Neural Network Model Writeup

Overview:

* The purpose of this analysis was to create a binary classification model that can predict if an Alphabet Soup-funded organization would be more successful based on the features in the dataset. Part of this goal is to predict within an accuracy of at least 75 percent, as well as to create a more effective model at tabulating accurate readings more quickly.

Data Reprocessing:

* The variable that was the target of the model was ‘IS\_SUCCESSFUL’
* ‘CLASSIFICATION’ and ‘APPLICATION\_TYPE’
* Both of the columns ‘EIN’, and ‘NAME’

Compiling, Training, and Evaluating the Model:

* I attempted to add two more layers to the model for a total of four to improve accuracy and bring it up above 75%, but it seemed to affect the model performance negatively. For units I used in order of procession, 80, 40, 30, 10 with the output layer having 1 unit. I alternated the activation models to put more sigmoid models into the layers so that I can improve computation speed due to it’s property of giving binary results.
* I was not able to achieve target model performance, but I was able to improve on the original results.
* I attempted to increase the number of layers up to six, but that hampered computational speed and did not cause any significant differences in accuracy results. I also played with the number of units in the layers by increasing the count with similar success. I decided to decrease the number of layers down to 4.

Summary:

I am positive that increased accuracy would be possible in the model. It may be a matter of changing the activation function from sigmoid to tanh, as tanh has a gradient that is four times higher than that of the sigmoid function, using tanh may result in higher values of gradient during training.