

We calculated various statistical values to measure the performance of 3 different classification models. We used 3 different models from the scikit-learn library, SVC, Logistic Regression, and Random Forest. Each model was trained on the same dataset and yielded the following results.

SVC

```
Training accuracy: 0.7306034482758621
This is the Precision Score: 1.0
This is the Recall Score: 0.041666666666666664
Test accuracy: 0.7306034482758621
```

As we can see the training and test accuracy, and precision score are well above the 0.5 benchmark showing that this model is very positive and accurate. We do have a low recall rate of sub 1% which is not desirable.

Logistic Regression

```
Training accuracy: 0.728448275862069
This is the Precision Score: 1.0
This is the Recall Score: 0.041666666666666664
Test accuracy: 0.728448275862069
```

For the logistic Regression we can see slight variations in our results. While all the values are similar there is a slight change in the training and test accuracy. Again, the recall score is very low and not desirable, ideally we want something above 0.5.

Random Forest

```
Training accuracy: 1.0
This is the Precision Score: 0.5555555555555556
This is the Recall Score: 0.20833333333333334
Test accuracy: 1.0
```

For the random forest model we received even more varying results. We achieved a perfect 1.0 for the training and test accuracy which is the max we can achieve. We calculated a 0.55 precision score, which is lower than the previous two. However, we did get a higher recall score of 0.2, this isn't great but still an improvement over the previous models.

Decision Tree

```
Training accuracy: 1.0  
This is the Precision Score: 0.41379310344827586  
This is the Recall Score: 0.5  
Test accuracy: 1.0
```

For the Decision Tree we can see slight variations in our results. While all the values are similar there is a slight change in the precision and recall. The recall score seems to be the highest at 0.5 here, however now the precision score has reduced.

The results were quite interesting and informative about each of the models performances. Overall, we received promising values however our recall scores across the board were quite low. Ideally we would want all our calculations to yield above 0.5 to get a well trained model.