Customer Churn Prediction

- This project focuses on predicting customer churn for a telecommunications company using a dataset with customer information.
- The objective is to develop a model that can accurately identify customers at risk of churning.
- For Data Exploration, handled missing values , addressed anomalies, and conducted exploratory data analysis (EDA) to understand feature distributions and relationships with churn.
- Performed feature engineering by converting categorical variables to numerical format using label encoding and created dummy variables for categorical features.
- In developing the model, used logistic regression , decision tree and random forest.

1. **Logistic Regression**
   - Trained a Logistic Regression model and evaluated its performance.
   - Provided key classification metrics and plotted the ROC curve.

2. **Decision Tree and Random Forest**
   - Used RandomizedSearchCV for hyperparameter tuning.
   - Trained Decision Tree and Random Forest models.
   - Evaluated and reported model performance metrics.

- Compared models and selected Logistic Regression based on superior metrics and highlighted key findings and insights from the analysis.