**Step 4: Write a Report on the Neural Network Model**

For this part of the Challenge, you’ll write a report on the performance of the deep learning model you created for AlphabetSoup.

The report should contain the following:

1. ***Overview*** *of the analysis: Explain the purpose of this analysis.*
   * The purpose of this analysis was to predict if a AlphabetSoup funded organization would be successful.
2. ***Results****: Using bulleted lists and images to support your answers, address the following questions.*

* Data Preprocessing
  + *What variable(s) are considered the target(s) for your model?*
    - Is Successful was the target variable for my model.
  + *What variable(s) are considered to be the features for your model?*
    - APPLICATION\_TYPE, AFFILIATION, CLASSIFICATION, USE\_CASE, ORGANIZATION, STATUS, INCOME\_AMT, SPECIAL\_CONSIDERATIONS, ASK\_AMT were features within the model.
  + *What variable(s) are neither targets nor features, and should be removed from the input data?*
    - EIN and NAME were features removed, there only other feature that could have been removed was the Organization type. This may have forced some of the data to be put into different buckets for training. This also could have been targeted knowing which type of organization we are looking model.
* Compiling, Training, and Evaluating the Model
  + *How many neurons, layers, and activation functions did you select for your neural network model, and why?*
    - When I added large numbers of neurons, it slowed the training process and didn’t increase accuracy or lower results.
    - When I added up larger amounts of layers the same results
    - Table

      Description automatically generated
    - The above picture resulted in a .7307 accuracy and .5752 loss
  + *Were you able to achieve the target model performance?*
    - I was unable to achieve the target performance of 75%
    - The closest I was able to achieve was with an 61/42/21/1 layers with a 73.08 % accuracy and a loss of 57.95%
  + *What steps did you take to try and increase model performance?*
    - I attempted to increase the neuron count, then try smaller neuron counts with more layers until the numbers plateaued around 73%
    - I decided that it was not worth the higher neurons that delayed results and processing time.

1. **Summary**: Summarize the overall results of the deep learning model. Include a recommendation for how a different model could solve this classification problem and explain your recommendation.

There were many features that appeared to contain outliers within the dataset. I would have liked to see this narrowed down to the similar affiliation or organization type associated with AlphabetSoup to make a better case for success. Without knowing that data it seems to be close, but not a full margin for success to determine the correct model.