Neural Networks

Observations

* When running our analysis for neural networks, we ran our analysis several times with different variables for prediction:
  + Wine type
  + Wine quality
* When running our analysis for wine type, we found that we had a higher accuracy of 0.98 with an initial dense value of 500, our model took 10.67531 seconds to run.
* As we increase the number of neurons by 250 neurons per layer, we see that our model’s accuracy generally remains the same with a slight increase in duration
* Meanwhile, when running our analysis for wine quality, we initially found that our model’s accuracy was at 0.498, with an initial dense value of 500. The model took 11.28 seconds to run.
* Increasing the number of dense values per layer has little effect on accuracy, and have served to increase the duration taken for the model to run.
* However, we found that after preprocessing our data (through binning the data into 3 categories), our accuracy has increased significantly, with an accuracy of 0.925 for a model with an initial dense value of 500 and taking 10.54 seconds to run.

Analysis

* From running our models thrice, we note that the model is good at predicting the type of wine (red or white) and the quality of wine (after binning the data).
* Adding more epochs at each run of the analysis has a negligible difference in the accuracy of the model.
* This is likely due to us having a large dataset (insert number of data after cleaning).