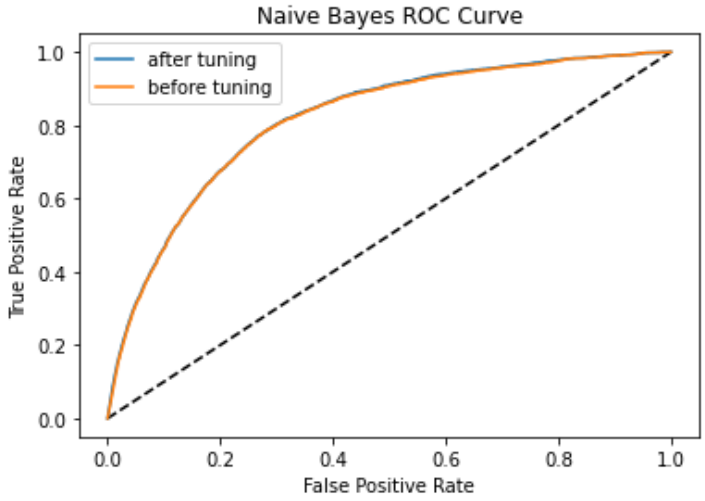
Heart Disease Model Metrics:
Using Prediction for Prevention

Best Performing Model: Naive Bayes with Recall = 70%, ROC AUC = 82%

Best Hyperparameter: var_smoothing = 0.0029

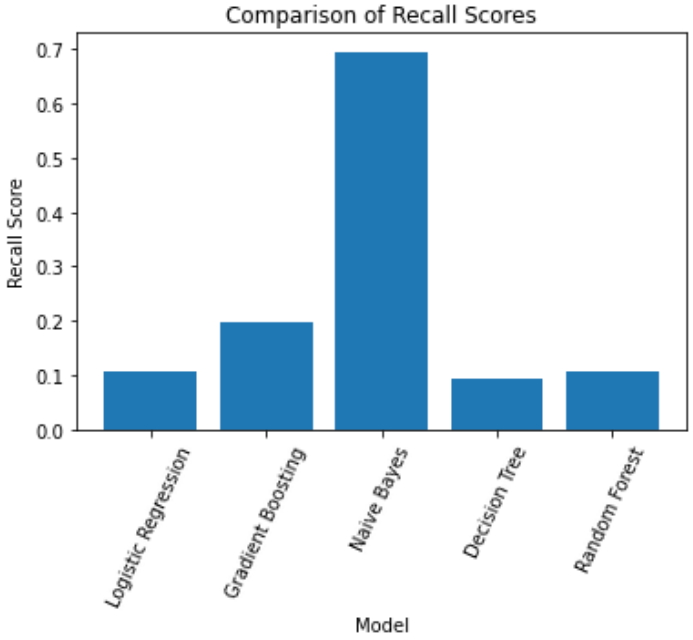


	Time	Recall Score
0	before Tuning	0.696073
1	after Tuning	0.699726

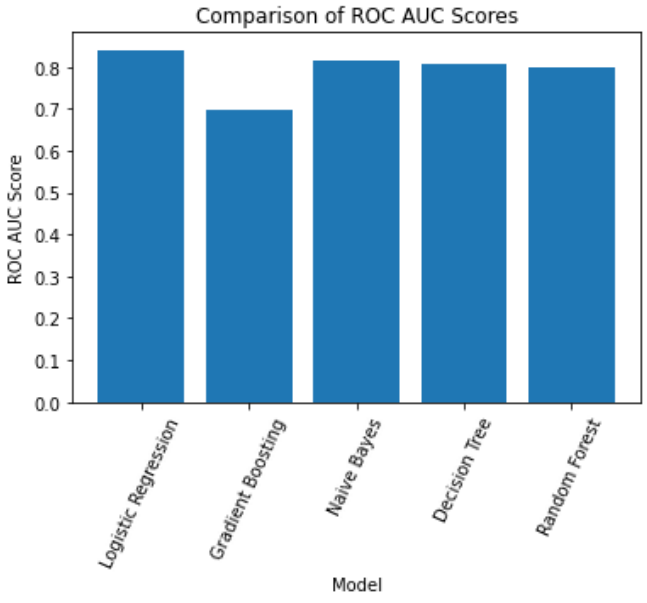
	Data Used	Recall Score	ROC AUC Score
0	Training Data	0.697689	0.816630
1	Test Data	0.699726	0.816876

```
Naive Bayes confusion matrix
 [[45757 12727]
 [ 1644  3831]]
Naive Bayes classification report
              precision    recall  f1-score   support

           0       0.97      0.78      0.86     58484
           1       0.23      0.70      0.35      5475

    accuracy                           0.78     63959
   macro avg       0.60      0.74      0.61     63959
weighted avg       0.90      0.78      0.82     63959

Naive Bayes ROC AUC score: 0.8168761280062861
Naive Bayes Accuracy: 0.7753091824450038
Naive Bayes f1-score: 0.8200617557164458
Naive Bayes Recall score: 0.6997260273972603
```

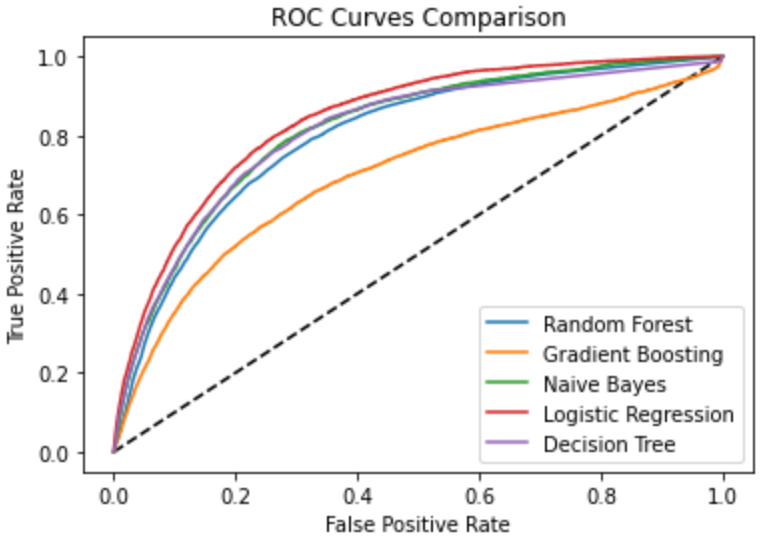
Other Models Evaluated: Logistic Regression, Gradient Boosting, Decision Tree, Random Forest



	Model	Recall Score
0	Logistic Regression	0.107945
1	Gradient Boosting	0.197808
2	Naive Bayes	0.696073
3	Decision Tree	0.094429
4	Random Forest	0.107580



	Model	ROC AUC Score
0	Logistic Regression	0.840682
1	Gradient Boosting	0.696421
2	Naive Bayes	0.814582
3	Decision Tree	0.808578
4	Random Forest	0.798132


ROC Curves Comparison
True Positive Rate
False Positive Rate
0.0
0.2
0.4
0.6
0.8
1.0
Random Forest
Gradient Boosting
Naive Bayes
Logistic Regression
Decision Tree