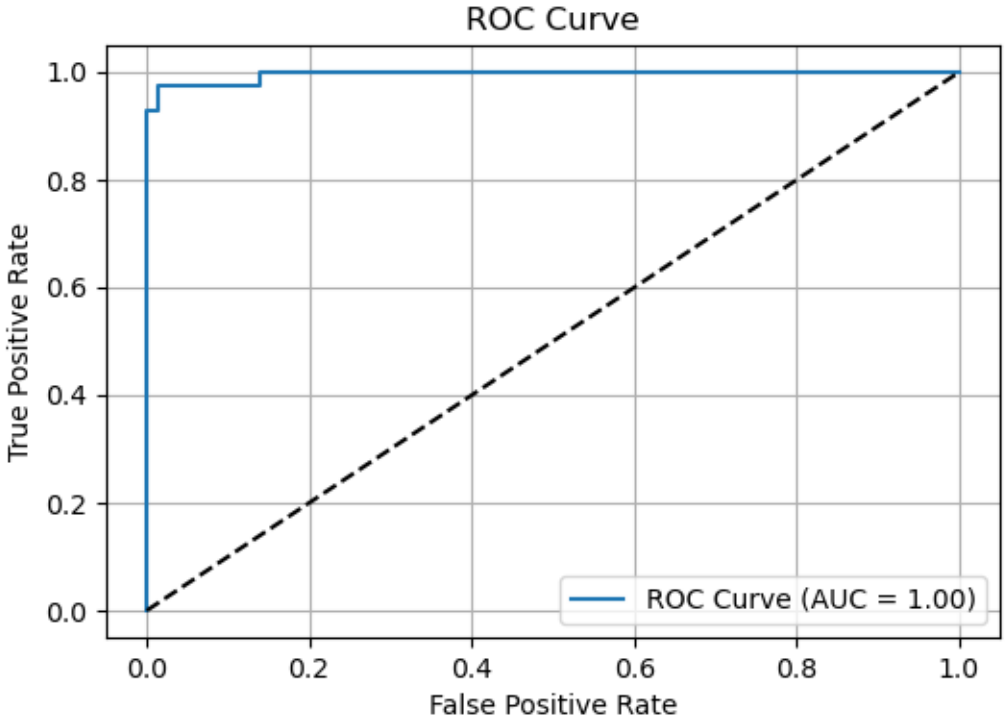
Sigmoid Function: Core of Logistic Regression

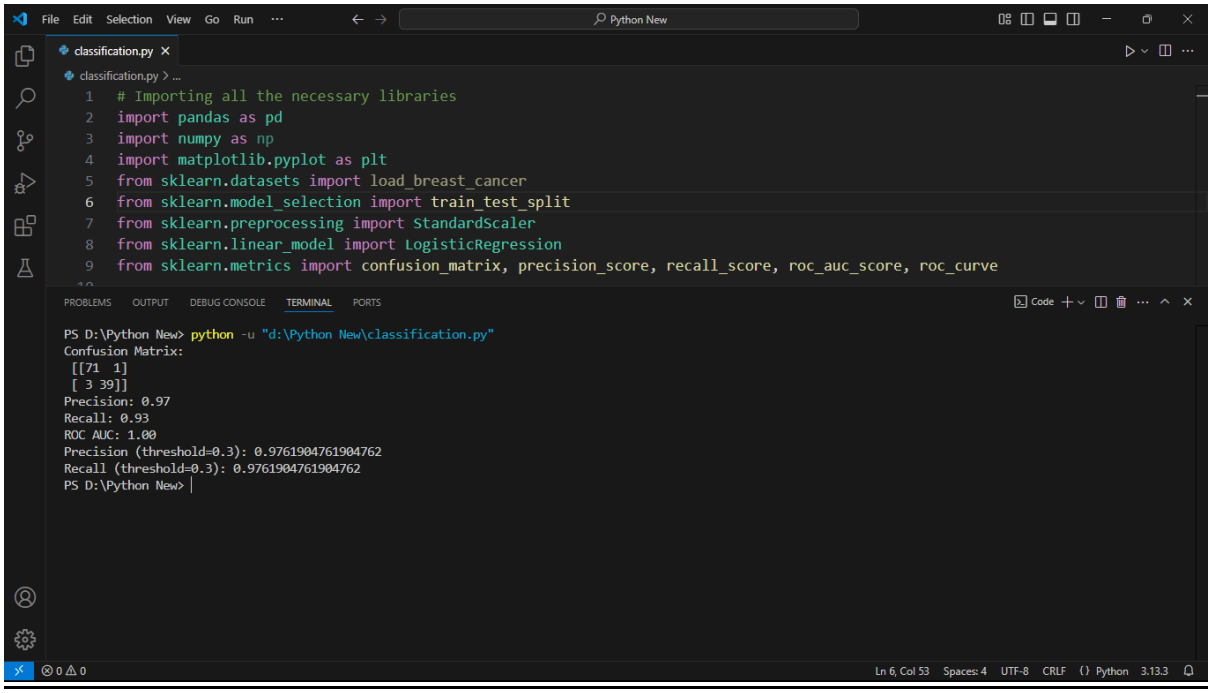
The logistic regression model calculates:

P(y=1|x) = σ(z)= 1/1+e^−z, where z=w·x+b

The sigmoid function outputs a probability from 0 to 1.



ROC Curve


File Edit Selection View Go Run ···
Python New
classification.py
classification.py > ...
1 # Importing all the necessary libraries
2 import pandas as pd
3 import numpy as np
4 import matplotlib.pyplot as plt
5 from sklearn.datasets import load_breast_cancer
6 from sklearn.model_selection import train_test_split
7 from sklearn.preprocessing import StandardScaler
8 from sklearn.linear_model import LogisticRegression
9 from sklearn.metrics import confusion_matrix, precision_score, recall_score, roc_auc_score, roc_curve
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code
PS D:\Python New> python -u "d:\Python New\classification.py"
Confusion Matrix:
[[71 1]
[3 39]]
Precision: 0.97
Recall: 0.93
ROC AUC: 1.00
Precision (threshold=0.3): 0.9761904761904762
Recall (threshold=0.3): 0.9761904761904762
PS D:\Python New>
Ln 6, Col 53 Spaces: 4 UTF-8 CRLF Python 3.13.3

Output