1. **Overview** of the analysis:

This analysis will give a brief overview of the steps taken to create and train and optimize a sequential neural network to predict binary classifications for a set of funding data.

1. **Results**:

* Data Preprocessing
  + The target variable for this model would be the column representing whether the organization that requested funding was successful or not.
  + The feature variables in the model are the other columns that contain information from each organization such as the ask amount, the organization type, and what the funding was being used for.
  + There were two variables that were removed while cleaning the data frame. The EIN and the actual name of each organization as this information is too specific for what we are attempting to accomplish with this model.
* Compiling, Training, and Evaluating the Model
  + I attempted three different iterations of the model but in the one that performed the best I only used one single hidden layer with 440 neurons. As for the activation functions, I used the ReLu and Sigmoid functions. Since we are attempting to train the model to predict a binary outcome, these two activation functions work the best as they start with a non-linear function in the hidden layer and then force the output into a range between 0 and 1. I originally put the value of 440 neurons in just to see how it would affect the accuracy rating but there really is no significant difference between 440 and 220 neurons.
  + I was unfortunately unable to achieve the target model performance of 75%. I did make several attempts but my knowledge on this subject is still lacking and I’m still not too familiar with what optimization practices would be considered best for each type of model.
  + Throughout the optimization process I attempted to add more hidden layers as well as try different activation functions such as the tanh function which has a larger range than the sigmoid function. I also tried changing both the number of neurons in each layer as well as the number of epochs the model was run through.

1. **Summary**: Overall, the model has an accuracy rating of about 73%. This may not be the target value but is relatively close to it. If I were to recommend an alternative model to the sequential model that was used, I would attempt to train a Recurrent Neural Network as this network is also designed to handle sequential data and can be used for binary classification.