Machine Learning AlphabetSoup Summary:

This analysis is meant to give the non-profit AlphabetSoup a reliable metric to judge whether a loan to a given organization will allow it to succeed. For this, we have several factors to take into account, such as type of application, what industry they are affiliated with, etc.

Model Information

**DATA PREPROCESSING**

-Target:

Is\_Successful.

-Features

All the other columns except Name and EIN.

**COMPILING, TRAINING, AND EVALUATING**

-Neurons:

As I attempted to optimize my neural network, I increased the number of neurons.

-Hidden Layers:

In my original model I had two hidden layers, which I expanded to three for my optimization.

**-** Activation Function:

My activation function was ReLu, experimentation with different activation functions in each layer yielded marginally different results.

- Outcome:

In my output layer I used the sigmoid activation function which is commonly used in binary outputs.

-Target Achieved?

I did not achieve the target of 75% accuracy. I tried to not exclude the name column for more parameters, but the amount was too high for my laptop. When I did push through (the time for the training of the model was excessive) it was clearly an overfit, with accuracy jumping into the 90% mark in the second epoch.

Performance improvement?

I saw a small performance improvement, but could not achieve the 75% target mark.

Recommendations and Summary

If I had more time, I’m sure I could find a good combination of neurons, layers, activation functions, and parameters to go above the target mark. In summary, I am happy with the result I did achieve, and have learned a lot about neural networks that I hope to expand on.