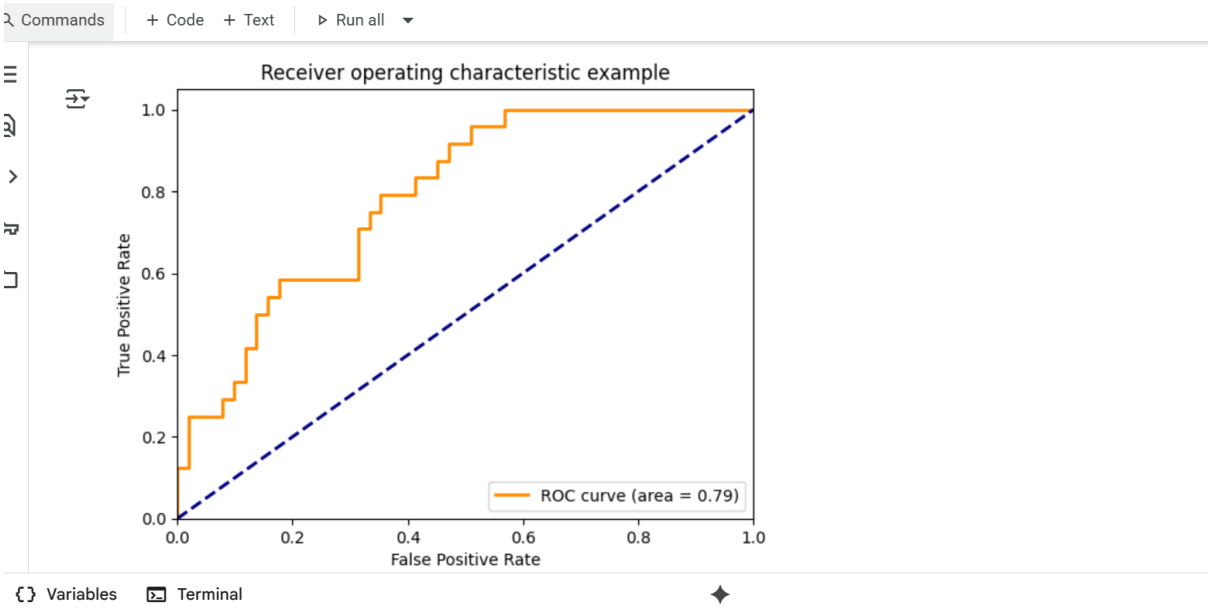
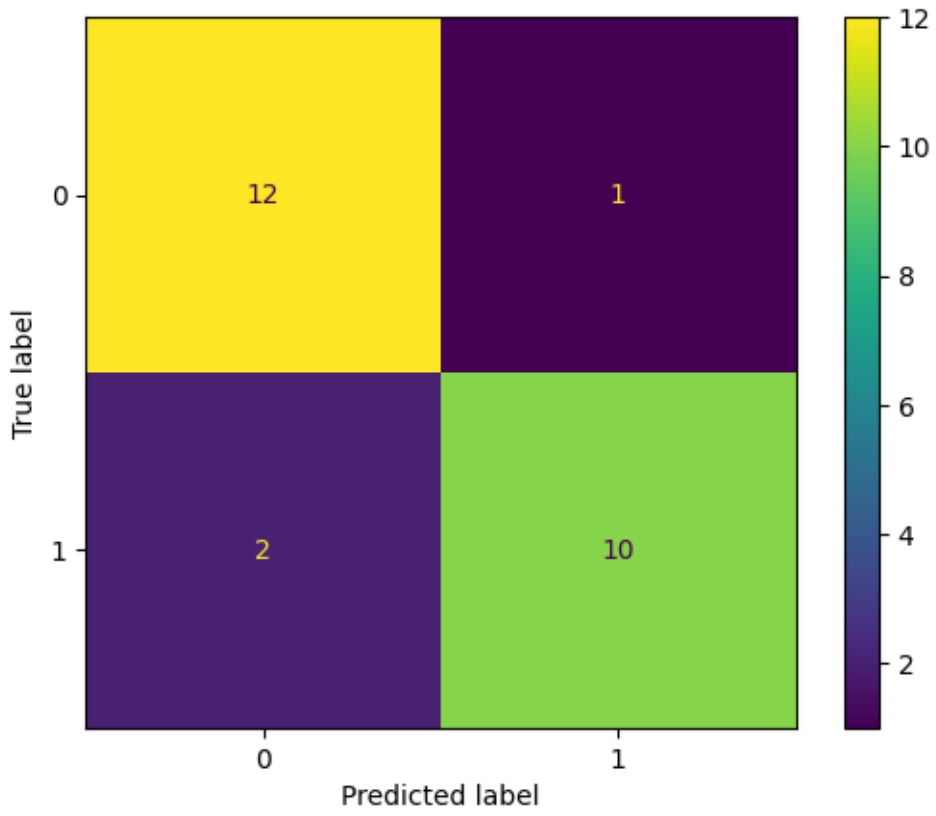
# Activity 6

To assess model accuracy and reliability, we utilized metrics such as the F1-score for classification tasks and the R-squared value for regression analysis. These measures offered valuable insights into prediction quality and model performance. Additionally, a confusion matrix was created to visualize the distribution of correct and incorrect predictions, providing a clearer understanding of model behavior. This visualization emphasized the significance of thorough evaluation, particularly in fields where minimizing false positives and false negatives is critical for effective decision-making.






+ Code + Text

```
[8] from sklearn.metrics import classification_report
    y_true = [0, 1, 2, 2, 2]
    y_pred = [0, 0, 2, 2, 1]
    target_names = ['class 0', 'class 1', 'class 2']
    print(classification_report(y_true, y_pred, target_names=target_names))
```

```
              precision    recall  f1-score   support

     class 0       0.50      1.00      0.67         1
     class 1       0.00      0.00      0.00         1
     class 2       1.00      0.67      0.80         3

    accuracy                           0.60         5
   macro avg       0.50      0.56      0.49         5
weighted avg       0.70      0.60      0.61         5
```

```
[9] from sklearn.datasets import load_breast_cancer
    from sklearn.linear_model import LogisticRegression
    from sklearn.metrics import roc_auc_score
    X, y = load_breast_cancer(return_X_y=True)
    clf = LogisticRegression(solver="liblinear", random_state=0).fit(X, y)
    roc_auc_score(y, clf.predict_proba(X)[:, 1])
```

Variables Terminal

Commands | + Code + Text | Run all

## RMSE

```
[14] from sklearn.metrics import mean_squared_error
     y_true = [3, -0.5, 2, 7]
     y_pred = [2.5, 0.0, 2, 8]
     mean_squared_error(y_true, y_pred)
```

```
0.375
```

## MAE

```
[15] from sklearn.metrics import mean_absolute_error
     y_true = [3, -0.5, 2, 7]
     y_pred = [2.5, 0.0, 2, 8]
     mean_absolute_error(y_true, y_pred)
```

```
0.5
```

## r squared

Variables | Terminal

## r squared

```
[16] from sklearn.metrics import r2_score

     r2_score(y_true, y_pred)
```

```
0.9486081370449679
```