Deep Learning Project: Charity Funding Predictor

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**Overview**

This project consisted of creating a neural net machine learning model to predict the success rate of a venture paid by the non-profit foundation Alphabet Soup. Utilizing the features provided in the CSV dataset, which contains more than 34,000 organizations that have received funding from Alphabet Soup over the years, a binary classifier is created that in essence will be capable of predicting whether Alphabet Soup foundation applicants will be successful.

**Results**

Data Preprocessing:

* The variable “IS\_SUCCESSFUL” is the target for this model.
* The feature variables for this model originally included all but the “EIN” and “NAME” variables.
* Both the “EIN” and “NAME” variables were originally neither target nor feature variables and were so both removed from the input data.

Compiling, Training, and Evaluating the Model

* Three nodes, three layers, and two activation functions were selected when attempting to optimize the model.
* A multilayer network was chosen to overcome the limitation of linear separability, and two activation functions were ultimately used during experimentation when attempting to achieve target model performance.
* Target model performance was not reached, despite the many attempts and experimentation.
* A facet of steps were taken to increase model performance of which included decreasing (nothing below two) and increasing the number of nodes and layers, and utilizing different combinations of activation functions.
* The number of feature variables were also reduced in an attempt to increase model performance.

**Summary**