**Background**

The non-profit foundation Alphabet Soup wants a tool that can help it select the applicants for funding with the best chance of success in their ventures. With your knowledge of machine learning and neural networks, you’ll 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.

From Alphabet Soup’s business team, you have received a CSV containing more than 34,000 organisations that have received funding from Alphabet Soup over the years. Within this dataset are a number of columns that capture metadata about each organisation.

**Analysis**

Firstly, the non-beneficial ID columns, “EIN” and “NAME” were dropped from the data frame. The Application and classification columns were found to have many values that only occurred once. These categories with low value counts were identified and bundled into a single “other” column, significantly reducing the number of unique values. Pandas ‘get\_dummies’ was used to convert the categorical data types into numerical values and cast them as integers. The target array, y, was the Boolean data column “IS\_SUCCESSFUL”, indicating whether an applicant was successful or not. The features array, X, was the rest of the columns in the data frame, attained by dropping the target from the original data frame.

Then using sklearn’s train\_test\_split, the data was assigned to a training and testing group and then scaled using StandardScaler. Finally, the deep learning model was established using tensorflow and keras. Through experimenting with different numbers of hidden layers and nodes, a model accuracy of 74% was reached.