

# Heart Disease Prediction Report

## User Input Data with Explanations:

sex: 1 (1 = Male, 0 = Female)  
age: 45.0  
education: 4.0  
currentSmoker: 1 (1 = Yes, 0 = No)  
cigsPerDay: 20.0  
BPMeds: 1 (1 = Yes, 0 = No)  
prevalentStroke: 1 (1 = Yes, 0 = No)  
prevalentHyp: 1 (1 = Yes, 0 = No)  
diabetes: 1 (1 = Yes, 0 = No)  
totChol: 220.0  
sysBP: 130.0  
diaBP: 80.0  
BMI: 32.0  
heartRate: 80.0  
glucose: 100.0

## Prediction and Probability:

Prediction: High risk of heart disease

Probability of heart disease: 54.90%

## Diet Recommendation:

### Diet Plan for High-Risk Individuals:

- Increase fiber intake with vegetables, fruits, and whole grains.
- Limit unhealthy fats, such as trans fats and saturated fats.
- Choose healthy fats, such as olive oil and avocados.
  - Include more fish in your diet, especially those high in omega-3 fatty acids (e.g., salmon, sardines).
- Monitor cholesterol levels and aim for a low-sodium diet.
- Avoid processed foods and high sugar intake.
- Stay hydrated and avoid sugary drinks.

## Health Score:

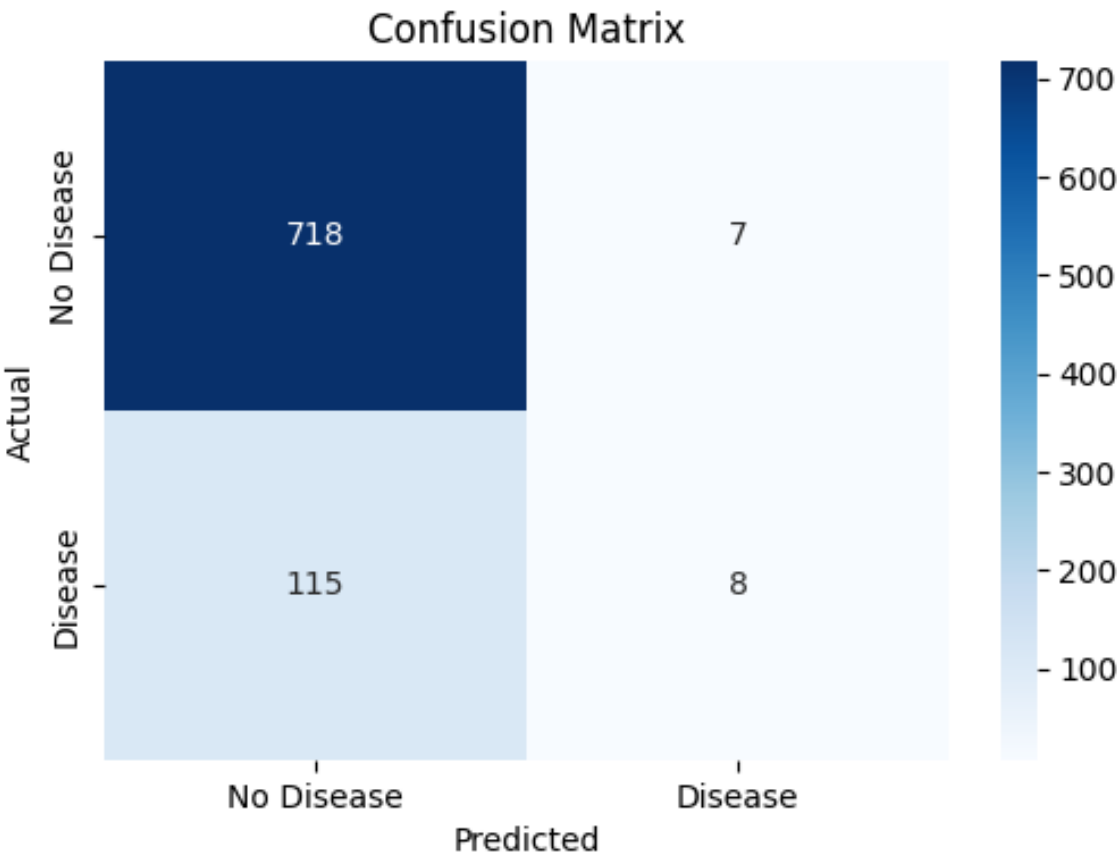
Your health score is: 4

## Health Risk Explanation:

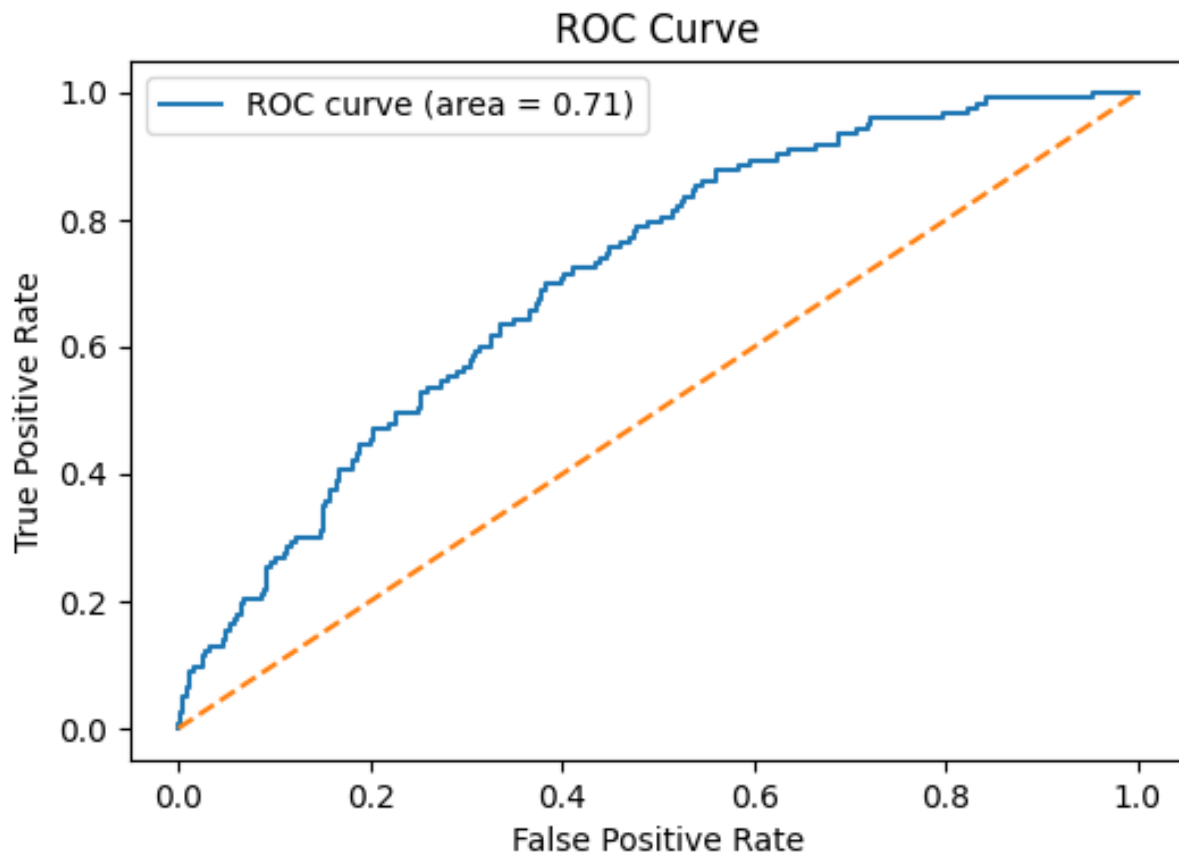
Based on your input, your health risk for heart disease is high. Several factors contribute to this risk, including:

- High BMI (above 30), which can increase your heart disease risk.
- Smoking, which significantly increases heart disease risk.

Confusion Matrix and Explanation

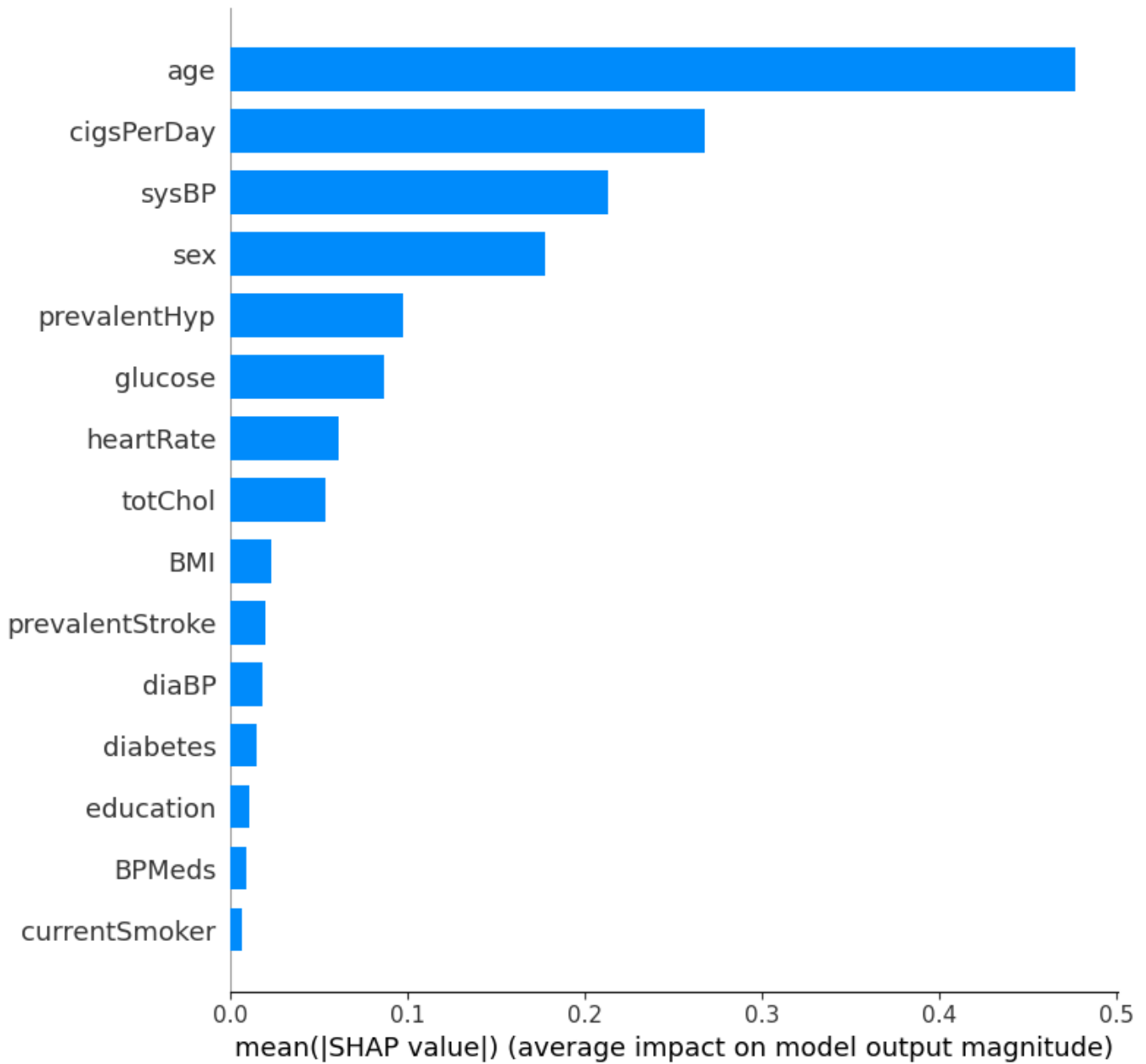


The Confusion Matrix shows the number of true positives, false positives, true negatives, and false negatives.



The ROC curve shows the trade-off between sensitivity and specificity.

SHAP Summary Plot



SHAP values provide insights into how each feature contributes to the model's predictions.