1. A screenshot of a computer screen

   Description automatically generatedA screenshot of a computer

   Description automatically generatedLooks like the test set is grouped by the label. Meaning all the 0’s are grouped together, and all the 1’s are grouped together, etc.
2. This is admittedly a pretty surface level view, but running a few trials showed that the model had the most issue with 9’s, specifically with confusing them with both 4’s and 7’s (and vice versa in both cases).  
   A screen shot of a computer

   Description automatically generated
3. Naïve Bayes  
   A screenshot of a computer code

   Description automatically generated  
   Primary error pairs are 3-5, 4-9, and 5-8 (5’s had a hard time with this model)  
     
   Decision Tree  
   A screenshot of a computer code

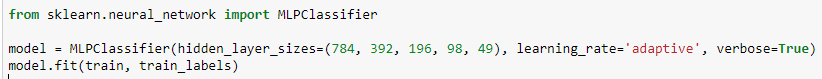
   Description automatically generated  
   This did not perform well. Primary error pairs are 2-9, 7-9, 3-8, and 4-6.  
     
     
     
     
     
   Random Forest  
   A screenshot of a computer code

   Description automatically generated  
   Primary error pairs are 3-5, 4-9, 2-8, and 3-8.
4. Slight increase in accuracy for the Naïve Bayes by lowering the alpha value  
   A screenshot of a computer code

   Description automatically generated  
   Primary error pairs remain the same: 3-5, 4-9, and 5-8.  
     
     
     
     
     
     
     
     
     
   Decision tree saw a slight increase in accuracy by adding a max depth parameter (possible sign of overfitting?).  
   A screenshot of a computer code

   Description automatically generated  
   The main error pair was 5-8 by a wide margin.  
     
   Had some good improvements by increasing the number of estimators and adjusting the minimum samples per split.  
   A screenshot of a computer code

   Description automatically generated  
   Primary error pair was 4-9.

EC.   
  
A screenshot of a computer

Description automatically generated

A screenshot of a computer code

Description automatically generated

The main error pairs were 4-9, 2-7, and 7-9.