

Task 1:

Q2: Prediction Labels (1=Win and 0=Lose):

Naïve Bayes: [1 0 1 1 1 0 0 1 1 0 1 0]

KNN: [0 1 1 0 1 0 1 1 1 1 1 0]

Task 2:

Q1: Average Accuracy, Precision, Recall, and F1 scores of five-fold cross validation:

```
test_accuracy    0.752733
test_precision   0.648486
test_recall      0.749546
test_f1          0.694675
```

As a rule of thumb, Bayesian learning is preferred for small datasets compared to big datasets especially when considering precision. In our case, we got 100% precision on the football dataset whereas on the Titanic dataset, we only got an average precision of about 65%. Also, we got a higher accuracy on the smaller dataset than the larger one with Bayes.

Q3: KNN performed better in terms of accuracy on the Titanic dataset compared to Naïve Bayes.

Naïve Bayes accuracy: 75.3%

KNN accuracy: 80.4%

In terms of speed, however, I would say Naïve Bayes since it is quite quick, and we don't have to spend time finding an optimal k value as we did in KNN.

Associated code can be found [here](#).