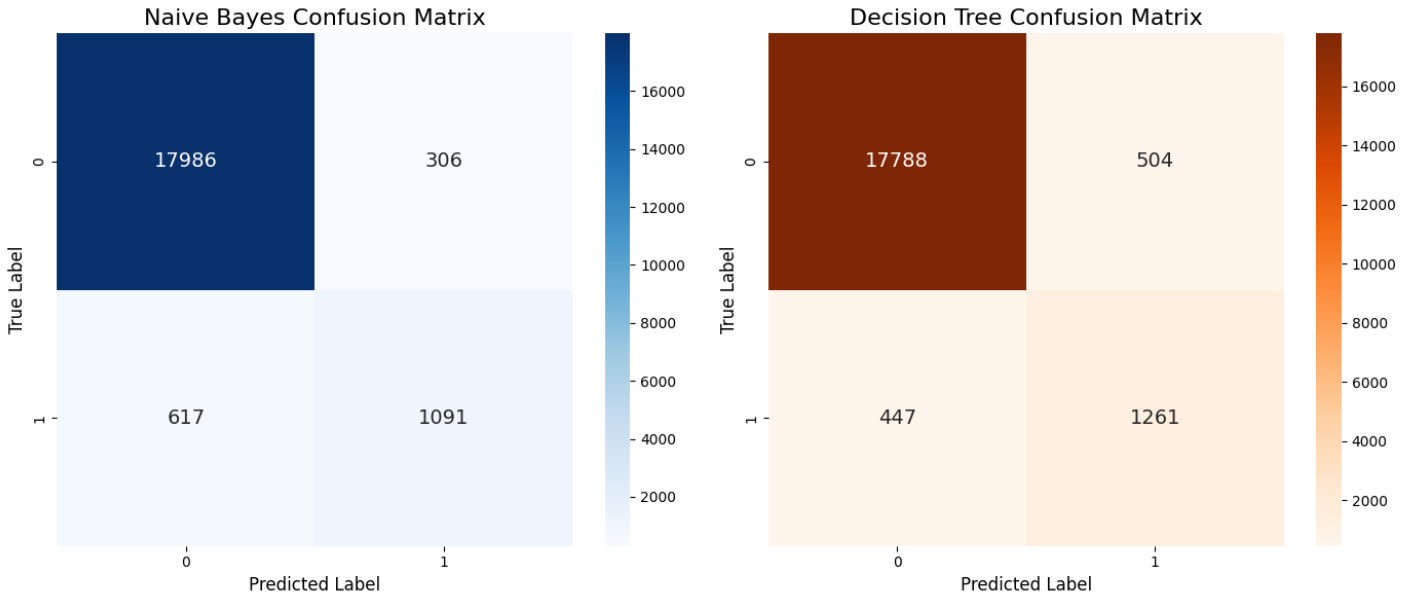
Naive Bayes Classifier Report

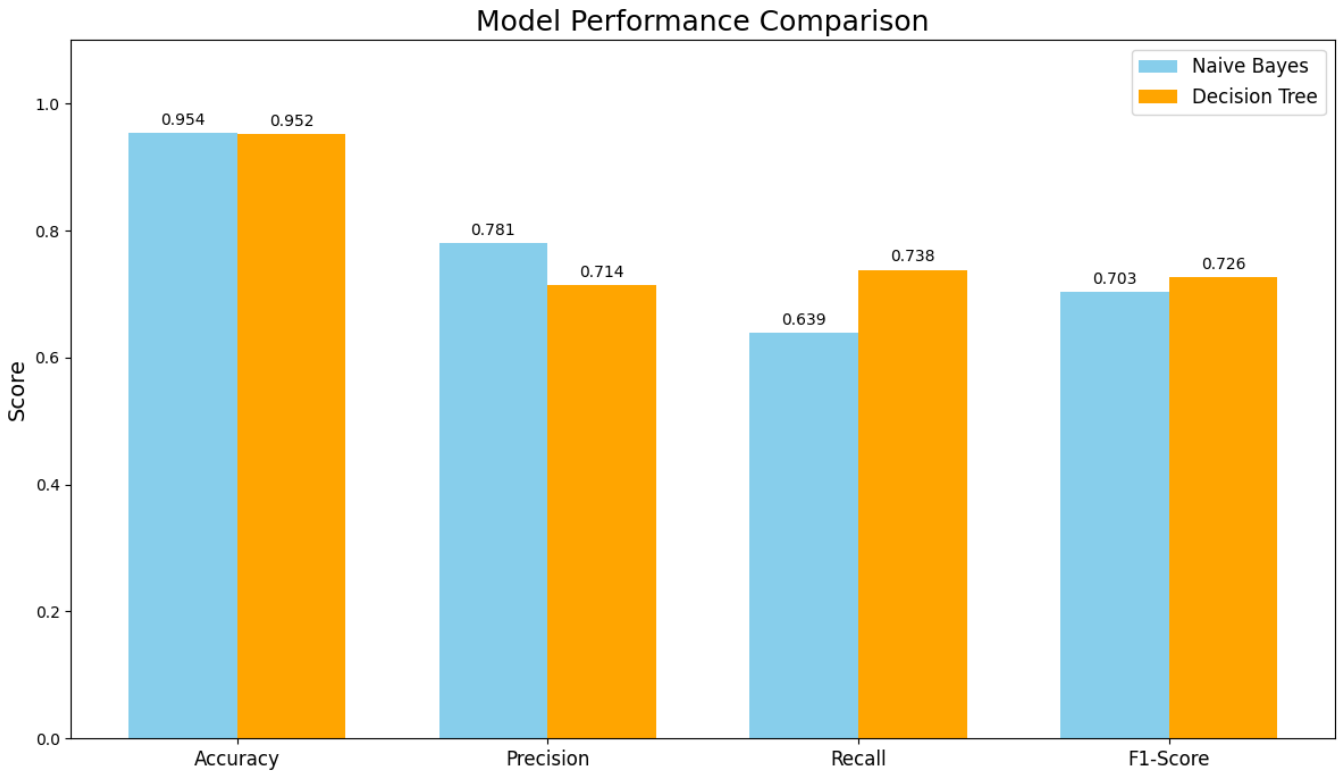
1. Performance Metrics Comparison

Metric	Naive Bayes (Custom)	Decision Tree (Sklearn)
Accuracy	0.9538	0.9525
Precision	0.7810	0.7144
Recall	0.6388	0.7383
F1-Score	0.7027	0.7262

2. Confusion Matrices



3. Visual Metrics Comparison



4. Conclusion

The Custom Naive Bayes classifier demonstrates competitive performance against the Decision Tree (Sklearn) baseline. It achieved slightly higher Accuracy and significantly better Precision, making it less prone to False Positives. However, the Decision Tree showed higher Recall. Overall, the Mixed Naive Bayes approach is validated as effective for this dataset.