**Neural Network Model**

Overview

The purpose of this analysis was the non-profit foundation ‘Alphabet Soup’ wanted to create an algorithm to predict whether or not applicants for funding will be successful.

Results

Target Variable would be ‘IS\_SUCCESSFUL’.

Feature variables would be; ‘APPLICATION\_TYPE’, ‘AFFILIATION’, ‘CLASSIFICATION’, ‘USE\_CASE’, ‘ORGANIZATION’, ‘STATUS’, ‘INCOME\_AMT’, ‘SPECIAL\_CONSIDERATIONS’, ‘ASK\_AMT’.

We removed EIN and NAME from the input data as they were identification columns and held no information we could use in the model.

1. I selected 2 Hidden layers with 100, 50. Using Relu as activating functions and sigmoid for the second layers.

This however did not achieve the target model performance; only achieving accuracy of 0.734.

1. The steps I took to increase model performance on my second attempt was to add another hidden layer; with 100, 50, 25 neurons respectively. Following the same activation functions as before.

This also did not achieve the target model performance either; only achieving accuracy of 0.744.

1. I chose to increase the number of neurons in each layer to 200, 100, 50 neurons respectively and increased the Epochs to 200.

This also did not achieve the target model performance; only achieving accuracy of 0.729.

1. I decreased the number of neurons to 20, 10, 5 and decreased the Epochs to 100.

This achieved 0.74.