

Alphabet Soup Charity
Neural Network Model Analysis

Purpose of this Analysis:

- Our goal for this analysis is to share our findings when using machine learning and neural networks to help the not for profit foundation, Alphabet Soup.
- In order to help Alphabet Soup with their problem of finding applicants that will be of great success in their ventures, we created a binary classifier from the data provided to help predict if an applicant would be successful if they were backed by Alphabet Soup.

Questions and Answers

1. What variables are the targets for your model?
 - The target was the "IS_SUCCESSFUL" column since that is what our goal was to find.
2. What variables are the features for your model?
 - The features of our model were "APPLICATION_TYPE", "AFFILIATION", "CLASSIFICATION", "USE_CASE", "ORGANIZATION", "STATUS", "INCOME_AMT", "SPECIAL_CONSIDERATIONS", "ASK_AMT" (Basically everything but "IS_SUCCESSFUL")
3. What variables should be removed from the input data because they are neither targets nor features?
 - We removed the variables EIN and NAME as they didn't pose as target nor feature.
4. How many neurons, layers, and activation functions did you select for your neural network model and why?
 - For my first run I had 2 hidden nodes, which had 30 and 50 neurons. The target model performance was roughly 72.37 percent accurate

- The second run had 3 hidden nodes, which had 15, 25, and 25 neurons. The target model performance was about 72.7 percent accuracy
 - My third run had 3 hidden nodes, which had 10, 20, and 20 neurons. The target model performance was similar to the last one with 72.7 percent accuracy
5. Were you able to achieve the target model performance?
- I was not able to achieve the target model performance of 75%
6. What steps did you take in your attempts to increase model performance?
- Lowering my neuron count and adding layers. Looking back I should've tried toying with the model by adding more layers but with low neuron counts. Maybe decrease the amount

Summary:

In order for us to achieve greater accuracy for determining if an applicant would be successful, we must consider other models.

We can also attempt a better clean up process to help increase the models performance.

If I were to use a different model it would be one with different functions that could bring greater accuracy.