Deep Learning Challenge: Charity Predictor

Overview:

The non-profit organization Alphabet Soup wants to create an algorithm to predict whether or not applicants for funding will be successful. Using our knowledge of machine learning and neural networks, with the dataset provided we must create a binary classifier to determine whether or not an applicate would be successful if Alphabet Soup decides to fund them.

Results:

In order to begin the data processing, we removed any irrelevant information and dropped EIN and NAME columns with the remaining columns left to be considered features for the model. We planned on adding Name back into the second test for binning purposes. Then, we split the data for both training and testing sets. The target variable for the model was labeled “IS_SUCCESSFUL” which has the binary value 1 and 0 for yes and no respectively. The data from the “application” dataframe was analyzed and “Classification” value was used for binning. We used several data points as a cutoff in order to bin “specific” variables together with the new value of “Other” for each unique value. Categorical variables were then encoded by “get_dummies()” after checking to see whether or not the values were binned successful.

Compiling, training, and Evaluating:

After applying Neural Networks, there were three layers total for each model. The number of features dictated the number of hidden nodes. As a result, 477 parameters were created by a three-layer training model. However, the first attempt was just under 73% accuracy which was under a desired 75% but still very close to the required percentage.

Optimization:

For the second attempt, I tried to add the “NAME” column back in the dataset. This created 3,298 parameters to calculate from but there wasn’t enough RAM to calculate the percentages. I hope to work on this for optimization in the future.