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In [2]: ## How to plot a ROC Curve in Python
def Snippet_140():
    print()
    print(format('How to plot a ROC Curve in Python', '^82'))

    import warnings
    warnings.filterwarnings("ignore")

    # load libraries
    from sklearn.datasets import make_classification
    from sklearn.tree import DecisionTreeClassifier
    from sklearn.linear_model import LogisticRegression
    from sklearn.metrics import roc_curve, roc_auc_score
    from sklearn.model_selection import train_test_split
    import matplotlib.pyplot as plt

    # Create feature matrix and target vector
    X, y = make_classification(n_samples=10000, n_features=100, n_classes=2)

    # Split into training and test sets
    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25)

    # Create classifier
    clf1 = DecisionTreeClassifier(); clf2 = LogisticRegression();

    # Train model
    clf1.fit(X_train, y_train); clf2.fit(X_train, y_train);

    # Get predicted probabilities
    y_score1 = clf1.predict_proba(X_test)[:,:1]
    y_score2 = clf2.predict_proba(X_test)[:,:1]

    # Plot Receiving Operating Characteristic Curve
    # Create true and false positive rates
    false_positive_rate1, true_positive_rate1, threshold1 = roc_curve(y_test, y_score1)
    false_positive_rate2, true_positive_rate2, threshold2 = roc_curve(y_test, y_score2)
    print('roc_auc_score for DecisionTree: ', roc_auc_score(y_test, y_score1))
    print('roc_auc_score for Logistic Regression: ', roc_auc_score(y_test, y_score2))

    # Plot ROC curves
    plt.subplots(1, figsize=(10,10))
    plt.title('Receiver Operating Characteristic - DecisionTree')
    plt.plot(false_positive_rate1, true_positive_rate1)
    plt.plot([0, 1], ls="--")
    plt.plot([0, 0], [1, 0], c=".7"), plt.plot([1, 1], c=".7")
    plt.ylabel('True Positive Rate')
    plt.xlabel('False Positive Rate')
    plt.show()

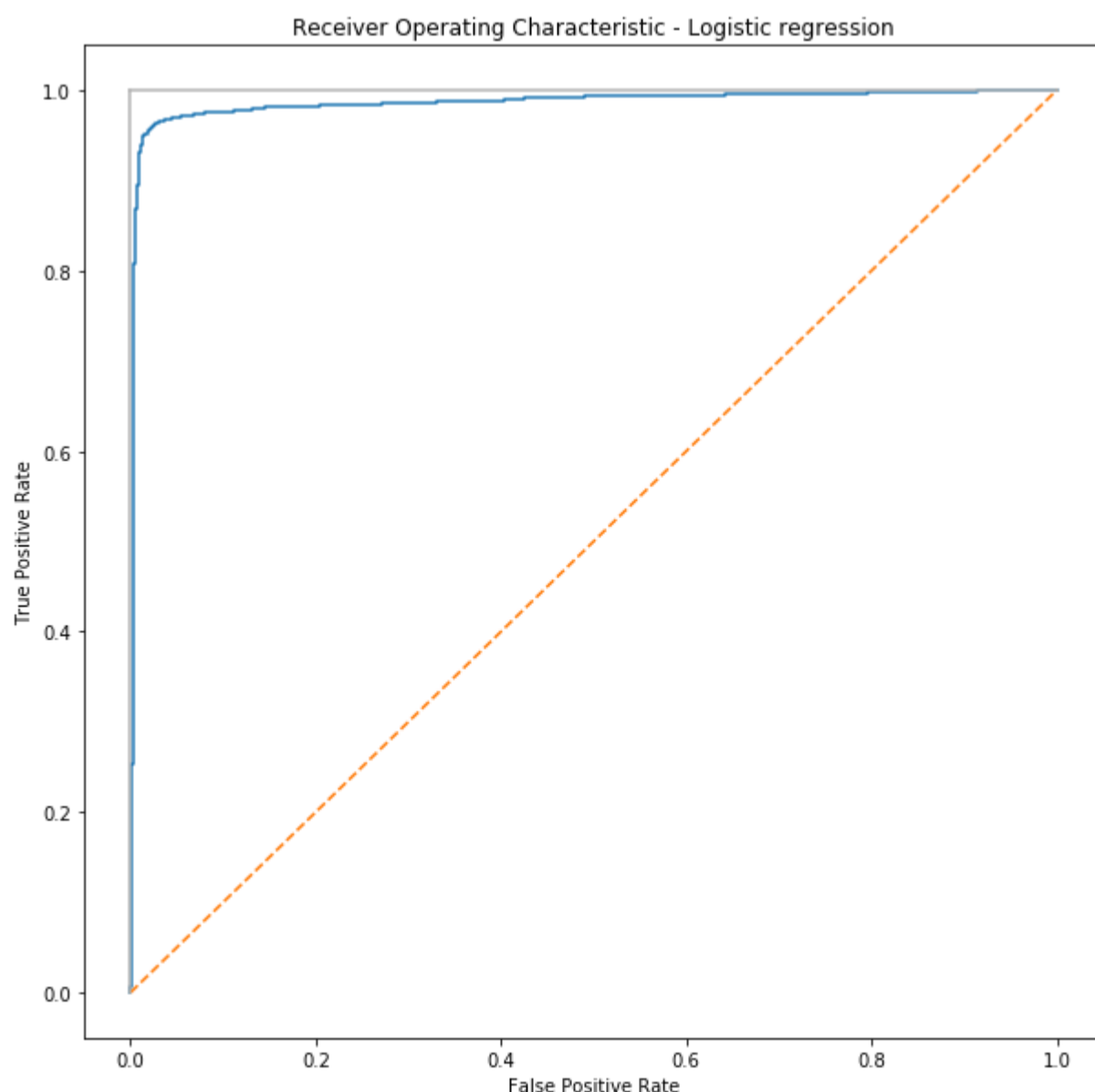
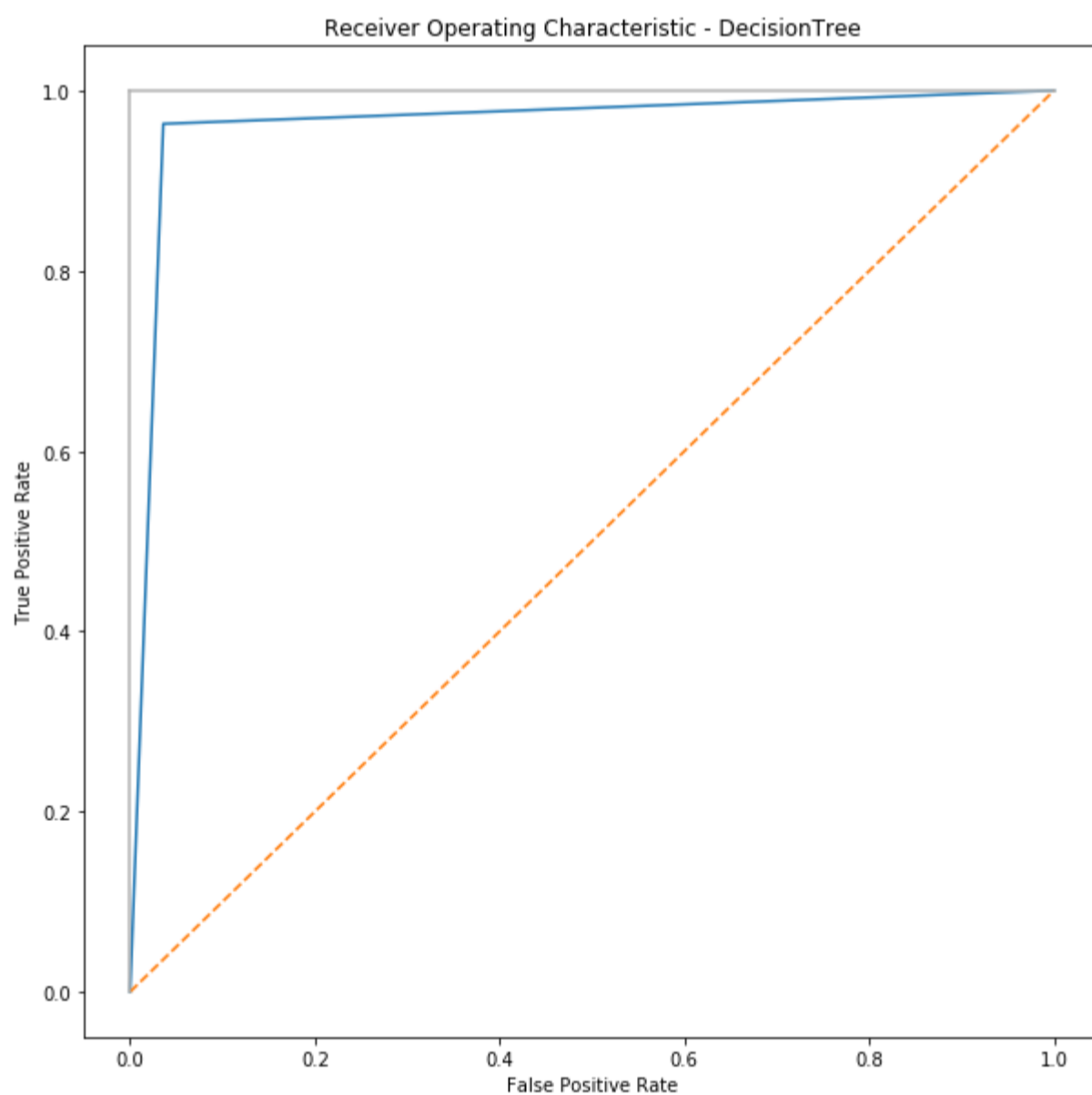
    plt.subplots(1, figsize=(10,10))
    plt.title('Receiver Operating Characteristic - Logistic regression')
    plt.plot(false_positive_rate2, true_positive_rate2)
    plt.plot([0, 1], ls="--")
    plt.plot([0, 0], [1, 0], c=".7"), plt.plot([1, 1], c=".7")
    plt.ylabel('True Positive Rate')
    plt.xlabel('False Positive Rate')
    plt.show()

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Snippet_140()

*****How to plot a ROC Curve in Python*****

roc_auc_score for DecisionTree: 0.9635983472470757
roc_auc_score for Logistic Regression: 0.9858449750525445



In []: