Overview

The non-profit foundation Alphabet Soup wants to create an algorithm tool to predict best chance of success in their ventures. With knowledge of machine learning and neural networks, we must use the features in the provided dataset to create a binary classifier that can predict whether applicants will be successful if funded by Alphabet Soup.

Data Processing

The dataset removed any irrelevant information; therefore, EIN and NAME were dropped from the model. The remaining columns were considered features for the model. CLASSIFICATION and APPLICATION_TYPE was replaced with 'Other due to high fluctuation. The data was then split into training and testing sets of data. The target variable for the model was labeled "IS_SUCCESSFUL" and has the value of 1 for yes and 0 for no. APPLICATION data was analyzed, and CLASSIFICATION's value was used for binning. Each unique value used several data point as a cutoff point to bin "rare" categorical variables together in a new value, 'Other'. Afterwards checked to see if binning was successful.

Compiling, Training, and Evaluation the Model

Neural Network was applied on each model multiple layers, three in total. The number of features dictated the number of hidden nodes. A three-layer training model generated 477 parameters. The first attempt came close at 72.8% The second attempt added 'NAME' back into the dataset, this time the model achieved 78.3%, a total of 3,298 params.

Summary

Deep learning models should have multiple layers, since it is machined based, it teaches a computer to filter inputs through the layers to learn how to predict and classify information. This would allow for an increased accuracy through each attempt after manipulating certain variables.