Neural Network Model Report

Overview

The purpose of this analysis was to use machine learning and neural networks to create a binary classifier that is applicants will be successful if funded by the nonprofit organization Alphabet Soup.

Results

Data Preprocessing

- Target variable: IS_SUCCESSFUL
- Model Features: NAME, APPLICATION_TYPE, AFFLIATION, CLASSIFICATION, USE_CASE, ORGANIZATION, STATUS, INCOME_AMT, SPECIAL_CONSIDERATIONS, ASK_AMT
- Removed variables: EIN

Compiling, Training, and Evaluating the Model

- Adding three hidden layers, as well as dropout and output layers were used in the neural network model. Both relu and sigmoid activation functions were used. All of this was used to help increase the model performance.
- Yes, I was able to achieve target model performance.
- Adding layers and increasing the number of epochs helped to achieve target model performance.

Summary

The deep learning model achieved an accuracy of over 75%. Another different that I would also recommend is the Random Forest classifier because it is easy to use and requires less parameters, tends to have better performance than individual classifiers, and because it is an ensemble learning method.