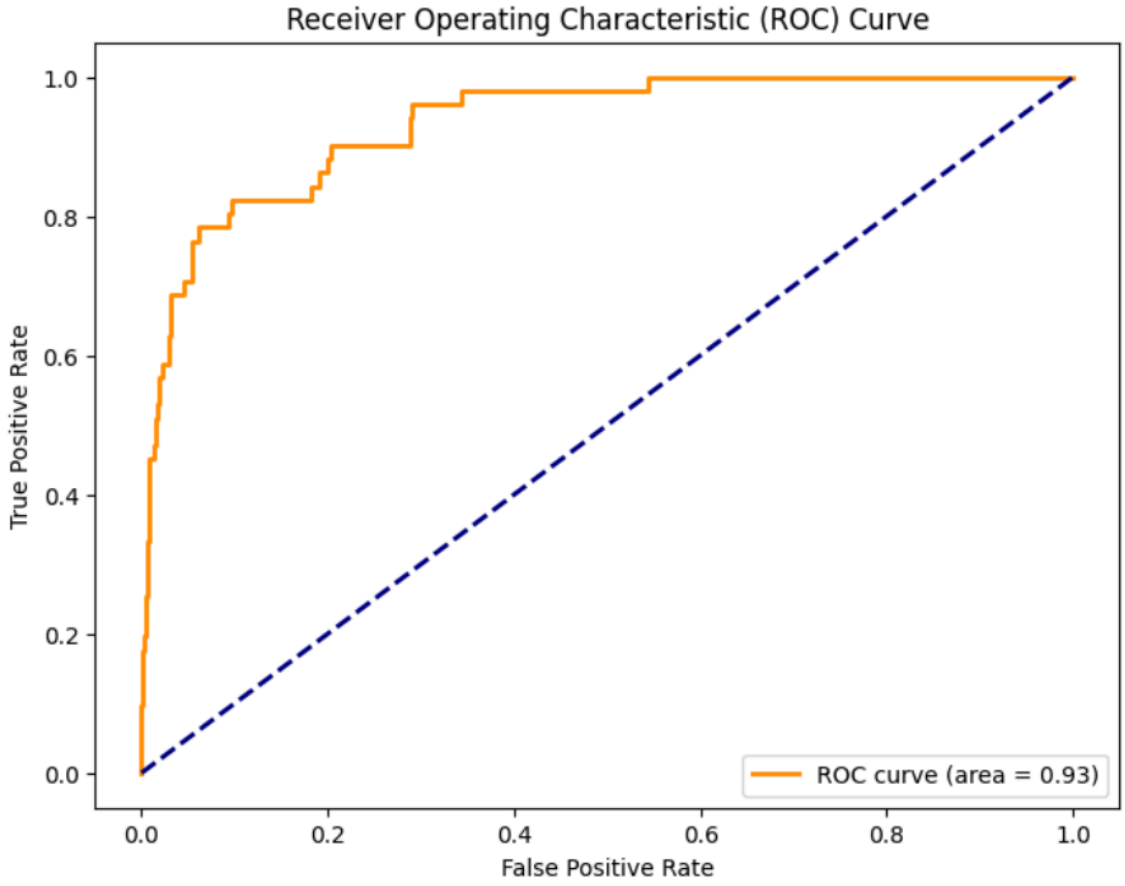
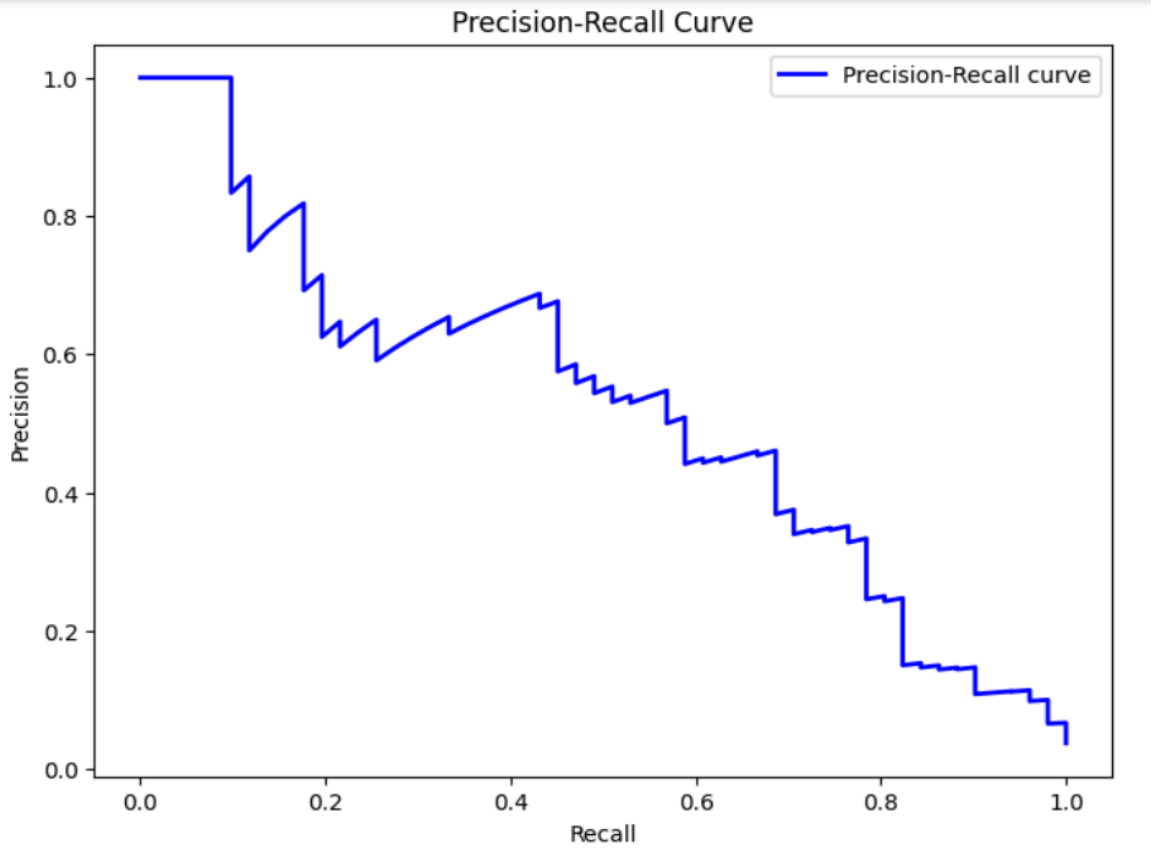
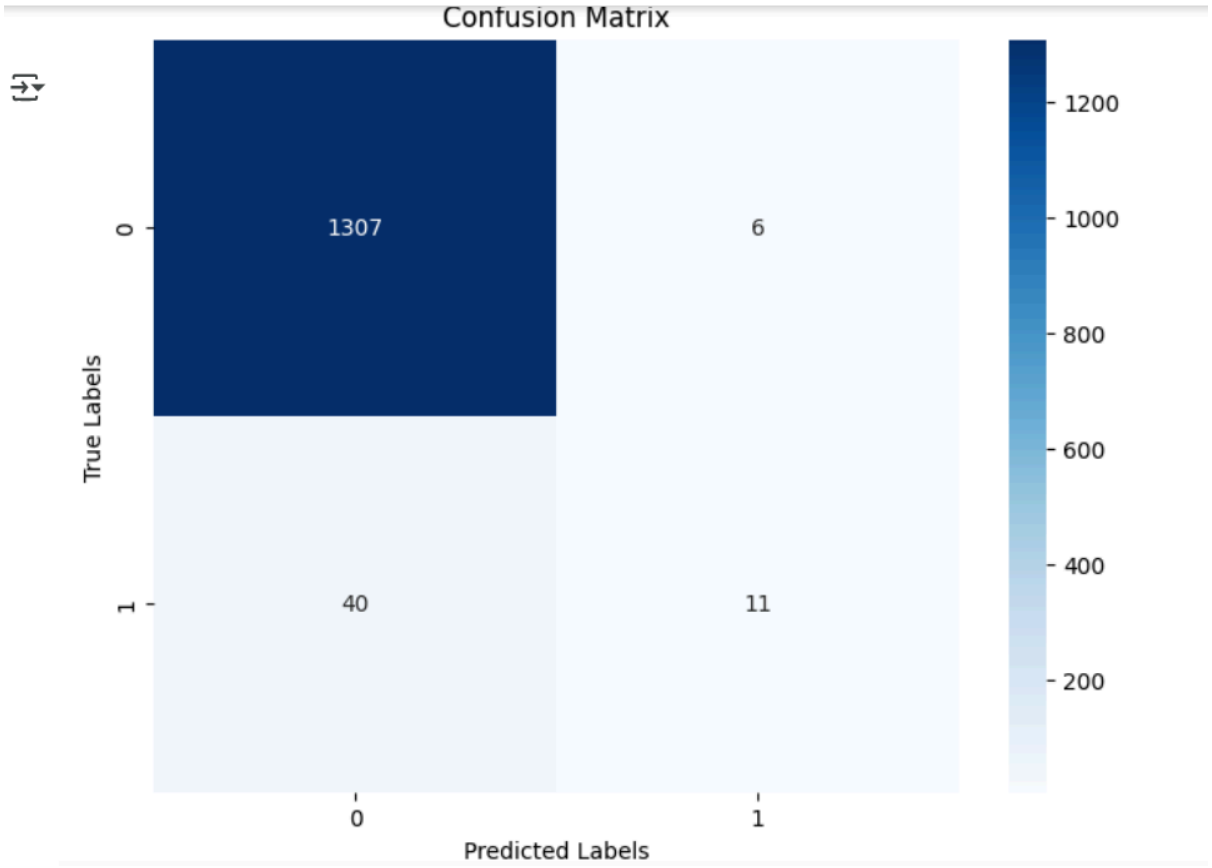
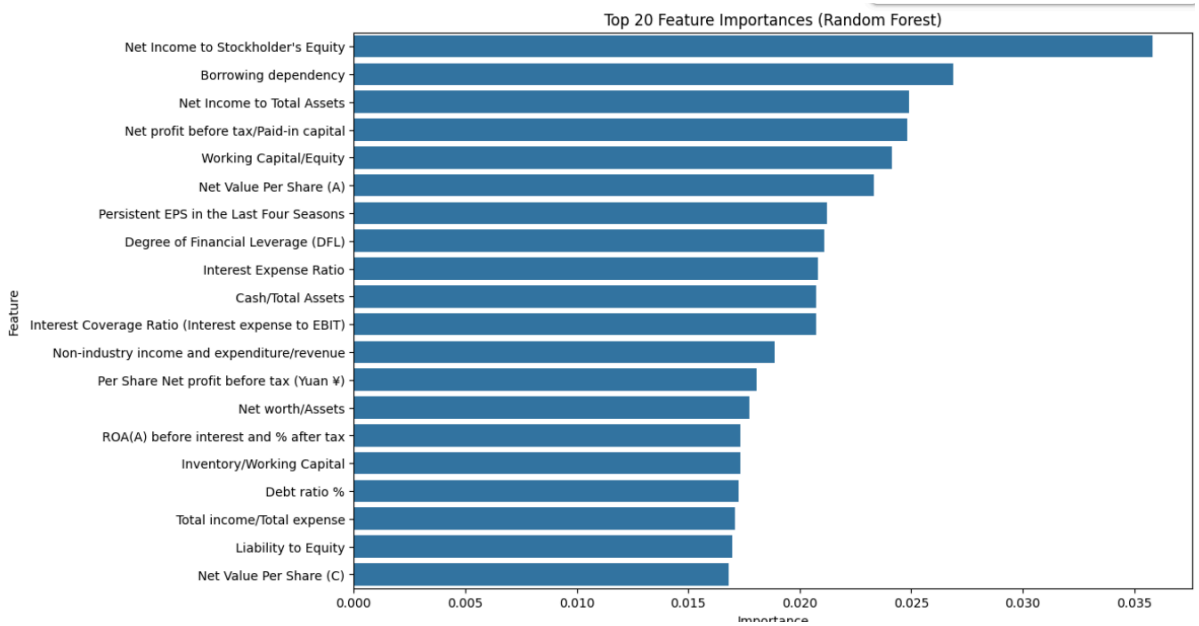
Accuracy: 96.63%

	precision	recall	f1-score	support
0	0.97	1.00	0.98	1313
1	0.65	0.22	0.32	51
accuracy			0.97	1364
macro avg	0.81	0.61	0.65	1364
weighted avg	0.96	0.97	0.96	1364




Precision-Recall Curve
Precision-Recall curve
Precision
Recall
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0





Result:

The ensemble models achieved:

- Random Forest: ~94% accuracy
- LightGBM: ~95% accuracy
- Extra Trees: ~94% accuracy
- Stacking Classifier: ~97% accuracy (best performance)

Additionally, a confusion matrix visualization has been included to analyze model predictions. The results indicate that ensemble learning techniques significantly improve bankruptcy prediction accuracy**.**

Conclusion:

Ensemble learning techniques, particularly the Stacking Classifier, significantly enhance the accuracy of bankruptcy prediction. By integrating multiple models and a meta-learner, we leverage their strengths to achieve superior performance compared to single classifiers.

This approach is valuable for financial institutions, investors, and policymakers for risk assessment and decision-making. Future work may include incorporating deep learning models and alternative feature selection techniques to further improve predictive accuracy and adaptability to real-world financial datasets.