Customer Churn Prediction for Proactive Measures

Customer churn is the percentage of customers that stopped using a company's product or service during a certain time frame, the current value 26.54%

Purpose
It is more expensive to find a new customer than to prevent an existing customer from leaving

Data is acquired from Kaggle: Fairly clean data without duplicates and missing values

Exploratory Data Analysis:
Seaborn and MatPlotLib are used extensively for visualization

Selection of Features
Customer Churn is chosen as the **target variable**

Independent Variables as follows:
Tenure
PhoneService
MultipleLines
InternetService
OnlineSecurity
OnlineBackup
DeviceProtection
TechSupport
StreamingTV
StreamingMovies
Contract
PaperlessBilling
PaymentMethod
MonthlyCharges
TotalCharges

Modeling:.....
Algorithms for analysis
Decision Tree Classifier
Logistic Regression

SVC (Support Vector Classifier)
Random Forest Classifier

Evaluation Metrics.....

confusion_matrix: (TruePositive— FalsePositive)
(FalseNegative-TrueNegative)
classification_report-Metrics
roc_auc_score, roc_curve-Metric (Area Under the ROC curve)

Summary

	precision	recall	f1-score	AUC
Decision Tree	0.73	0.73	0.73	0.6621
Logistic Regression	0.79	0.80	0.79	0.7090
SVM	0.78	0.79	0.77	0.6677
Random Forest	0.76	0.78	0.76	0.6649
AdaBoost	0.91	0.72	0.80	0.7572

AdaBoost is the winner (After UpSampling)

Recommendations :

As the churn is higher in the initial period, it is recommended, the Telecom company pay attention
to those new customers, giving good customer support and tech service, give discounts and all
possible perks to make them longterm loyal customers