**Report on the Neural Network Model**

Overview:

This project is dedicated to the development and optimization of a binary classification model for Alphabet Soup. The provided dataset contains information on more than 34,000 organizations that have received funding from Alphabet Soup. The dataset includes various columns capturing metadata about each organization. The project depicts if the applicants will be successful if funded from Alphabet Soup.

Results:

* Data Preprocessing:
* Target variables of the model is ‘IS\_SUCCESSFUL’.
* Feature variable of the model is ‘APPLICATIION\_TYPE’, ‘AFFILIATION’, ‘CLASSIFICATION’, ‘USE\_CASE’, ‘STATUS’, ‘INCOME\_AMT’, ‘ASK\_AMT’.
* The variable feature dropped out are ‘EIN’, ‘SPECIAL\_CONSISERATION’ and ‘NAME’ because they are neither targets nor features.
* Compiling, Training and Evaluating the model:
* We used 2 hidden layer and with 70 and 50 respectively. We tried ‘relu’ activation, after trying other activation model and changing node, the result with this combination was most optimal.
* After trying this new model and making some other changes as well, the results remain the same.
* To increase model, one of the columns ‘SPECIAL\_CONSIDERATION’ was dropped, increased the cut-off values of the ‘APPLICATION\_TYPE’ and ‘CLASSIFICATION’ to include more relevant data, tried adding more layers and increasing / decreasing the nodes of neural network.

Summary: Even after making changes to the model and trying different other things, the accuracy score remained the same. To further enhance the efficiency of the model, we will need more data for model training.

