Alphabet Soup Model Analysis

Overview

The purpose of this analysis is to predict whether applicants will be successful if funded by Alphabet Soup. This can help better allocate funds to organisations with greater chance of success.

Analysis

- What variable(s) are the target(s) for your model?
  IS_SUCCESFUL

- What variable(s) are the features for your model?
  All other columns in the application_df

- What variable(s) should be removed from the input data because they are neither targets nor features?
  EIN and NAME were removed because they are unique and do not contribute to the models outcome.

- How many neurons, layers, and activation functions did you select for your neural network model, and why?
  My model contains 4 layers, containing 16, 8, 4, and 2 neurons respectively

- Were you able to achieve the target model performance?
  Negative – max performance was around 73% with high loss of approximately 54%

```
804/804 [==============================] - 1s 2ms/step - loss: 0.5466 - accuracy: 0.7343
Epoch 100/100
804/804 [==============================] - 1s 2ms/step - loss: 0.5463 - accuracy: 0.7342
```

- What steps did you take in your attempts to increase model performance?
  - Added layers
  - Changed Activations
  - Removed many other columns
  - Re-binned other columns

Summary

Overall the results of my model did not perform better than the original mode.

I would potentially use a random forest model. Given we're considering a binary target with categorical variables Random Forest would require less pre-processing and provide feature importance scores which could be used to improve a neural network.