**Overview of the Analysis**

Alphabet Soup, a nonprofit foundation, seeks to develop a tool to select applicants with the highest probability of success in their ventures. Leveraging machine learning and neural networks, the goal is to create a binary classifier that can predict the success of applicants if funded by Alphabet Soup.

Alphabet Soup’s business team has provided a CSV file containing data on over 34,000 organizations that have received funding in the past. The dataset includes various columns that provide metadata about each organization.

By analyzing these features, the aim is to build a predictive model that helps Alphabet Soup make informed funding decisions, ultimately increasing the success rate of funded projects.

**Results**

Data Processing:

* What variable(s) are the target(s) for your model?
  + The target variable for my model would be the ‘IS\_SUCCESSFUL’ column from the application\_df
* What variable(s) are the features for your model?
  + The variables that are features in my model would be every other column in the application\_df outside of the ‘IS\_SUCCESSFUL’ column, which was defined by having the ‘IS\_SUCCESSFUL’ column from the application\_df
* What variable(s) should be removed from the input data because they are neither targets nor features?
  + The ‘EIN’ and ‘NAME’ columns were removed because they are neither a target nor feature in our dataset

Compiling, Training and Evaluating the Model:

* How many neurons, layers, and activation functions did you select for your neural network model, and why?
  + In my initial attempt, I used 8 hidden nodes in layer 1 and 5 hidden nodes in layer 2. I chose this as a random starting point that I could expand in later.
* Were you able to achieve the target model performance?
  + I was unable to achieve a 75% accuracy score. The highest score I was able to achieve was 73.67%
* What steps did you take in your attempts to increase model performance?
  + To try and increase the model’s performance I added more hidden nodes to each layer, I removed columns that I felt were not important, and switched the activation functions for each layer.

**Summary**

The deep learning model achieved approximately 73% accuracy in solving the classification problem. Improving prediction accuracy can be achieved by increasing the correlation between inputs and outputs. This could involve more extensive data preprocessing and exploring different activation functions in the model. Iterating through these adjustments can help achieve higher accuracy.