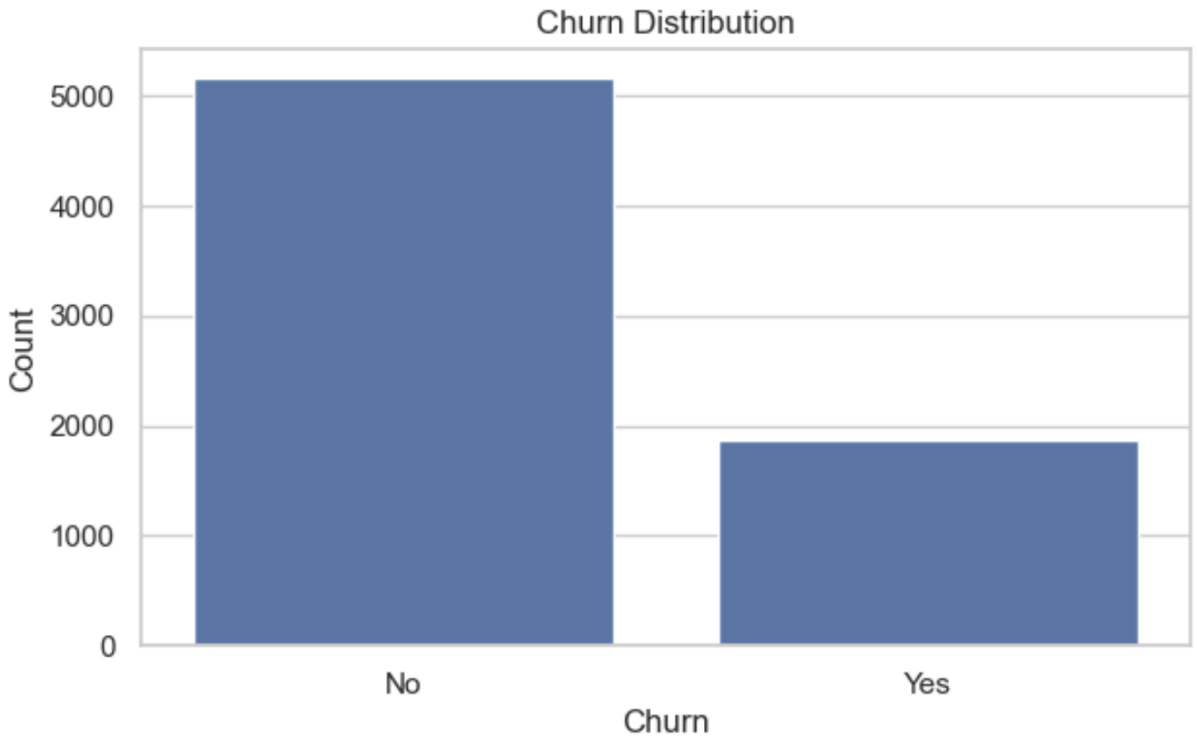
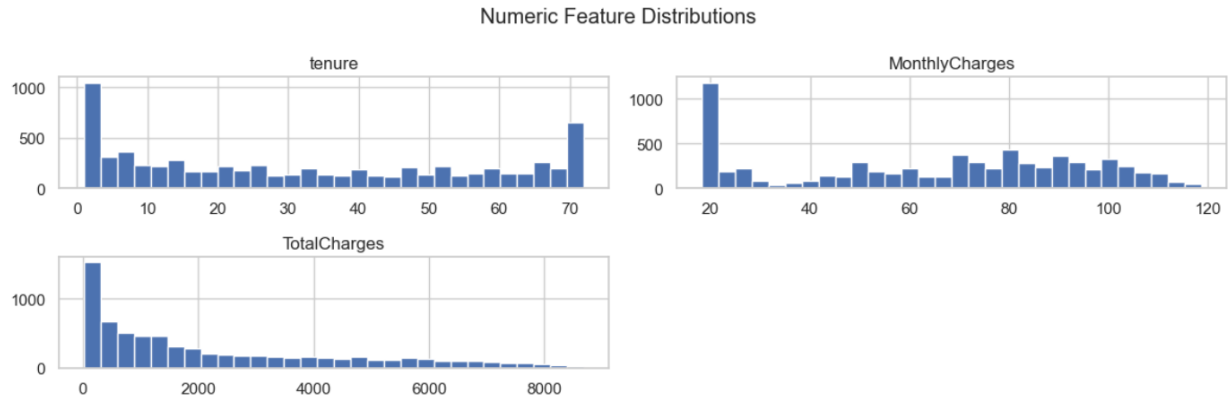
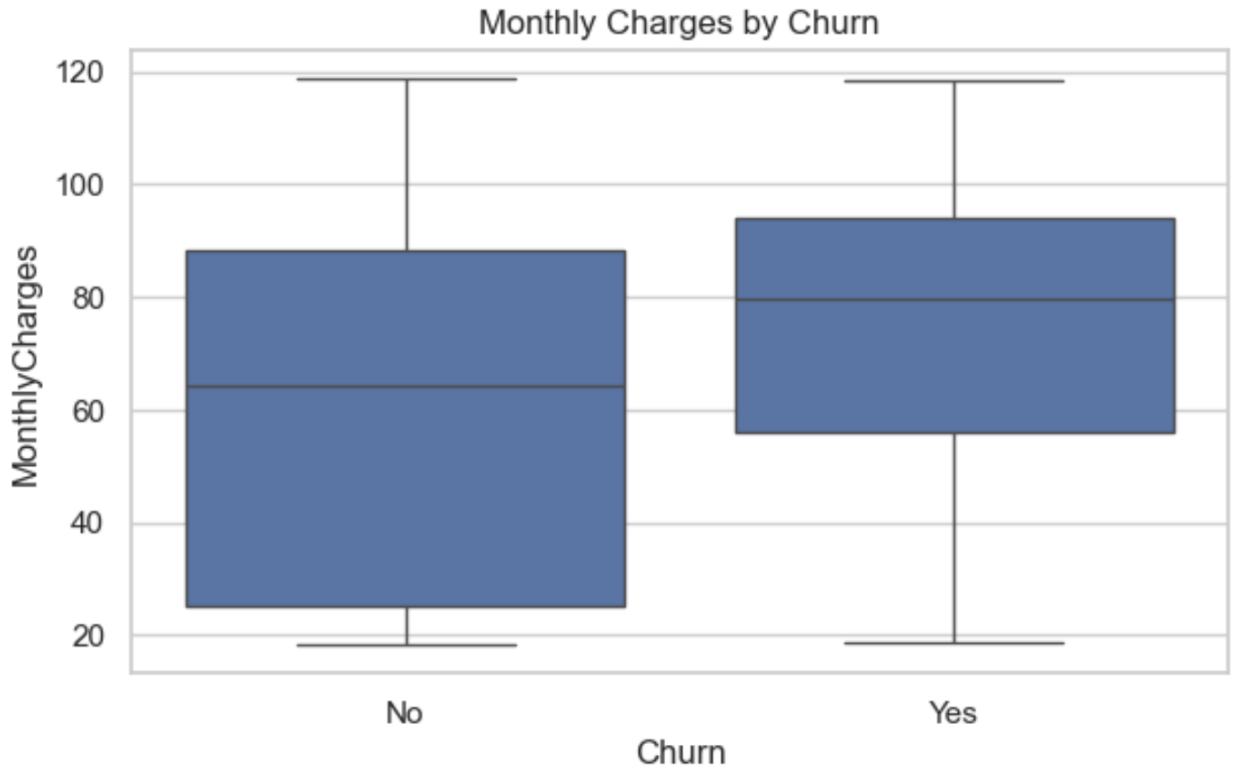
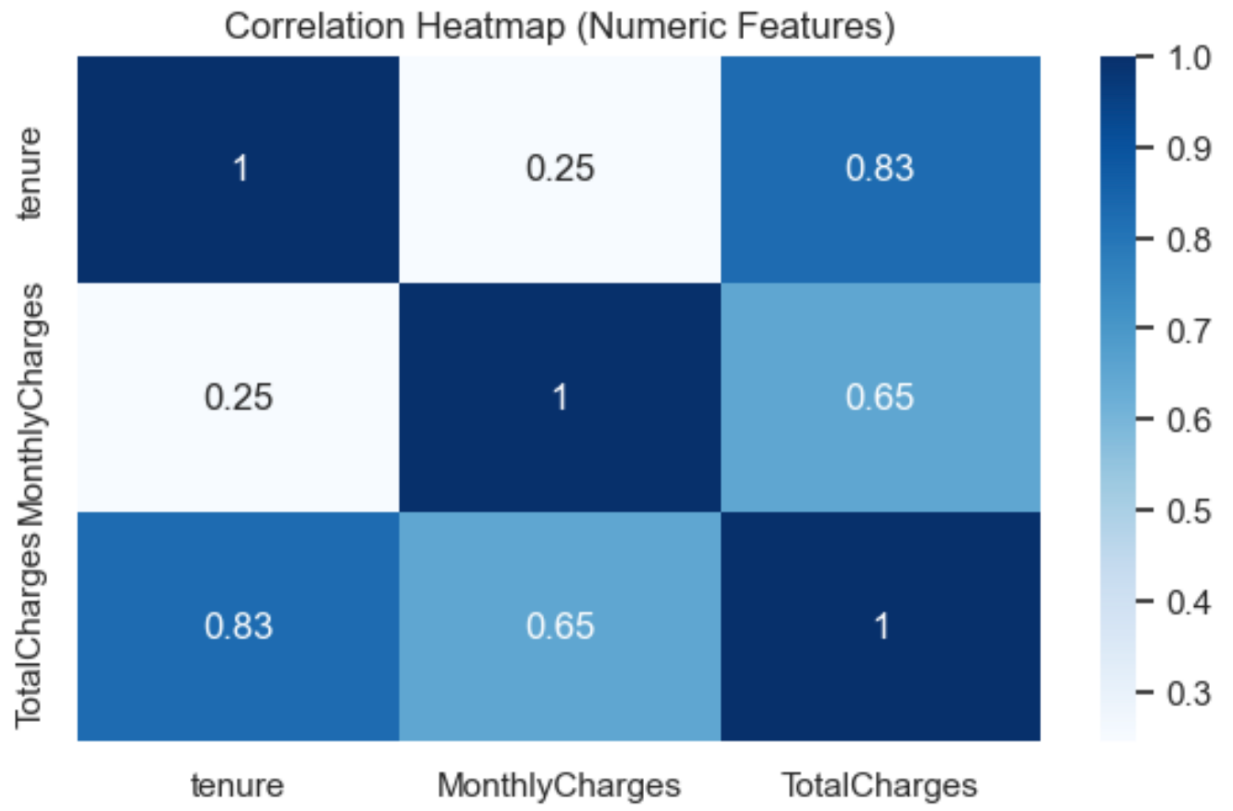
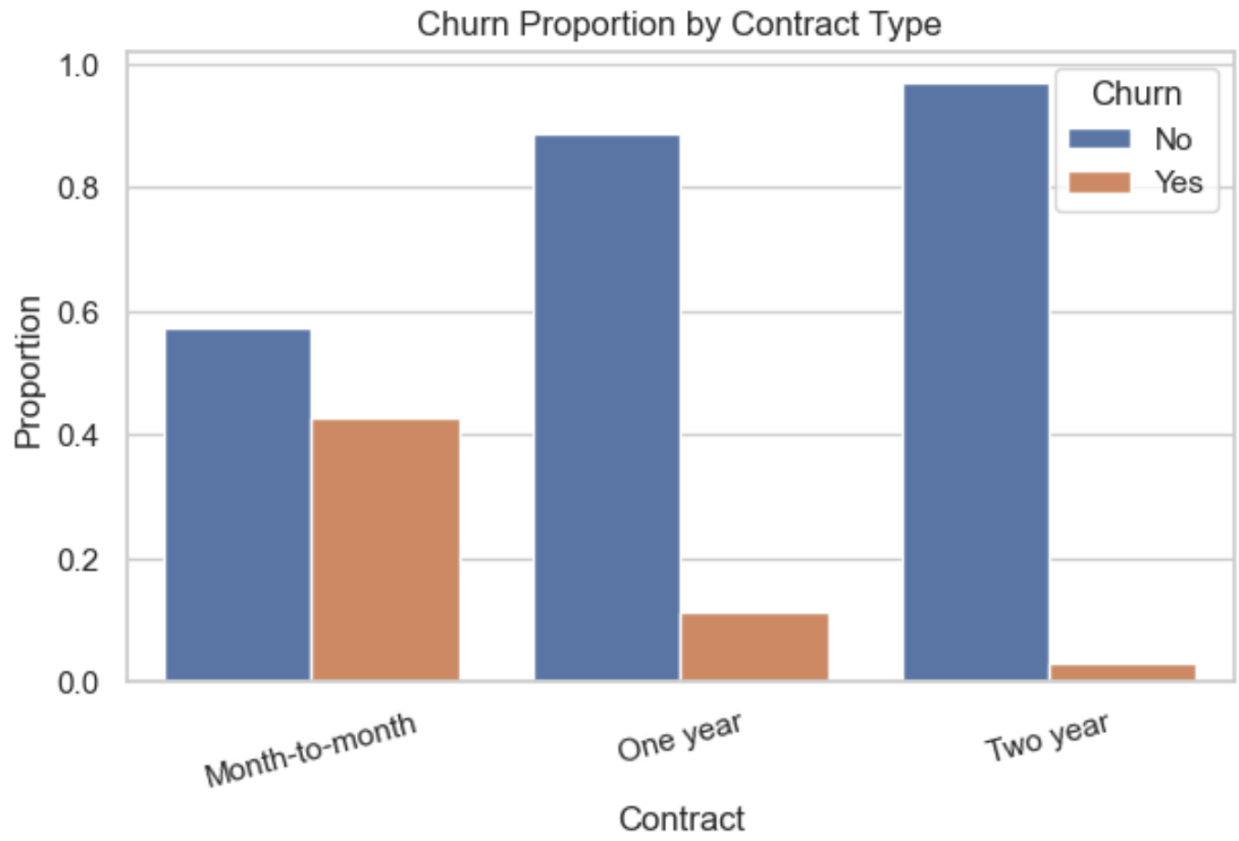
Visualizations

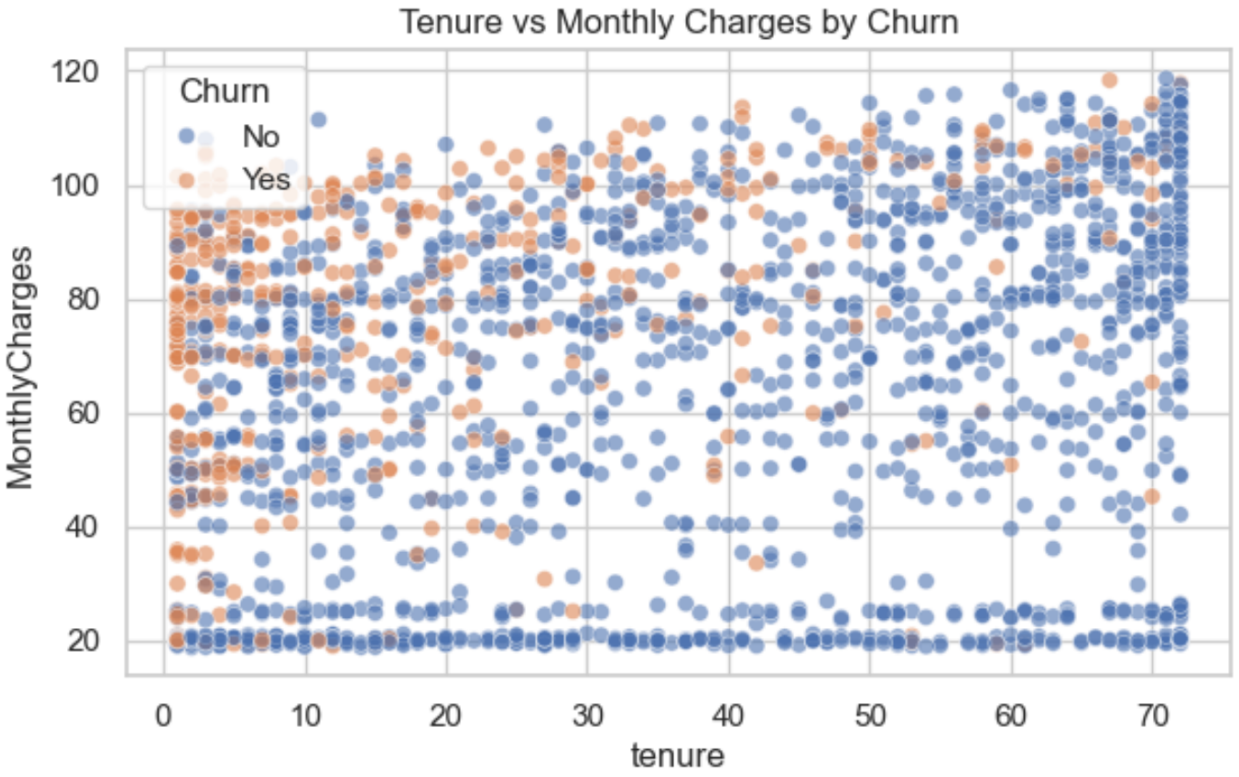


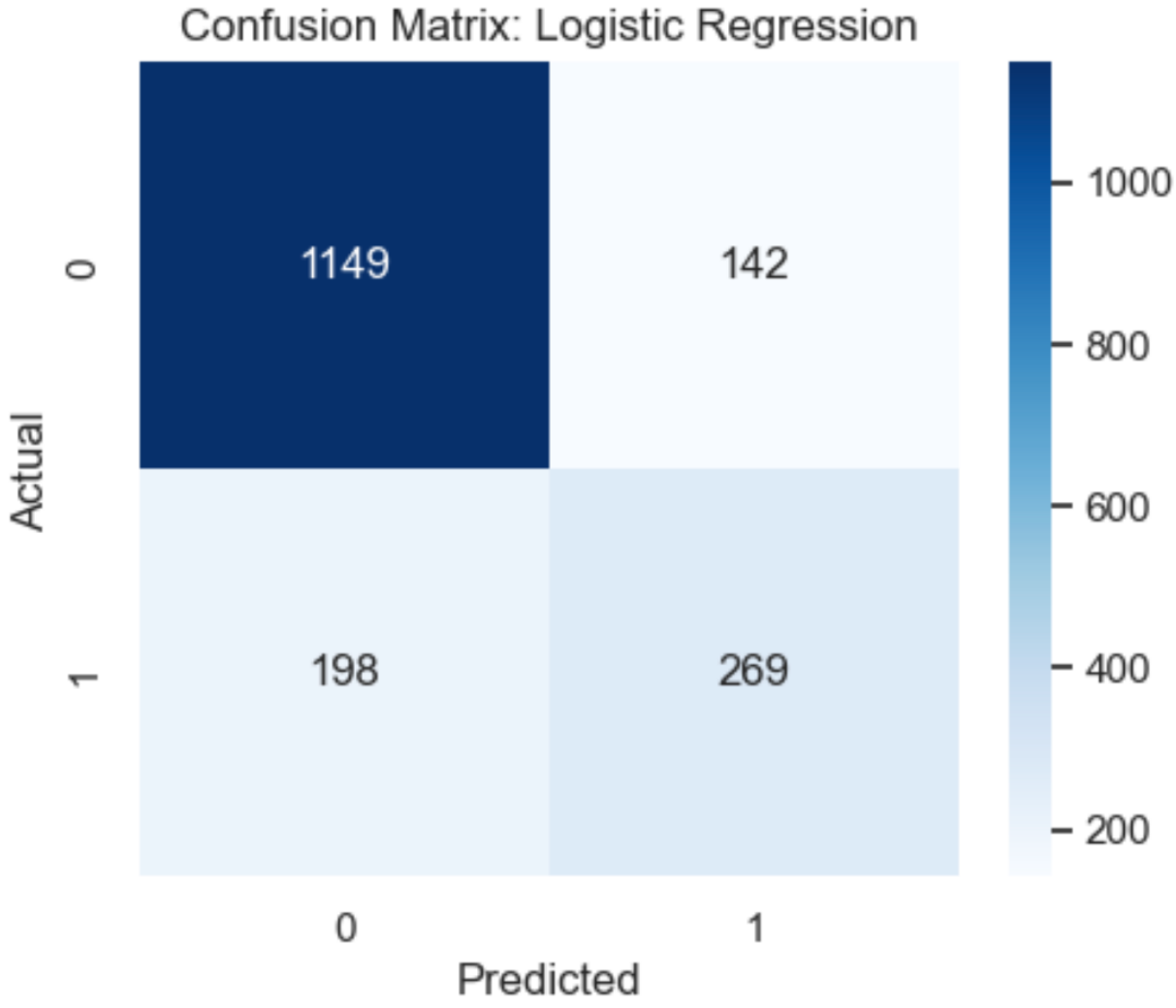

Numeric Feature Distributions
tenure
MonthlyCharges
TotalCharges
0
500
1000
0
10
20
30
40
50
60
70
20
40
60
80
100
120
2000
4000
6000
8000

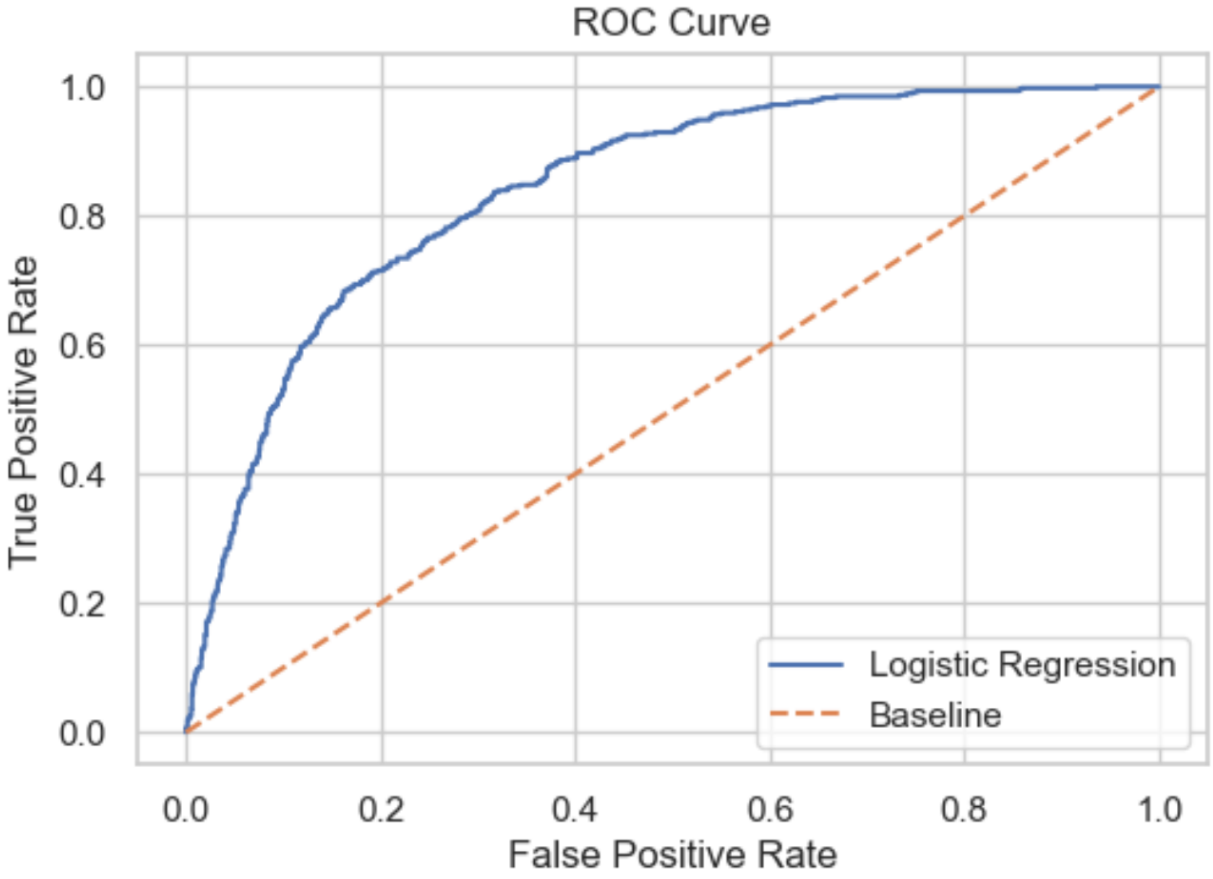

Monthly Charges by Churn
120
100
80
60
40
20
MonthlyCharges
No
Yes
Churn

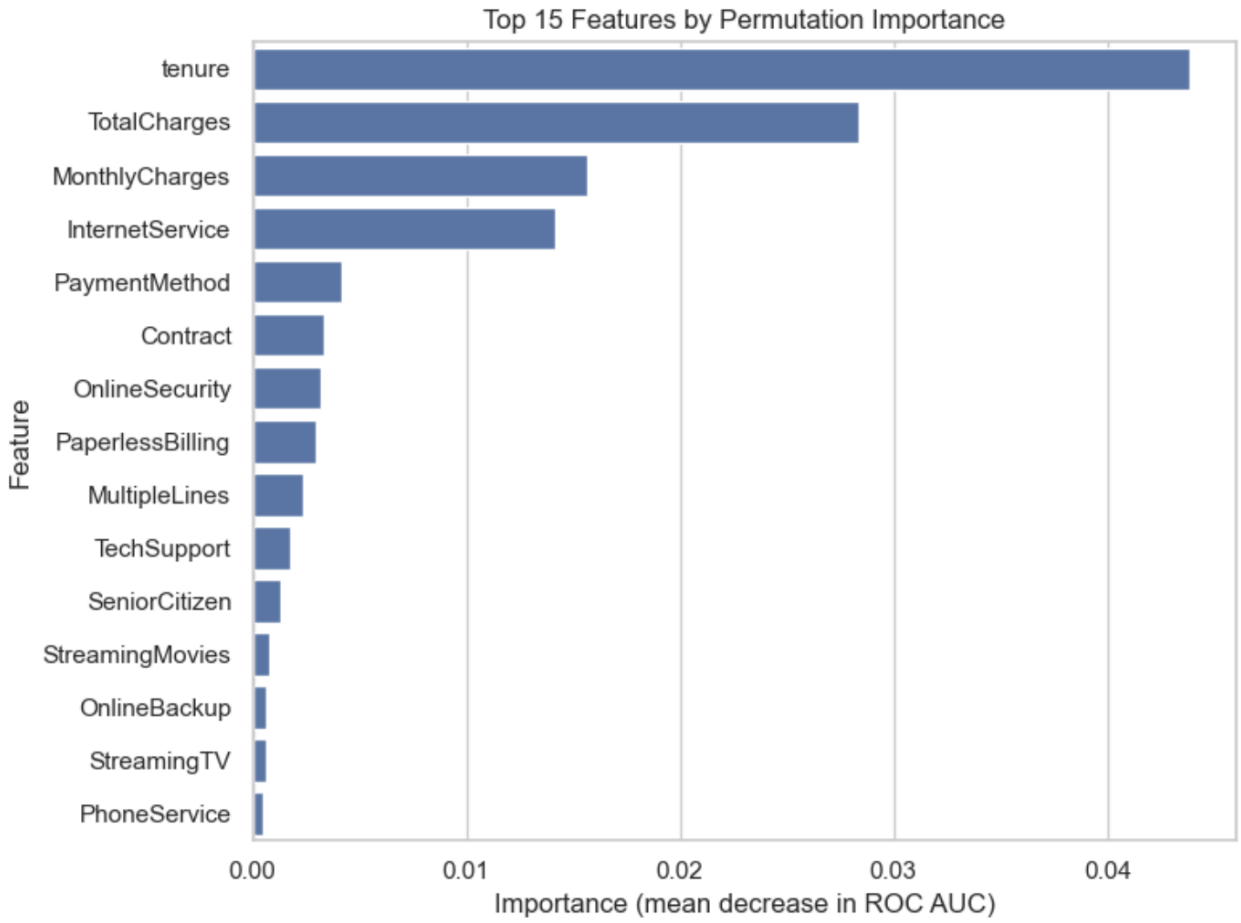

Correlation Heatmap (Numeric Features)
tenure
MonthlyCharges
TotalCharges
1
0.25
0.83
0.25
1
0.65
0.83
0.65
1
tenure
MonthlyCharges
TotalCharges
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3

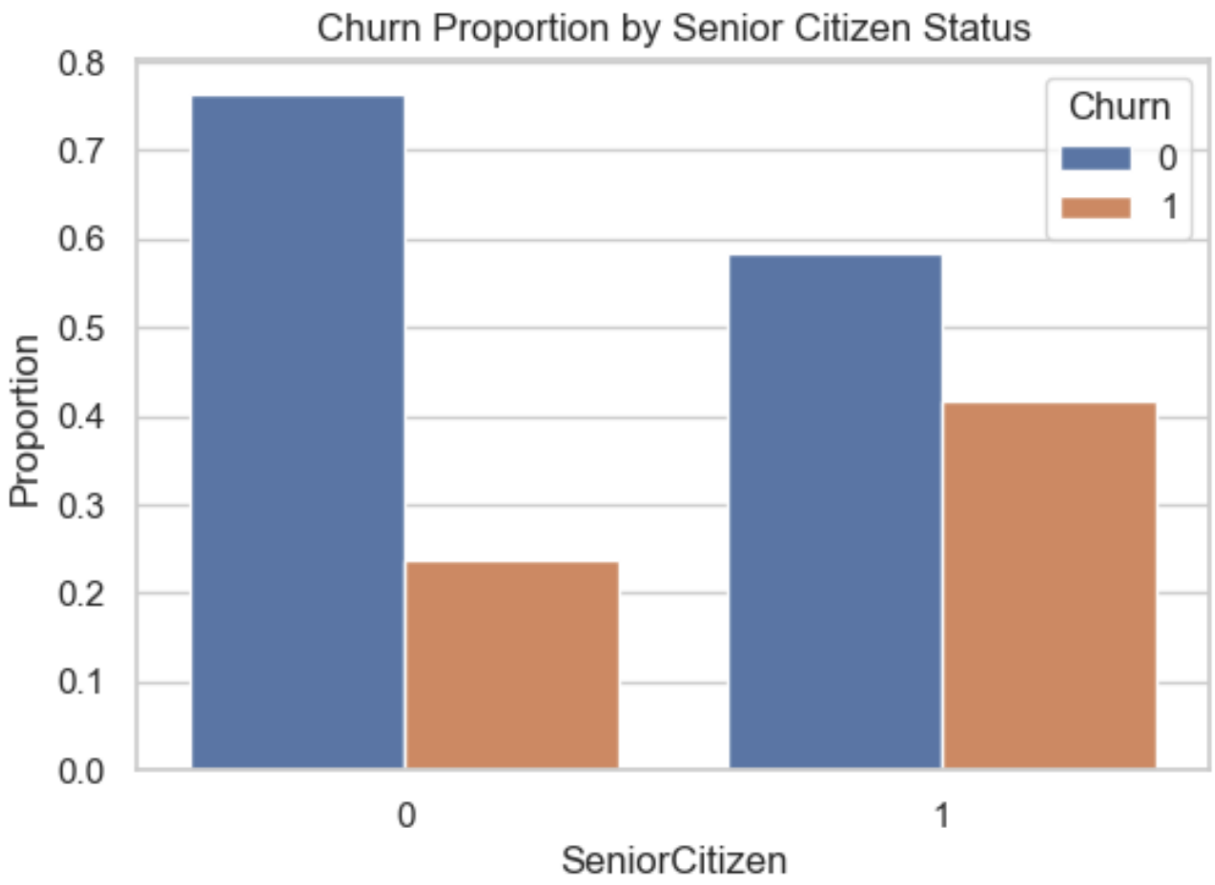

Churn Proportion by Contract Type
Churn
No
Yes
Proportion
1.0
0.8
0.6
0.4
0.2
0.0
Month-to-month
One year
Two year
Contract


Tenure vs Monthly Charges by Churn
Churn
No
Yes
MonthlyCharges
120
100
80
60
40
20
0
10
20
30
40
50
60
70
tenure


Confusion Matrix: Logistic Regression
1149
142
198
269
Actual
0
1
Predicted
0
1
1000
800
600
400
200


ROC Curve
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0
Logistic Regression
Baseline


Top 15 Features by Permutation Importance
tenure
TotalCharges
MonthlyCharges
InternetService
PaymentMethod
Contract
OnlineSecurity
PaperlessBilling
MultipleLines
TechSupport
SeniorCitizen
StreamingMovies
OnlineBackup
StreamingTV
PhoneService
Feature
0.00
0.01
0.02
0.03
0.04
Importance (mean decrease in ROC AUC)


Churn Proportion by Senior Citizen Status
Churn
0
1
Proportion
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
1
SeniorCitizen