

Outputs

```
['Female' 'Male']
['Yes' 'No']
['No' 'Yes']
gender ['Female' 'Male']
SeniorCitizen [0 1]
Partner ['Yes' 'No']
Dependents ['No' 'Yes']
PhoneService ['No' 'Yes']
MultipleLines ['No phone service' 'No' 'Yes']
InternetService ['DSL' 'Fiber optic' 'No']
OnlineSecurity ['No' 'Yes' 'No internet service']
OnlineBackup ['Yes' 'No' 'No internet service']
DeviceProtection ['No' 'Yes' 'No internet service']
TechSupport ['No' 'Yes' 'No internet service']
StreamingTV ['No' 'Yes' 'No internet service']
StreamingMovies ['No' 'Yes' 'No internet service']
Contract ['Month-to-month' 'One year' 'Two year']
PaperlessBilling ['Yes' 'No']
PaymentMethod ['Electronic check' 'Mailed check' 'Bank transfer (automatic)'
| 'Credit card (automatic)']
Churn ['No' 'Yes']
```

Churn

No 5174

Yes 1869

Name: count, dtype: int64

```

Training Decision Tree with default parameters
Decision Tree cross validation accuracy: 0.78
-----
Training Random Forest with default parameters
Random Forest cross validation accuracy: 0.84
-----
Training XGBoost with default parameters
XGBoost cross validation accuracy: 0.83
-----
Accuracy Score:
| 0.7771469127040455
Confusion Matrix:
| [[879 157]
|  [157 216]]
Classification Report:
|
| precision    recall  f1-score   support
|
|      0       0.85      0.85      0.85        1036
|      1       0.58      0.58      0.58         373
|
| accuracy          0.78        1409
| macro avg       0.71      0.71      0.71        1409
| weighted avg    0.78      0.78      0.78        1409

```

```

[0]
Prediction: no churn
prediction probability: [[0.79 0.21]]

[Done] exited with code=0 in 49.478 seconds

```

Streamlit Application

Customer Input Features

Gender
Female

Senior Citizen
0

Partner
Yes

Dependents
Yes

Tenure (months)
1

Phone Service
Yes

Deploy

Customer Churn Prediction & Dashboard

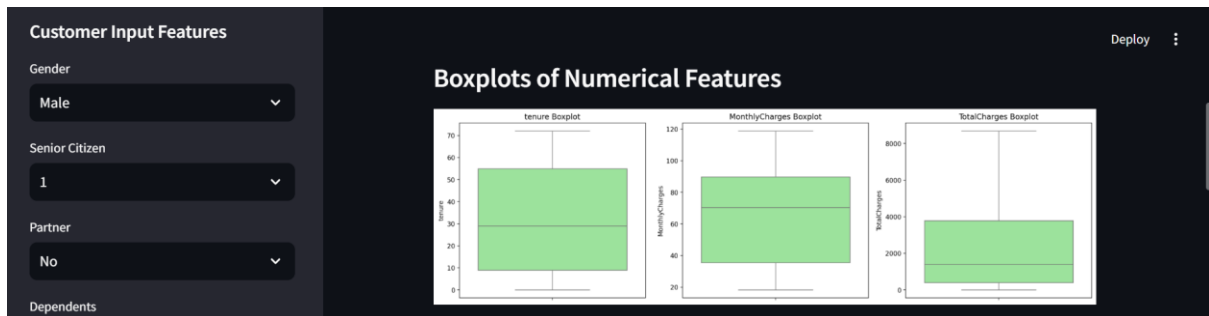
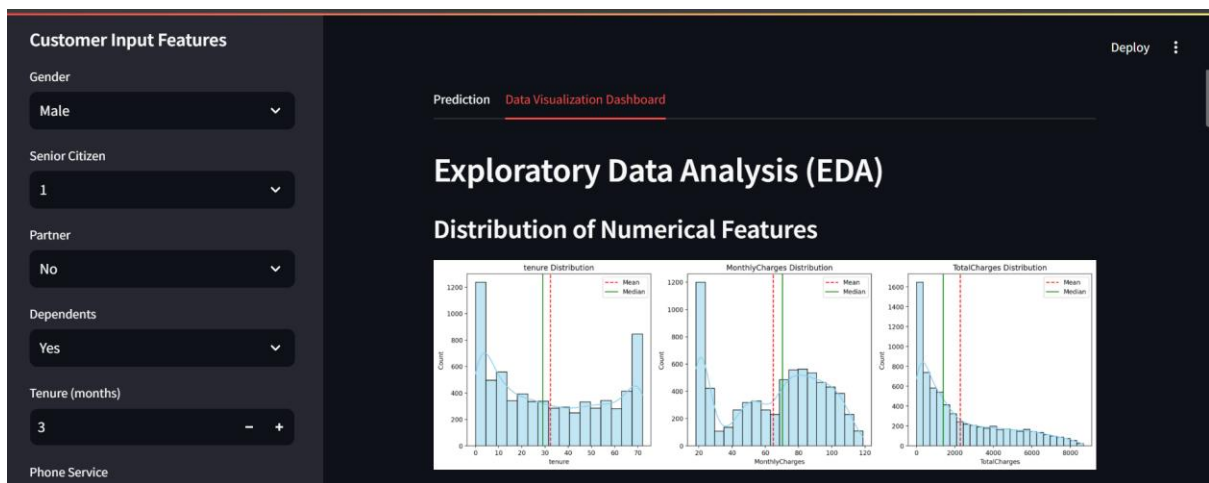
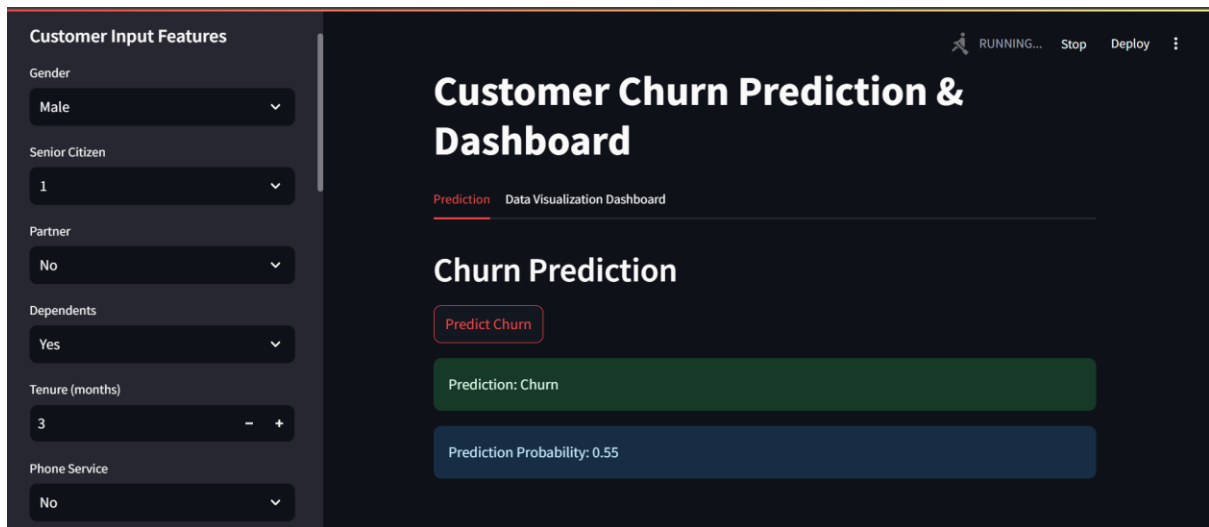
Prediction
Data Visualization Dashboard

Churn Prediction

Predict Churn

Prediction: No Churn

Prediction Probability: 0.60



Correlation Heatmap

