**Overview**

Alphabet Soup wanted us to create an algorithm which helps them predict whether applicants will be successful for funding or not. Using machine learning and neural networks, we use the features provided in the dataset to create a binary classifier that can predict whether an applicant will be successful if funded by Alphabet Soup.

**Results**

**Data Pre-processing**

* + What variable(s) are the target(s) for your model?
  + What variable(s) are the features for your model?
  + What variable(s) should be removed from the input data because they are neither targets nor features?

The first step of the data processing was to eliminate unnecessary data such as ‘EIN’ and ‘NAME’, once this was completed, the remaining columns were considered for the model. The targeted variables were labelled as “IS\_SUCCESSFUL”. “APPLICATION’ was used to analyse the data and ‘CLASSIFICATION’ was used for binning.

Graphical user interface, text, application, email

Description automatically generated

**Compiling, Training, and Evaluating the Model**

* How many neurons, layers, and activation functions did you select for your neural network model, and why?
* Were you able to achieve the target model performance?
* What steps did you take in your attempts to increase model performance?

Neural Network was used on each model. For the final model, 3 years were added for each model, this helped achieve an accuracy of over 75%.

Table

Description automatically generated

477 parameters were created by a three-layer training model. The first attempt was just over 73% accuracy which was under a desired 75% but not too far off.

**Summary**

Numerous layers should be considered for deep learning, this is so that it can continue to predict and classify information using filtering inputs through layers.