Survival Distribution

Receiver Operating Characteristic (ROC) Curves

Decision Stump (AUC = 0.778)
Bagging (AUC = 0.857)
Random Forest (AUC = 0.860)

Feature Importance from Random Forest

Accuracy Comparison: Weak Classifier vs. Ensemble Methods

Feature Importance from AdaBoost

AdaBoost: Effect of Learning Rate on Accuracy

Accuracy Comparison: Decision Stump vs AdaBoost

Feature Importance Comparison between Models

ROC Curves Comparison
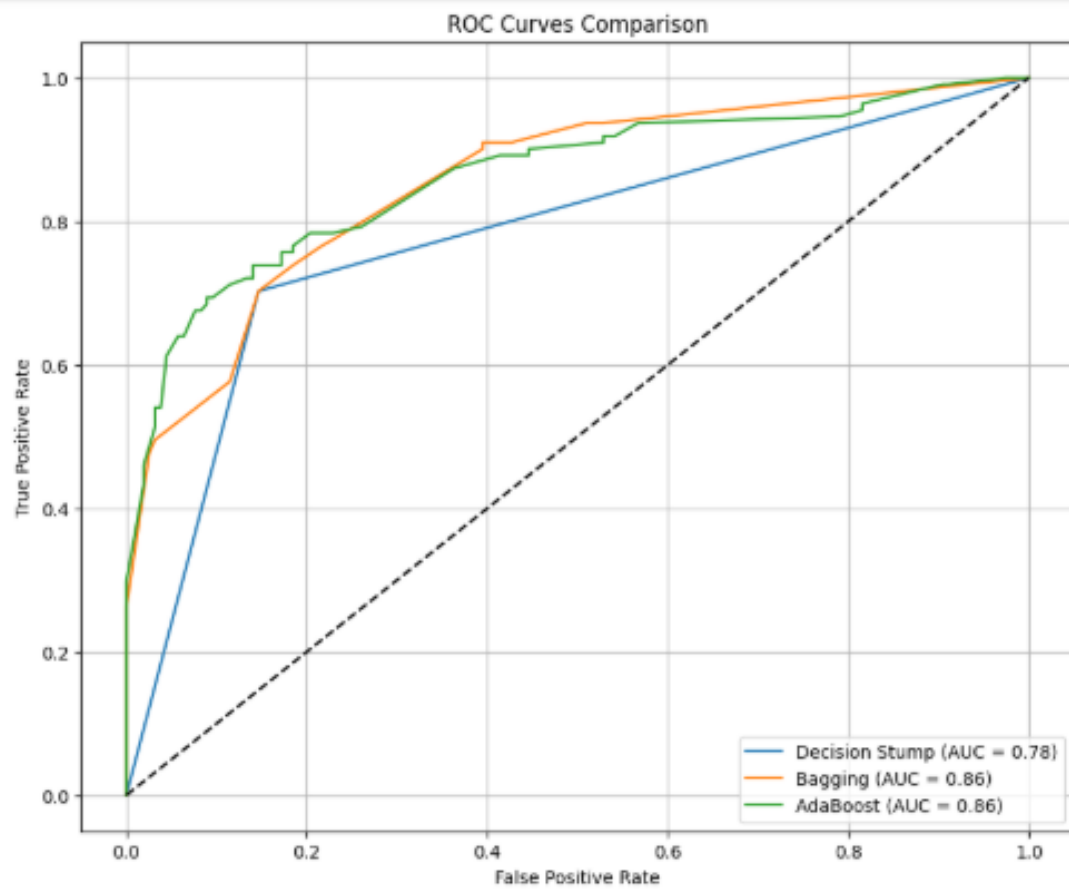
```
Model Performance Comparison:
           Model  Accuracy  Precision    Recall  F1 Score
0  Decision Stump  0.791045   0.772277  0.702703  0.735849
1         Bagging  0.791045   0.772277  0.702703  0.735849
2        AdaBoost  0.805970   0.792079  0.720721  0.754717
```
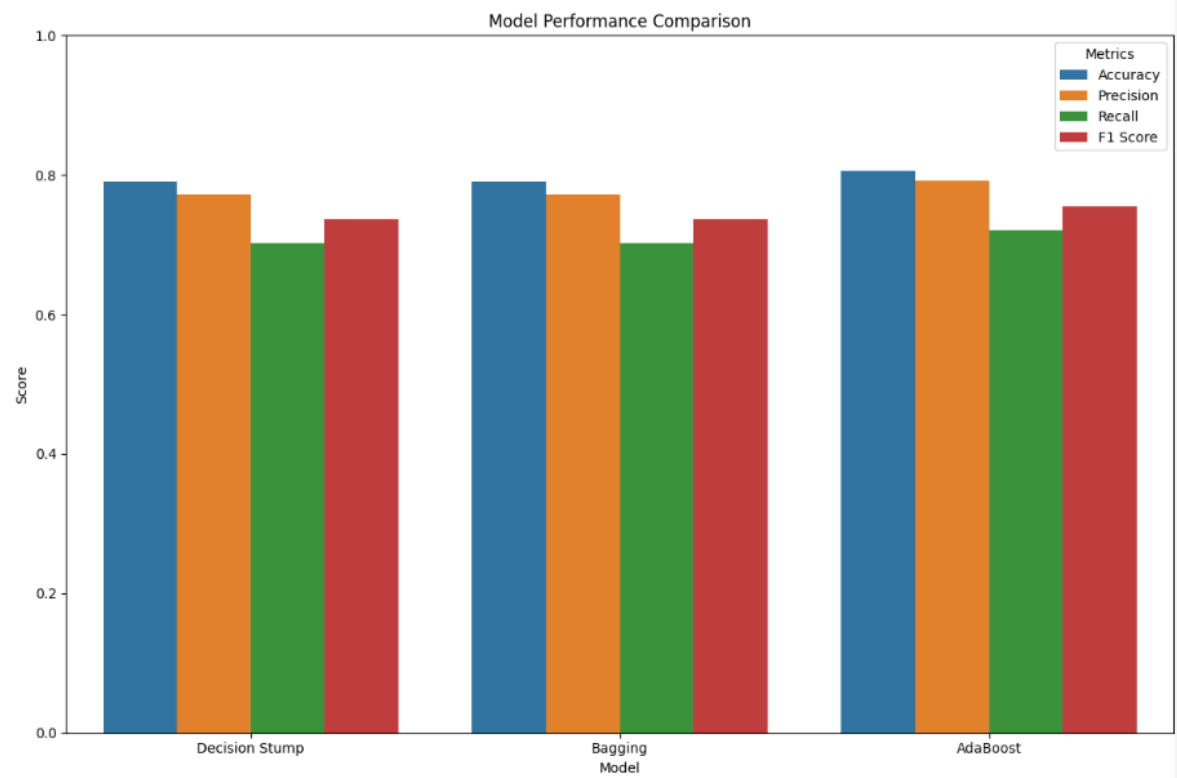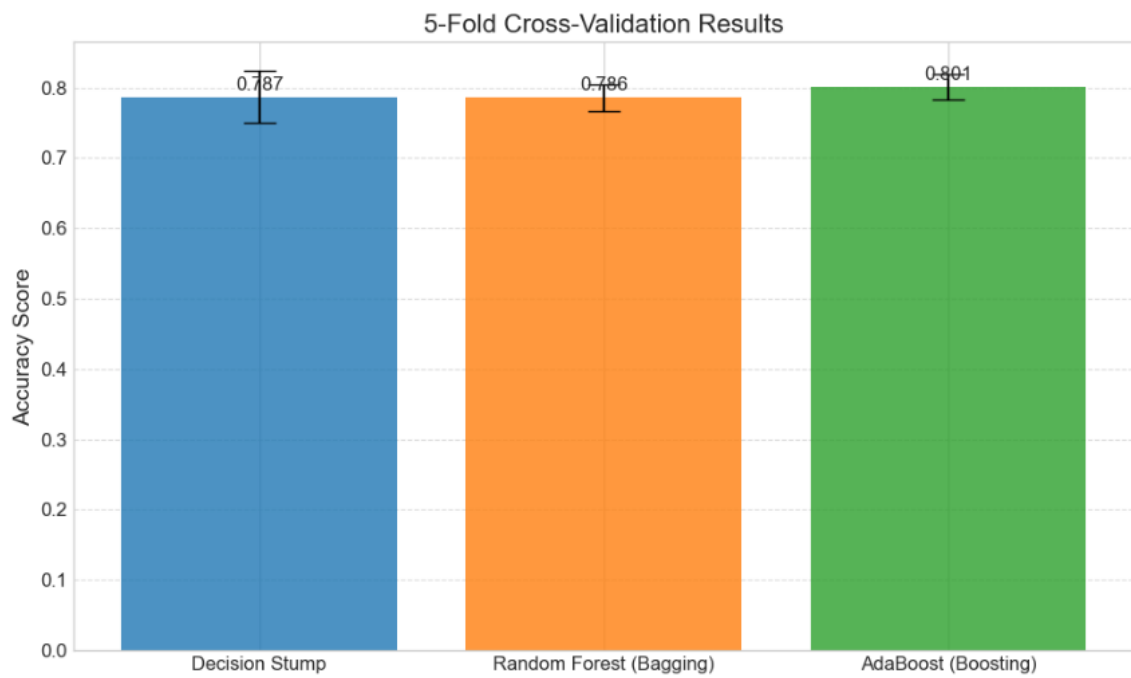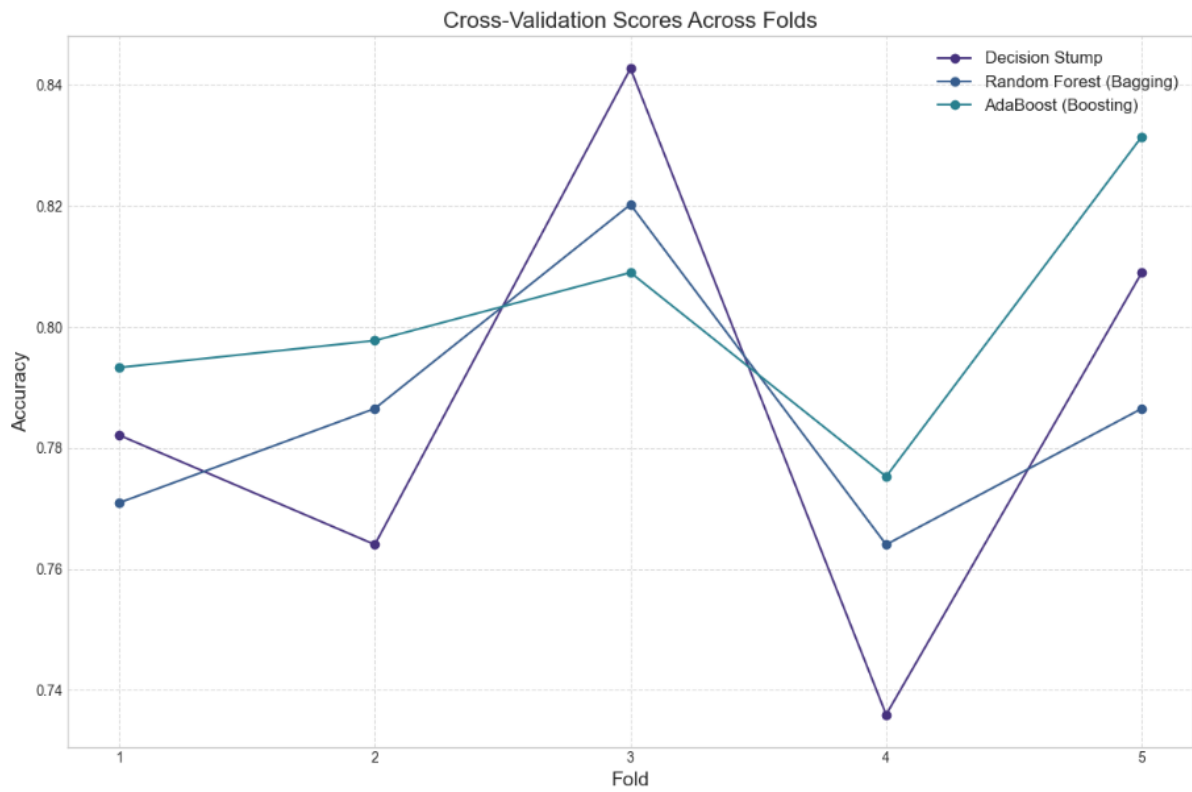

Model Performance Comparison

Cross-Validation Scores Across Folds

5-Fold Cross-Validation Results

Result Visualization

Accuracy Improvement with Ensemble Methods

Accuracy Score

| | 0.7910 | 0.7910 | 0.8060 |

Decision Stump | Bagging with Decision Stumps | AdaBoost with Decision Stumps

Model Comparison on Different Metrics

Score

Decision Stump | Random Forest (Bagging) | AdaBoost (Boosting)
Model

Accuracy | Precision | Recall | F1 Score | ROC-AUC

Model Accuracy Comparison

Decision Stump (Base): 0.7848
Basic AdaBoost: 0.7982
Tuned AdaBoost: 0.8161
Gradient Boosting: 0.8072

Percentage Improvement Over Base Model (Decision Stump)

Basic AdaBoost: +1.71%
Gradient Boosting: +2.86%

Model Complexity vs. Performance

Bagging vs Boosting: Performance Comparison

Final Model Accuracy Comparison

Model	Accuracy
Decision Stump (Weak Classifier)	0.7848
Bagging with Decision Stumps	0.7848
AdaBoost with Decision Stumps	0.7982
Gradient Boosting	0.8072
Tuned AdaBoost	0.8161

Model Performance Comparison

Models:
- Decision Stump
- Random Forest (Bagging)
- AdaBoost (Boosting)

Metrics: Accuracy, Precision, Recall, F1 Score, ROC-AUC

Percentage Improvement Over Base Classifier (Decision Stump)