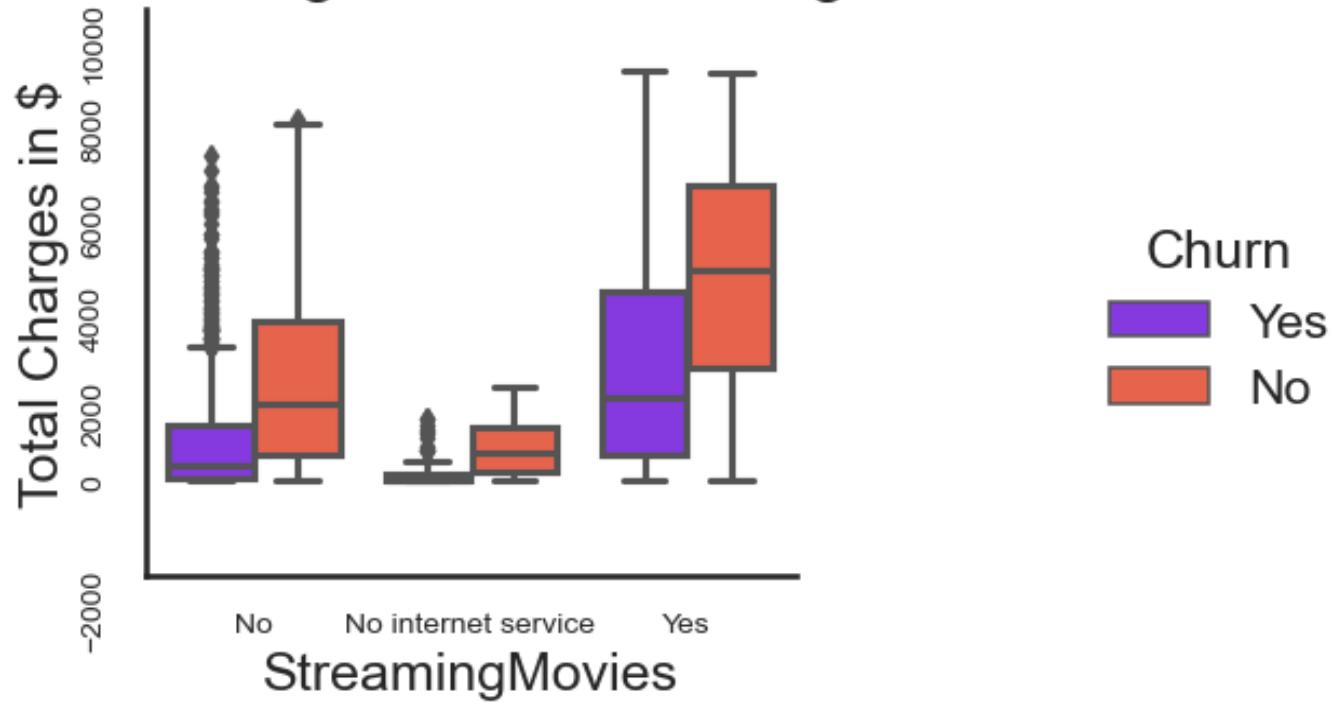
Insight: Customers who opted for 'Streaming TV' service have higher total charges.

Customers who didnt opt for 'Streaming TV' service has lower total charges .

As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges,higher is the churn rate..

13. Box Plot of Total Charges and StreamingMovies wrt Churn



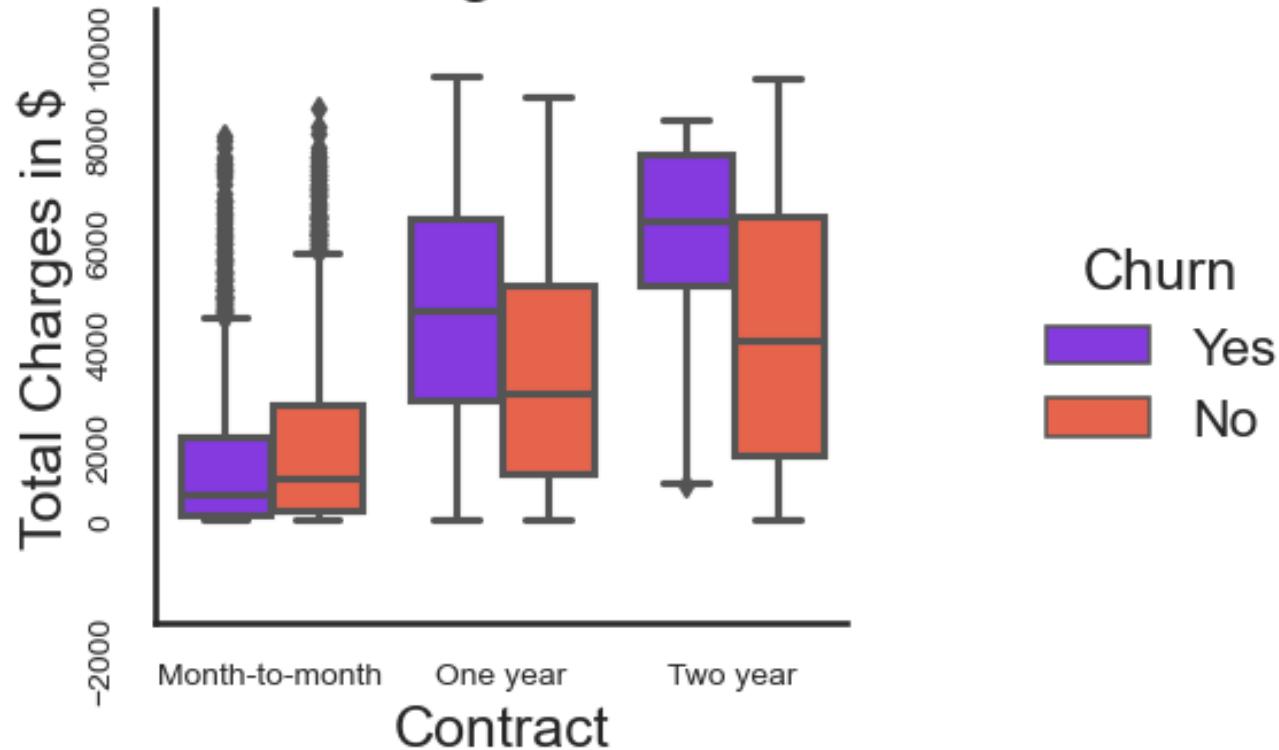
Insight:

Customers who opted for 'Streaming Movies' service have higher total charges.

Customers who didnt opt for 'Streaming Movies' service has lower total charges . As expected, customers who do not enroll in the internet service have minimal charges.

Higher the charges, higher is the churn rate..

14. Box Plot of Total Charges and Contract wrt Churn

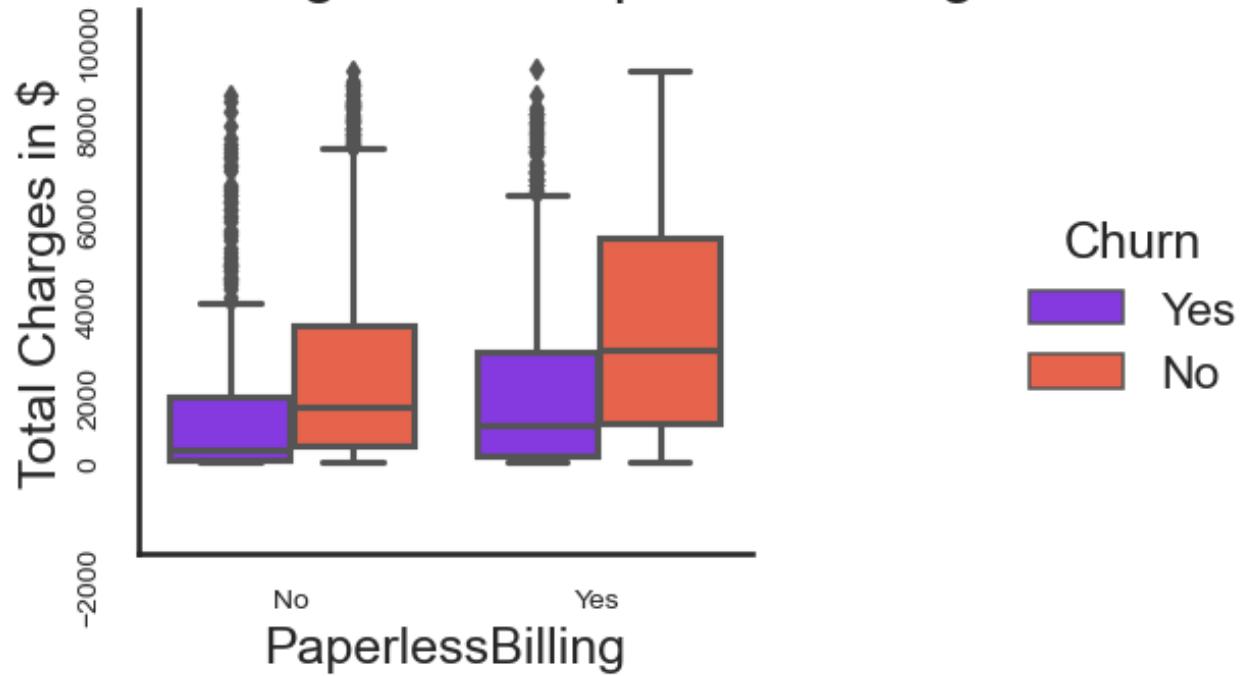


Insight:

Customers who opted for 'Two year' contract and higher total charges have higher churn rate. Customers who opted for 'one year' contract has slightly lower total charges . As expected, customers who do not enroll in the contract or on a month to month basis, have lower total charges.

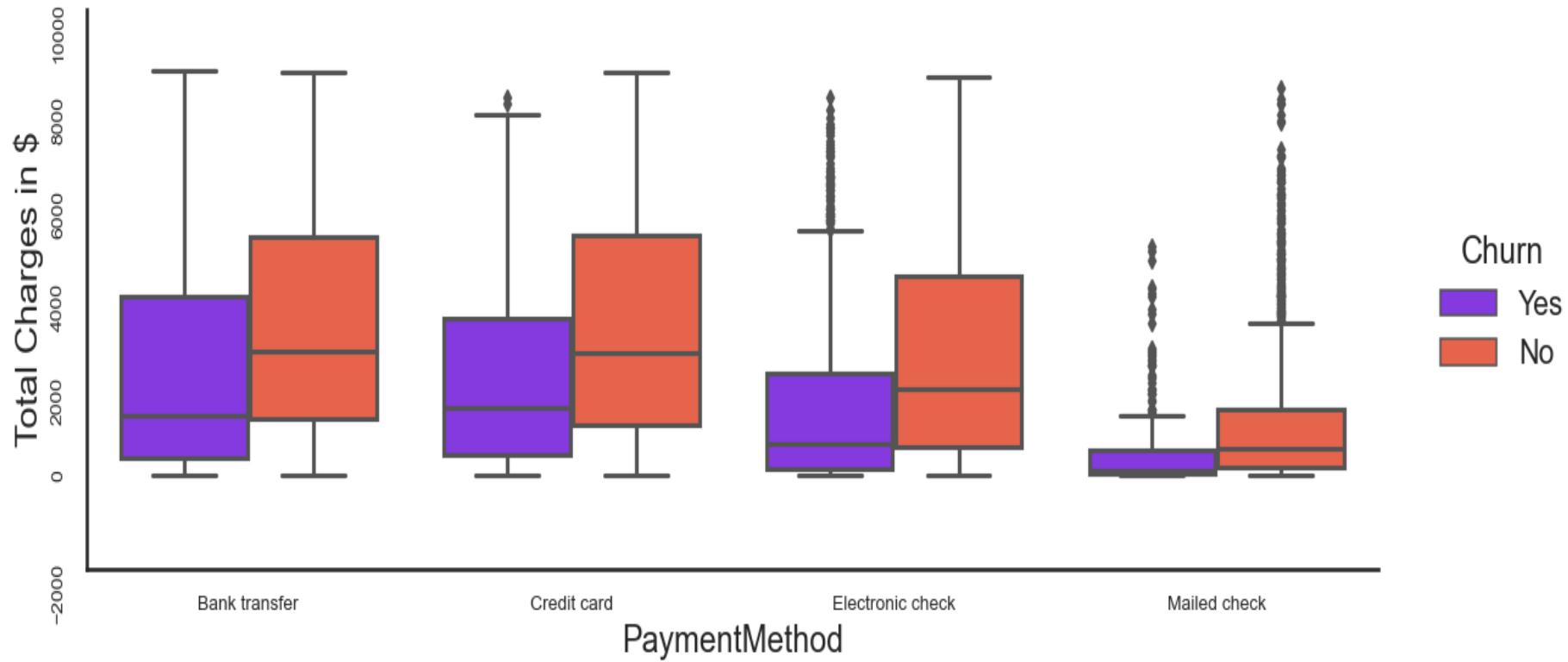
Higher the charges, higher is the churn rate..

15. Box Plot of Total Charges and PaperlessBilling wrt Churn



Insight: Customers who opted for 'Paperless Billing' service have higher total charges. Customers who didnt opt for 'Paperless Billing' service has lower total charges .Higher the charges, higher is the churn rate..

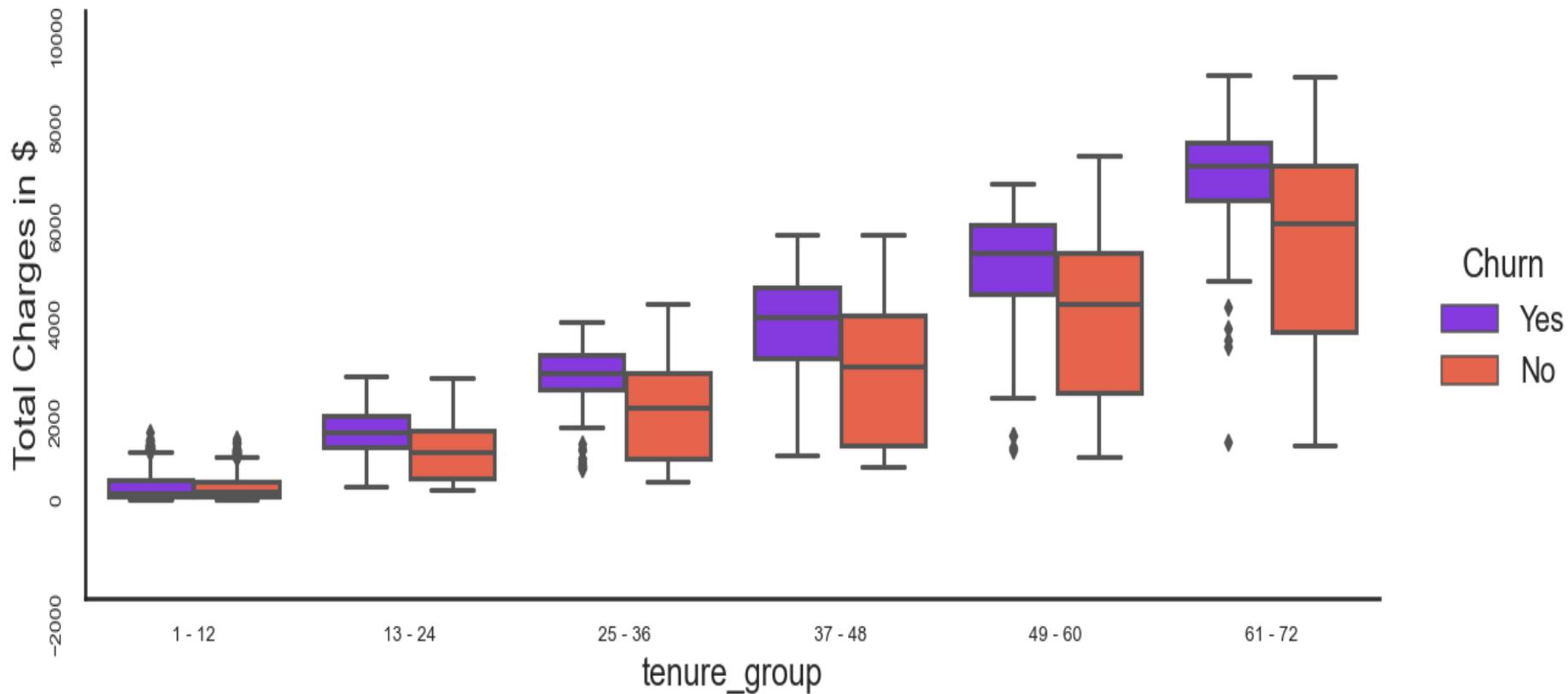
16. Box Plot of Total Charges and PaymentMethod wrt Churn



Insight:

Customers who opted for 'Mailed check' payment method are low churners as their monthly charges are low. Customers who opted for Credit card or Bank transfer methods have higher total charges and that signifies a higher churn rate .

17. Box Plot of Total Charges and tenure_group wrt Churn

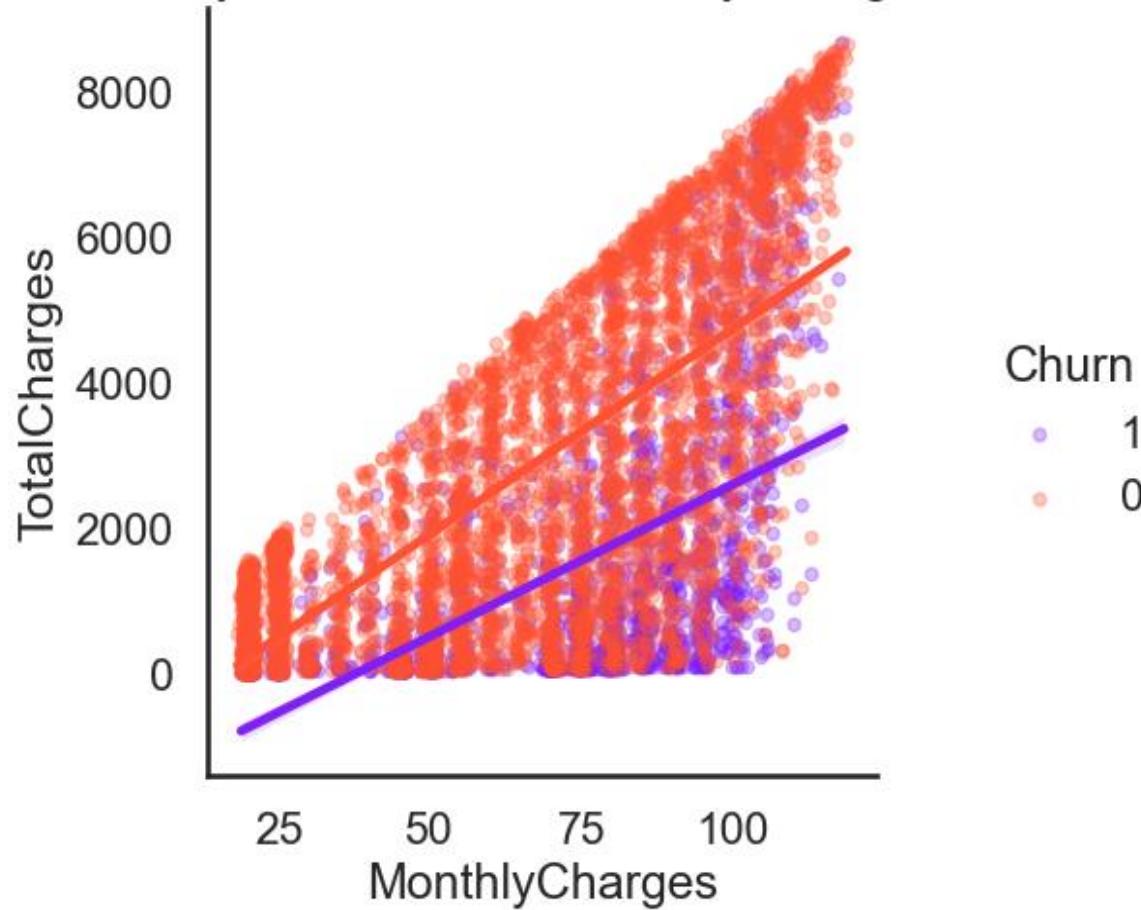


Insight:

Customers in tenure group 61-72 have the highest charges and have higher churn rate.
In tenure 1-12 months , total charges are lowest and so is the churn rate.
As the length of tenure increases ,total charges and churn rate also increases.

2B. BIVARIATE ANALYSIS BETWEEN CATEGORICAL AND NUMERICAL COLUMNS

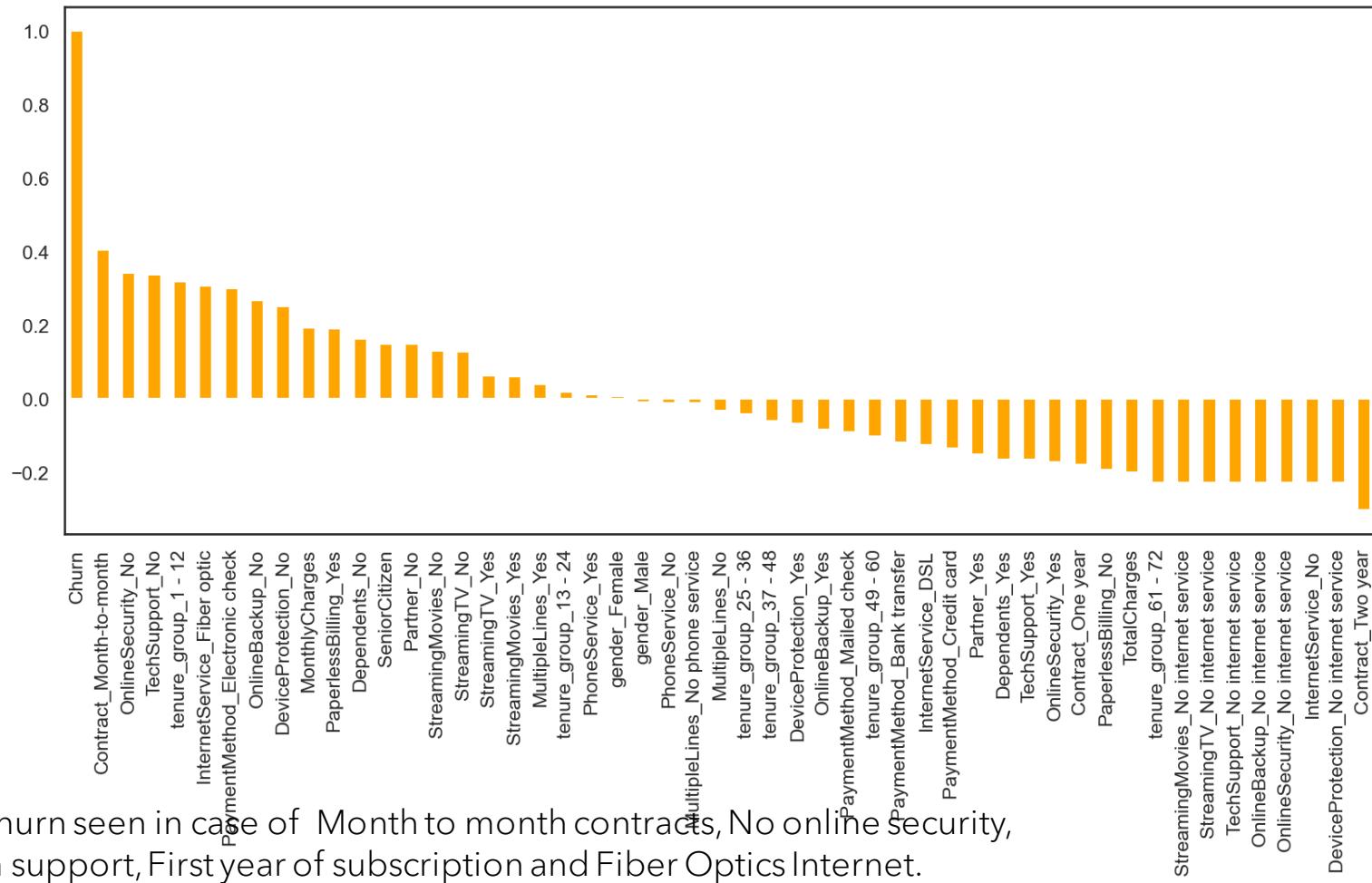
Bivariate Analysis of Total and Monthly Charges wrt Churn



Insight:

Here from the above graph it is clear that as the monthly charges are increasing we can experience the total charges also increase which shows the positive correlation too.

ANALYSIS WRT TO TARGET COLUMN

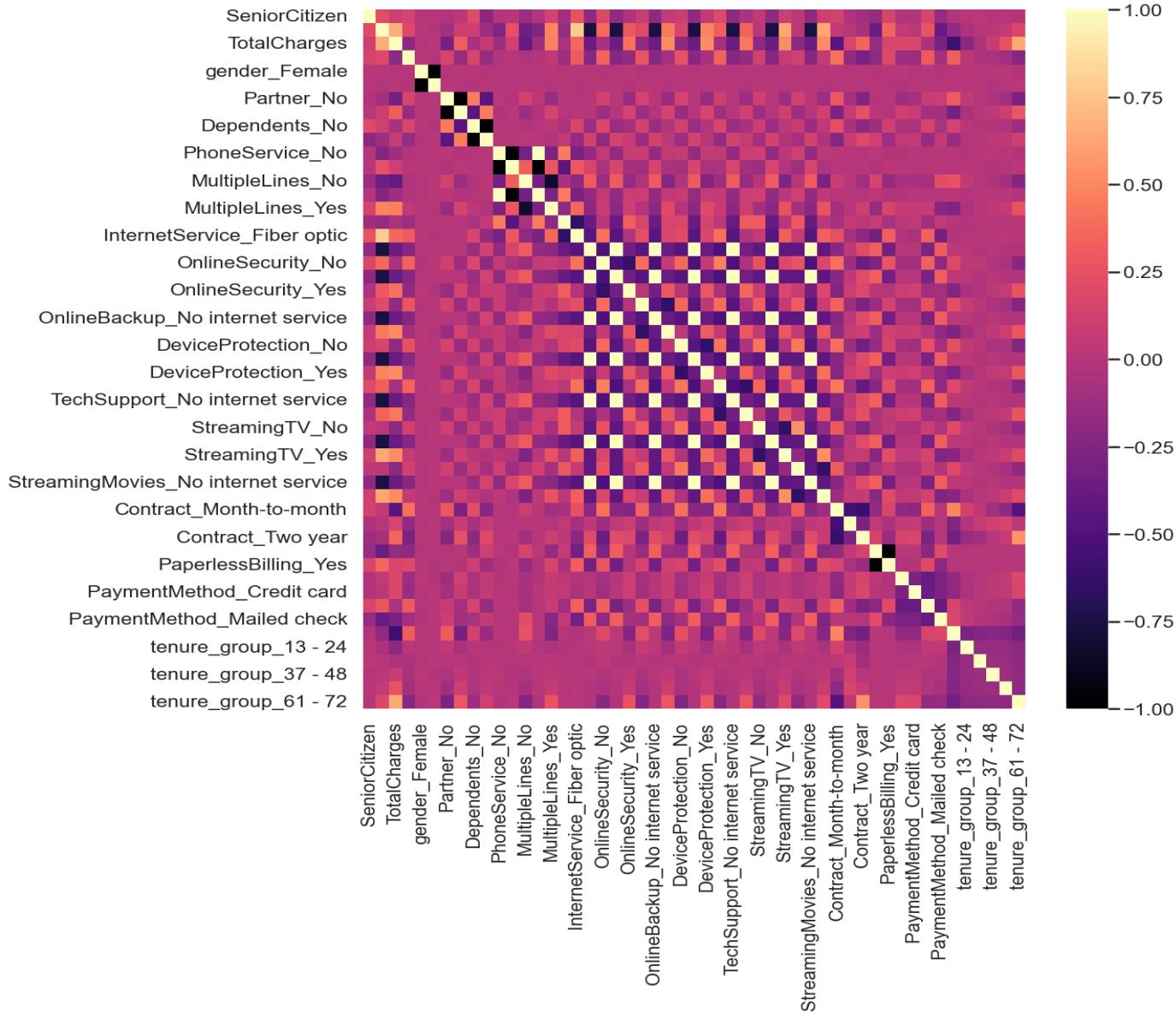


Insight:

HIGH Churn seen in case of Month to month contracts, No online security, No Tech support, First year of subscription and Fiber Optics Internet.

LOW Churn is seen in case of Long term contracts, Subscriptions without internet service and The customers engaged for 5+ years.

Factors like Gender, Availability of Phone Service and no of multiple lines have almost NO impact on Churn.



Insight:

Based on the heatmap given, it could be seen that there is a strong correlation between the Total Charges and the Tenure of staying in a service.

This is true in real-life because the longer a customer stays in a service, the more willing he/she are going to be using that same service along with additional features or add-ons as well.

It could also be seen that people who have opted for phone services from Telco did not opt for multiple lines of the same service.

Therefore, we get to know that customers are open to adding multiple lines of different service providers rather than staying with the same phone service provider.

Monthly charges are negatively correlated with whether a person has internet service, online security, online backup internet security, internet tech support, streaming TV service and streaming movies service..

SUMMARY OF INFERENCES

1. Senior Citizens: Senior citizens without partners or dependents show significantly higher churn rates. Fiber optic internet increases churn rates among senior citizens. Month-to-month contracts contribute to a higher churn rate among senior citizens.
2. Gender: Overall, gender does not have a consistent impact on churn rates. Female customers with no partners, no dependents, and using certain services (fiber optic internet, no online security) tend to have higher churn rates.
3. Partners: Customers without partners and dependents are more likely to churn. Having fiber optic internet increases churn rates, especially for customers without partners. Month-to-month contracts and electronic check payments are associated with higher churn.
4. Dependents: Customers without dependents are generally high churners. Multiple lines and fiber optic internet increase churn rates for customers without dependents.
5. Phone Service: Customers with phone service and fiber optic internet are high churners. Lack of online security, online backup, and device protection in combination with phone service contribute to higher churn.

SUMMARY OF INSIGHTS

- Multiple Lines: Fiber optic internet, along with multiple lines, leads to high churn rates. No online security, no online backup, and no device protection in combination with multiple lines contribute to high churn.
- Internet Service: Fiber optic internet users exhibit higher churn rates, especially with no online security. Month-to-month contracts with fiber optic internet contribute significantly to churn.
- Additional Services (Online Security, Online Backup, Device Protection, Tech Support, Streaming Services): Lack of online security, online backup, device protection, and tech support lead to higher churn rates. Month-to-month contracts without these services are associated with higher churn. Streaming services (TV and Movies) contribute to higher churn with month-to-month contracts.
- Contract Type: Month-to-month contracts consistently result in higher churn across various services. Two-year contracts generally exhibit lower churn rates.
- Paperless Billing: Electronic check payment with paperless billing shows high churn rates. Customers without paperless billing options demonstrate lower churn.
- Payment Methods: Electronic check payment method, especially in combination with month-to-month contracts, leads to high churn. Customers with credit card payments and longer contracts (2 years) exhibit lower churn.

SUMMARY OF INSIGHTS

1. Internet Service: Fiber optic internet users exhibit higher churn rates, especially with no online security. Month-to-month contracts with fiber optic internet contribute significantly to churn.
2. Additional Services (Online Security, Online Backup, Device Protection, Tech Support, Streaming Services): Lack of online security, online backup, device protection, and tech support lead to higher churn rates. Month-to-month contracts without these services are associated with higher churn. Streaming services (TV and Movies) contribute to higher churn with month-to-month contracts.
3. Contract Type: Month-to-month contracts consistently result in higher churn across various services. Two-year contracts generally exhibit lower churn rates.
4. Paperless Billing: Electronic check payment with paperless billing shows high churn rates. Customers without paperless billing options demonstrate lower churn.
5. Payment Methods: Electronic check payment method, especially in combination with month-to-month contracts, leads to high churn. Customers with credit card payments and longer contracts (2 years) exhibit lower churn.