Assignment 1: SVM for Customer Churn Prediction

Question: Using the Telco Customer Churn dataset, predict whether a customer will churn (leave) or not based on various customer attributes. Implement the SVM algorithm and compare its performance with a Logistic Regression model.

1. Load the Telco Customer Churn dataset from a CSV file.
2. Conduct exploratory data analysis (EDA) to identify key features related to customer churn.
3. Preprocess the data (handle missing values, convert categorical variables to numerical, and normalize the features).
4. Split the dataset into training and testing sets (e.g., 80-20 split).
5. Implement the SVM algorithm using a library (like scikit-learn) and train the model on the training set.
6. Implement a Logistic Regression model for comparison and train it on the same training set.
7. Evaluate the performance of both models using accuracy, precision, recall, and the confusion matrix.
8. Compare the results of the SVM and Logistic Regression models and discuss their performance.