📊 Classification Report – Logistic Regression

This report compares the mini guide steps with actual logistic regression implementation on a binary classification dataset. It also highlights added features for deeper evaluation.

📋 Comparison Table

Step	Mini Guide Description	Implemented Code	Extra Feature
1	Choose a binary classification dataset	Used Breast Cancer Wisconsin dataset from sklearn.datasets	No download required; loaded directly
2	Train/test split and standardize features	Used train_test_split and StandardScaler	Visualized dataset shape and ensured feature scaling
3	Fit a Logistic Regression model	Trained LogisticRegression with max_iter=1000	Used scaled features for better convergence
4	Evaluate with confusion matrix, precision, recall, ROC-AUC	Generated classification report, confusion matrix, and ROC-AUC score	Plotted ROC Curve and confusion matrix heatmap
5	Tune threshold and explain sigmoid function	Plotted sigmoid curve and adjusted classification threshold	Explained probability outputs and decision boundary tuning

📑 Summary

This logistic regression classification task goes beyond the basics by including full metric evaluation, threshold tuning, and sigmoid explanation. These enhancements ensure a better understanding of model performance and decision-making behavior.