Project report on Customer Churn prediction model

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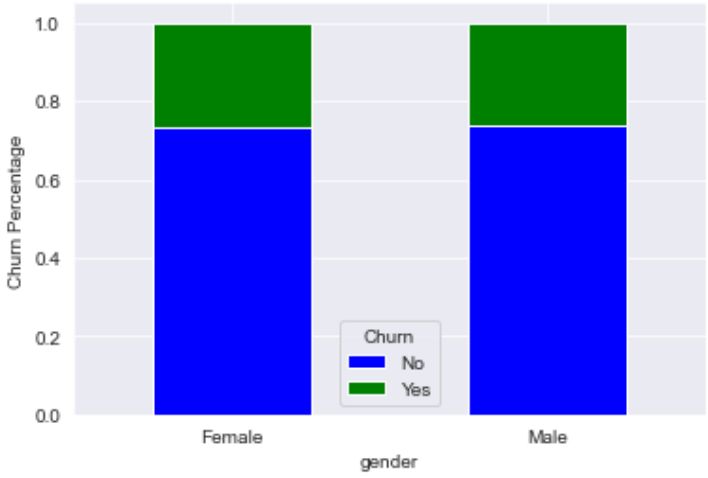
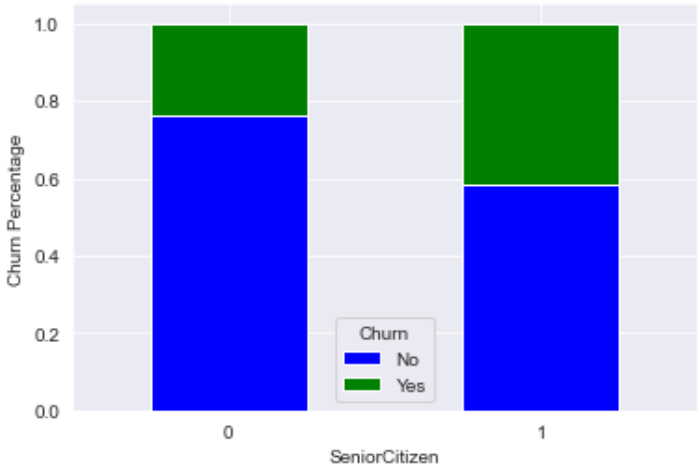
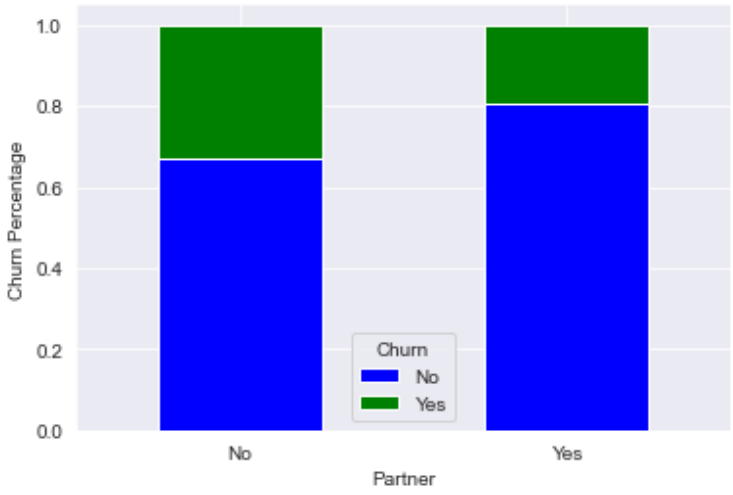
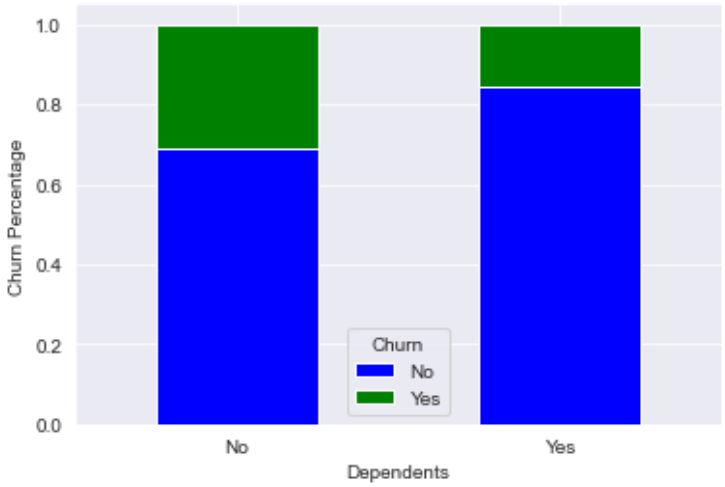
1. Dataset description : The Telco Customer Churn dataset contains information about a telecommunication company's customers and their service details. The dataset comprises 7,043 customer records with 21 features each, including demographic details (gender, age range), account information (contract type, tenure), service usage (internet service type, monthly charges), and a target variable indicating customer churn (whether the customer left within the last month). The dataset is aimed at understanding customer behaviour and identifying factors that influence customer churn to help improve retention strategies.
2. Exploratory data analysis:
   a. First, we have analysed the following features : Gender, SeniorCitizen, Partner and Dependents





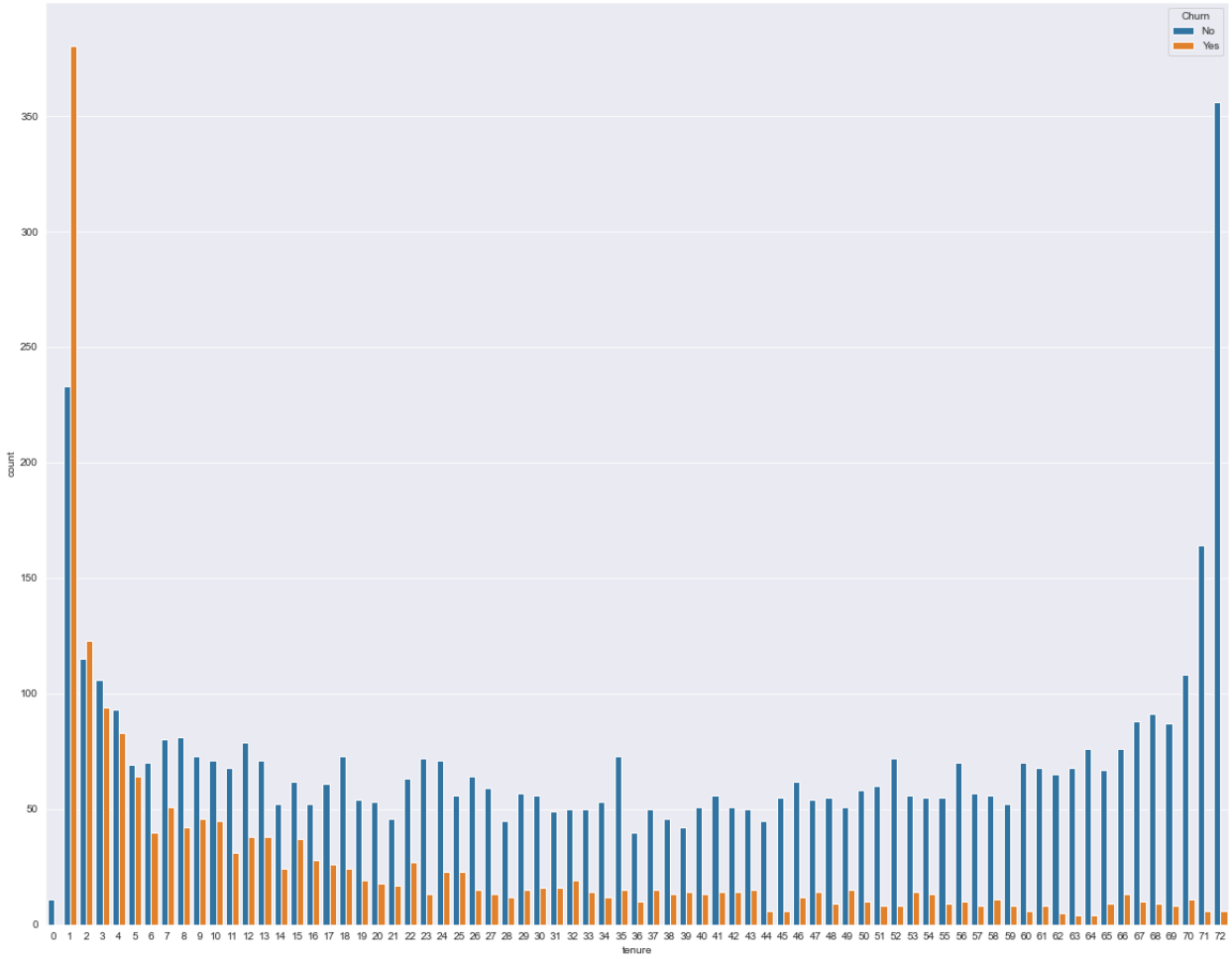




Key findings are :

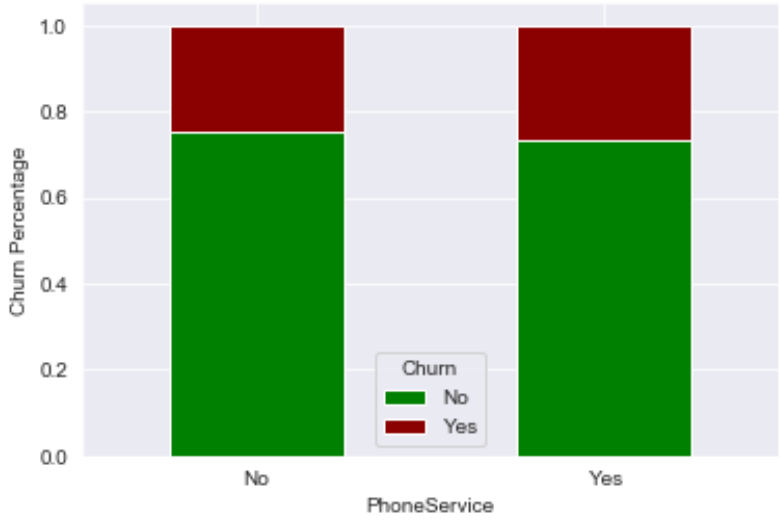
- Gender alone is not a significant predictor of customer churn.
- However, younger customers with families are less likely to cancel their service. This could be due to factors such as a busy lifestyle or higher financial stability.

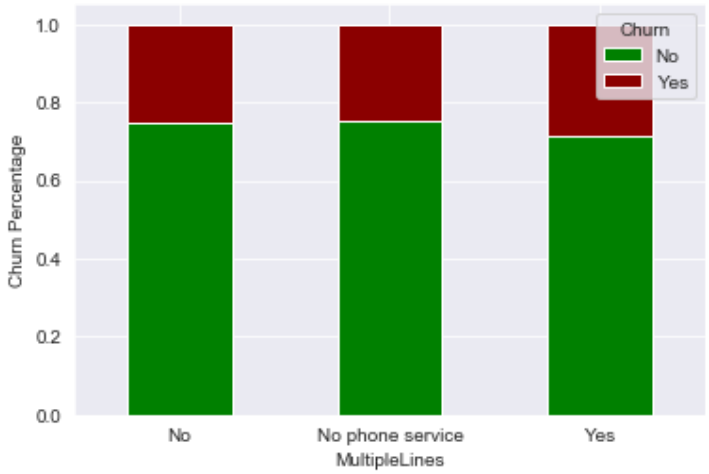
b. For Tenure :



Key findings : Higher tenure correlates with a lower churn rate, indicating that customers tend to become more loyal over time.

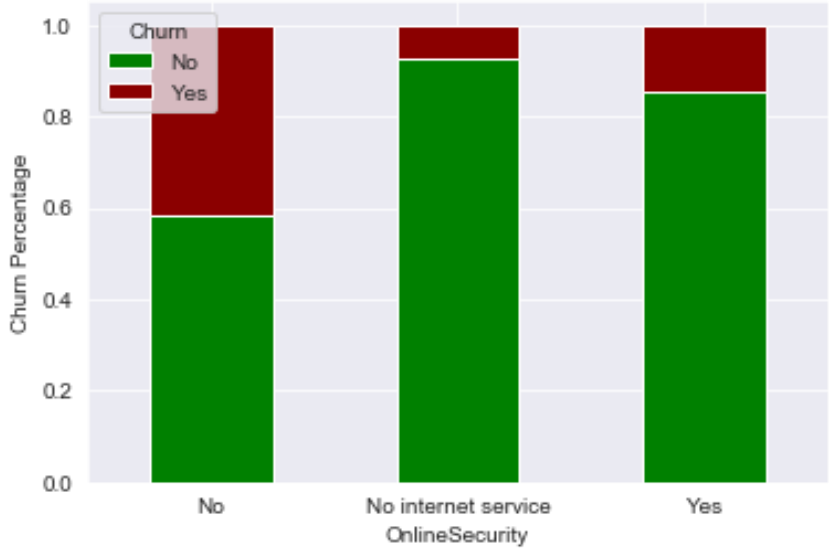
c. For phone service and multipleLines :

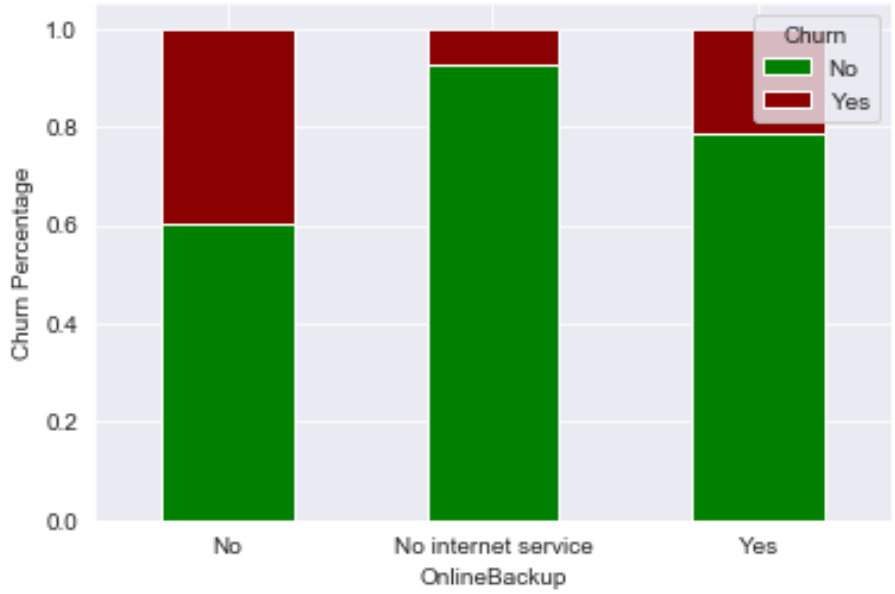


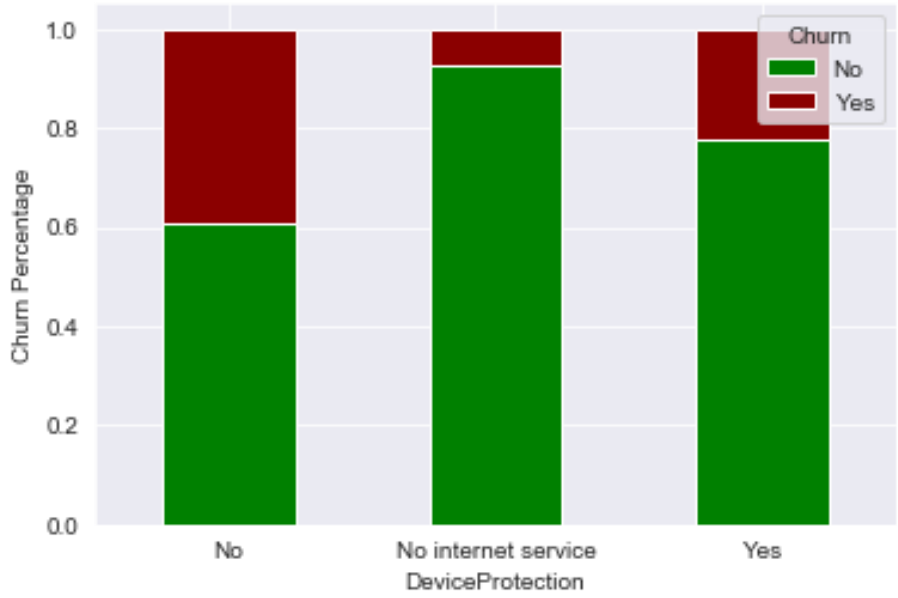


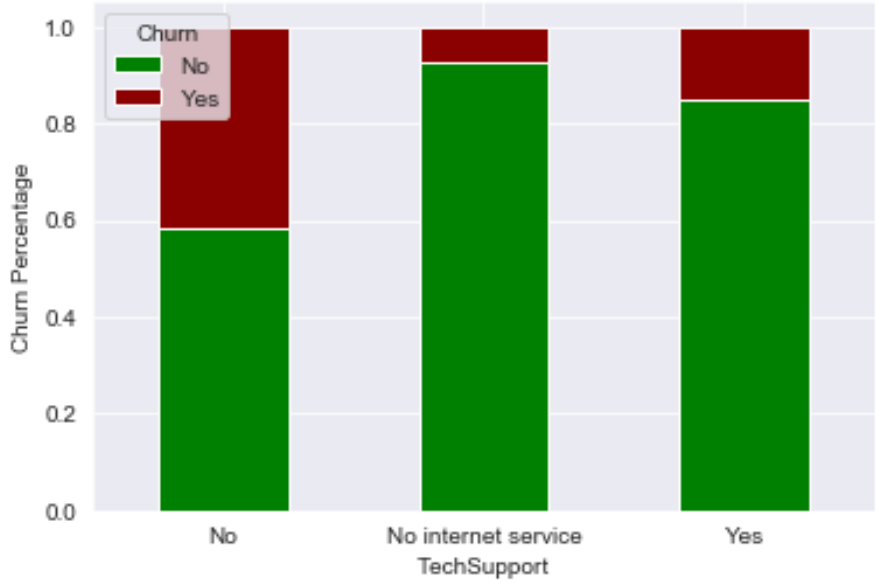
Key findings : multiplelines and phoneservice do not add value in the model as they are having similar churn rate

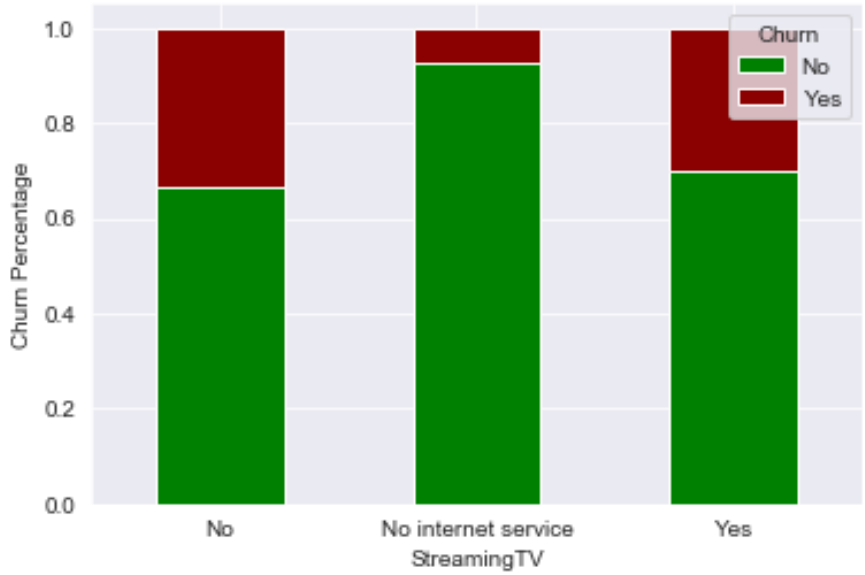
d. For OnlineSecurity, OnlineBackup, DeviceProtection, TechSupport, StreamingTV, StreamingMovies:

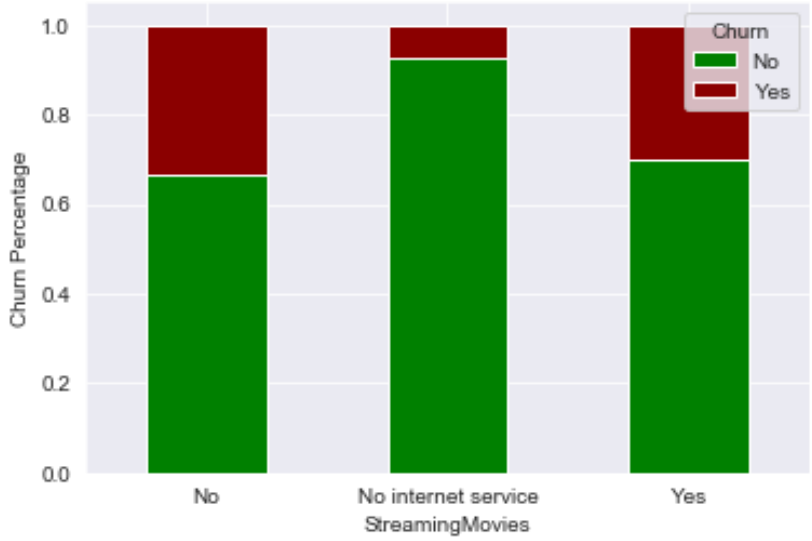



Churn
No
Yes
1.0
0.8
0.6
0.4
0.2
0.0
Churn Percentage
No
No internet service
Yes
OnlineBackup


Churn
No
Yes
1.0
0.8
0.6
0.4
0.2
0.0
Churn Percentage
No
No internet service
Yes
DeviceProtection

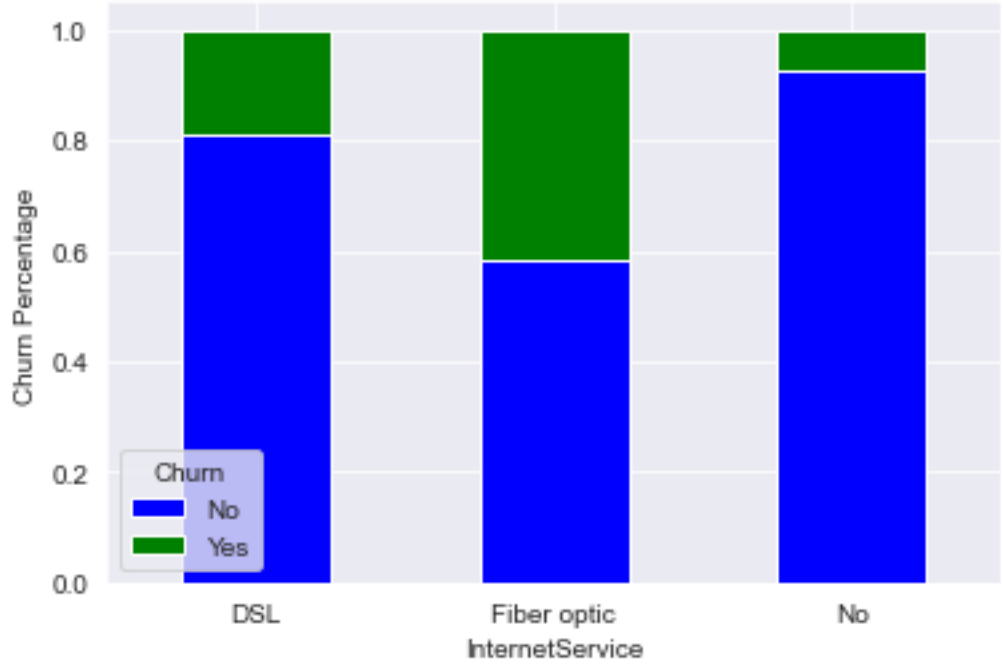

Churn
No
Yes
1.0
0.8
0.6
0.4
0.2
0.0
Churn Percentage
No
No internet service
Yes
TechSupport


Churn
No
Yes
1.0
0.8
0.6
0.4
0.2
0.0
Churn Percentage
No
No internet service
Yes
StreamingTV



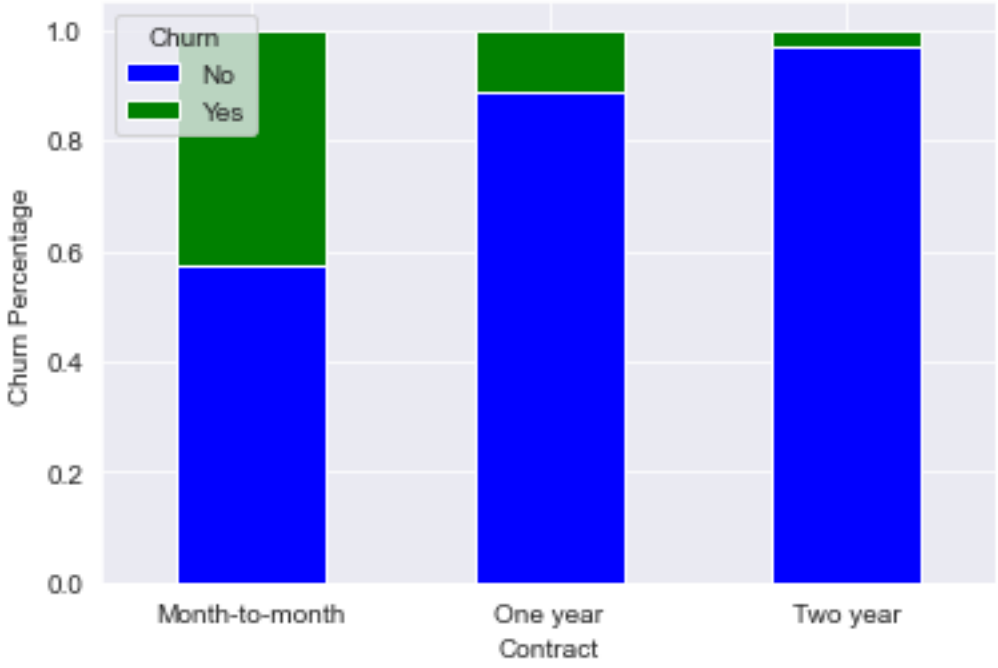
Key findings : If individuals choose not to subscribe to internet service, their likelihood of leaving the service provider is reduced, possibly due to the lower cost. Conversely, if they already have internet service but decide not to utilize specific services, their chances of leaving are higher.

e. Internet services :

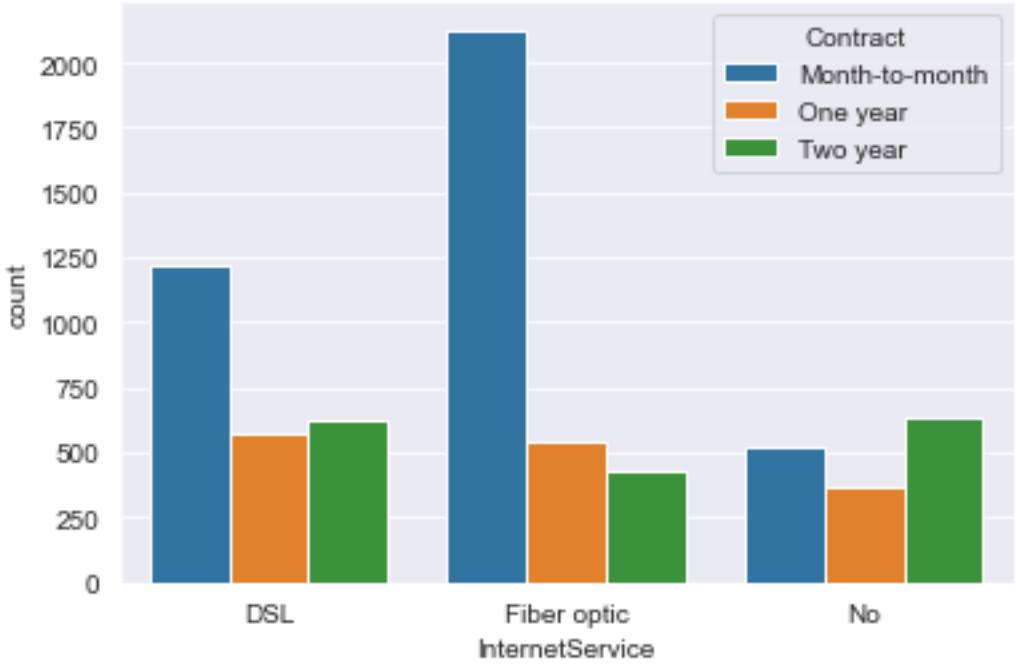


Key findings : When the internet service is Fiber Optic, the churn rate is very high. Fiber Optics provides higher speed compared to DSL. The reason might be the higher cost of fiber optics.

f. Contract

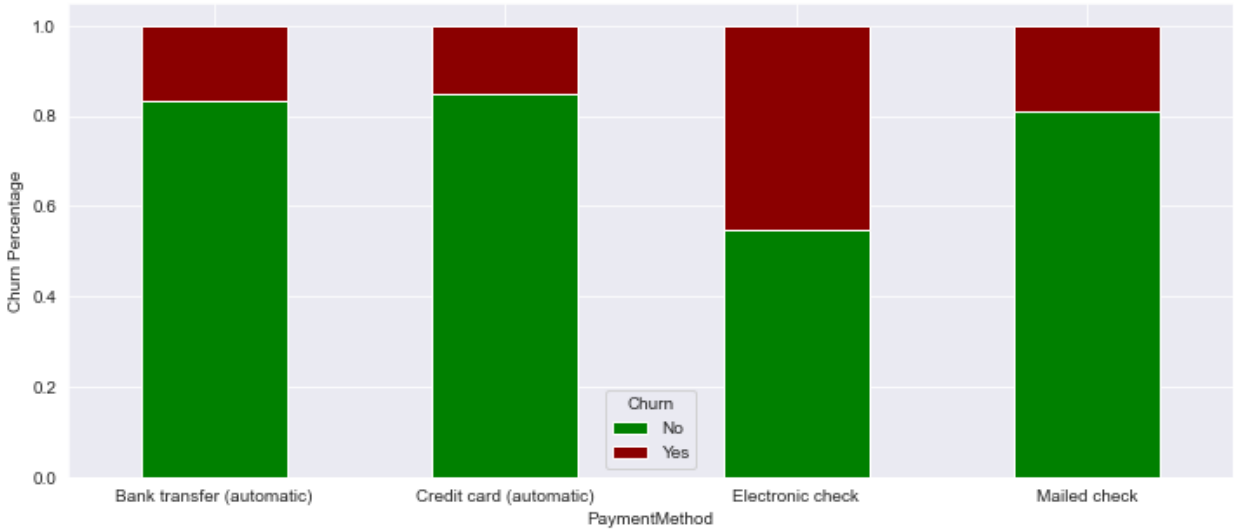


For month-to-month contracts, the rate of customers churn is notably high. Additionally, there may be customers within the dataset who are currently under two-year or one-year contract agreement

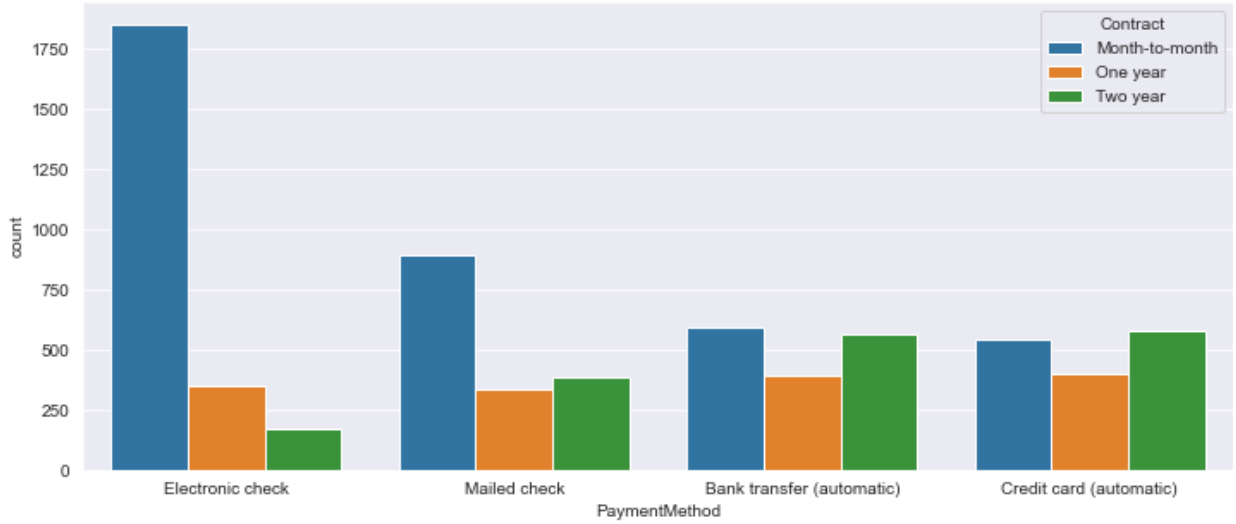


A significant portion of individuals selecting month-to-month contracts prefer Fiber Optic as their internet service, contributing to the elevated churn rate associated with this type of internet service

g. Payment method :



In Electronic check, churn is very high.



Customers with month-to-month contracts typically favor payment via Electronic Check or mailed checks, possibly due to the quicker subscription cancellation process compared to automatic payments.