**Alphabet Soup Neural Network Model Report**

# Overview:

This analysis is designed to predict whether a charitable application will be successful or not for Alphabet Soup. This is done by the model taking in our preprocessed data to make predictions based on the features and variance of the data.

# Results: Data Preprocessing

*Variables*: “Is Successful”

*Features*:

* Name (Optimized)
* Affiliation
* Classification
* Use Case
* Organization
* Status
* Income Amt
* Special Considerations
* Ask Amt

### Compiling, Training and Evaluating the Model

The Neural Network Model:

* Input Layer: Set by how many features are in the data.
* Hidden Layer 1: 80 Neurons, RELU
* Hidden Layer 2: 30 Neurons, RELU
* Output Layer: 1 neuron, Sigmoid



Yes, the model reached the targeted performance of 75%. Our model reached an accuracy of 79%.

Model Optimization:

Some steps I took to optimize the model are as follows:

* Binning names instead of removing them to give our model more data to correlate.
* Binned or dropped features more aggressively.
* Ran more epochs.

# Summary:

To summarize, the model does well at predicting whether a charitable application will be successful or not with a 79% success rate, however there is room for improvement in the model for better accuracy and less loss. I believe a logistic regression model would help with our analysis because it would give us a good baseline for the dataset and models that we are working with. Additionally, we could always add more data or redefine our features and data in our model to help with accuracy as well.