Tanner Young

Lab 5

Progress 1 - Screen shot spiral graph

A screen shot of a computer

Description automatically generated

Progress 2 - Screen shot ADA performance

A screenshot of a computer

Description automatically generated

Analysis 3 - ADA Evaluation  
• **How does the ADA model compare with the other models?**

ADA doesn't perform as well as the Decision Tree on this dataset.

• **Is the ADA boosted classifier overfitting?**

ADA exhibits a decrease in performance from the training set to the test set, which suggests it might be overfitting to some extent.

Progress 4- Random Forest performance

A screen shot of a computer

Description automatically generated

Analysis 5 - Evaluation Random Forest  
**How does the RF model compare with the other models?**

The Random Forest model outperforms the other models in terms of training accuracy, but it doesn't necessarily translate into better generalization to new data.

**Is the RF classifier overfitting?**

There is an indication of overfitting, given the perfect scores on the training set. The model may be capturing noise in the training data, making it less likely to generalize well to new, unseen data.

Progress 6 - Screen shot of Voting performance

A screenshot of a computer

Description automatically generated

Analysis 7 - Evaluation voting classifier  
• **How does the voting model compare with the other models?**

The Voting Ensemble performs well compared to other models, achieving high accuracy and F1 score on both training and test sets.

• **Is the voting classifier overfitting?**

There is no clear evidence of overfitting; the model generalizes reasonably well to the test data.

Analysis 8 - How well did cross validation predict the test set performance?

The average accuracy and low standard deviation suggest a consistent and reasonably well performance across different folds.

Progress 9 - Screen shot of results table

A screenshot of a computer

Description automatically generated

Prediction 10 - performance of random forest  
• Value being changed and how much

I’m changing arms from 3 to 5

• Predicted change in accuracy

I think that this will decrease the accuracy of the model’s performance. It should add 2 more spirals to the graph.

Progress 11 - Reran cells  
Screen shot of spiral graph  
Performance of RF

A screen shot of a computer

Description automatically generated

A screen shot of a computer

Description automatically generated

Analysis 12 - Prediction results  
• Did your prediction match the actual performance.

Yes, the model’s accuracy was lower than the previous model in all areas.

• Propose an explanation

There were far greater points and overlapping of points. The boundaries of colored points was not as clear.