1. **Overview** of the analysis:

The purpose of the analysis is to help Alphabet Soup select applicants for funding who have the best chance of success with their ventures. Alphabet Soup have provided collected a dataset to create a neural network model that can predict whether applicants will be successful if funded by Alphabet Soup.

1. **Results**:

* Data Preprocessing
  + What variable(s) are the target(s) for your model?
    - “IS\_SUCCESSFUL” variable is the target variable is it provides the outcome.
  + What variable(s) are the features for your model?
    - The remaining columns except EIN and NAME that were dropped.
  + What variable(s) should be removed from the input data because they are neither targets nor features?
    - “EIN” and “NAME”, as per instructions. This is because they are identification columns that should not be used.
* Compiling, Training, and Evaluating the Model
  + How many neurons, layers, and activation functions did you select for your neural network model, and why?
    - I ran several different models that changed the cut of values, I used a single (first) hidden layer model and tried several options with two hidden layers. I adjusted the activation options between ‘relu’ and ‘sigmoid’ and changed the number of nodes for each layer also based on the output from the x\_train\_scaled\_shape or number of features.
  + Were you able to achieve the target model performance?
    - No. The options never generated a result above 63% unfortunately.
  + What steps did you take in your attempts to increase model performance?
    - As outlined above – I adjusted the number of hidden layers, number of neurons and activation type. I also adjusted cut off values and number of epochs. I probably could have reviewed the data and ensured that there was nothing else that I could have done such as change the number of columns. Other options include:
      * Adjust the input data to ensure that no variables or outliers are causing confusion in the model, such as:
      * Dropping more or fewer columns.
      * Creating more bins for rare occurrences in columns.
      * Increasing or decreasing the number of values for each bin.
      * Add more neurons to a hidden layer.
      * Add more hidden layers.
      * Use different activation functions for the hidden layers.
      * Add or reduce the number of epochs to the training regimen.

1. **Summary**:
   1. After attempting various steps as mentioned above, I still could not achieve the targeted result of 75% accuracy. I could continue to review options in the list above but given time and CPU requirements to run, I stopped. The model is not accurate enough to use based on the accuracy score as Alphabet Soup would lose opportunities to provide funding to a candidate because the model rated it as unsuccessful. This would be a loss opportunity for Alphabet soup and the candidate.