Overview

The purpose of this analysis is to help Alphabet Soup choose applicants for funding that will be successful in their ventures. Using machine learning and neural networks, I created a binary classifier to predict the outcome of the applicants venture if funded.

Results

The target variable of the model is the “IS_SUCCESSFUL” column. This means given all the other information about the applicant and their venture, we must predict whether or not they will be successful. The features used to predict this are the “APPLICATION_TYPE”, “AFFILIATION”, “CLASSIFICATION”, “USE_CASE”, “ORGANIZATION”, “STATUS”, “INCOME_AMT”, “SPECIAL_CONSIDERATIONS”, and “ASK_AMT” columns. I removed the “EIN” and “NAME” columns as those just identifiers and provide no insight on the ventures success. I was unable to get the model to be above 75 percent accurate, so I shall write the following analysis on my model that performed the best out of the three optimizations. The changes I made from the original model were to change more of the “APPLICATION_TYPE” data to “other” so there would be less classes for the model to look at. Additionally, I added another hidden layer and more neurons for more accuracy. I also added a training/validation split in order to implement early stopping for the training to avoid overfitting the model on the training data. I used the tanh activation function because we are doing a binary classification. I tried adding or removing more layers and neurons as well as changing the activation functions but nothing worked as well as this model. ‘

Summary

The overall of the model are an accuracy of 73.34 percent and a loss of 55.12 percent. In the future, the dataset would need to be explored more and the effects of different columns on the model studied. I would recommend using the keras tuner to come up with a better model as I am not an expert in creating machine learning models and am unsure which parameters need to be changed in the model.