Analysis

**Overview** of the analysis: We were tasked with creating a model that can help a foundation select the applicants for funding with the best chance of success in their ventures. We had to use the features in the provided dataset to create a binary classifier that can predict whether applicants will be successful if funded.

The dataset provided contains more than 34,000 organizations that have received funding from over the years. This data was used as training to make predictions with the model.

1. **Results**:

* Data Preprocessing
  + What variable(s) are the target(s) for your model?
    - The target for the model is the column that identifies whether loans made in the past were successful ventures or not.
  + What variable(s) are the features for your model?
    - The features are the other 44 dimensions left in the dataframe after separating out the target and dropping EIN and name columns.
  + What variable(s) should be removed from the input data because they are neither targets nor features?
    - The EIN and name columns weren’t needed and were removed.
* Compiling, Training, and Evaluating the Model
  + How many neurons, layers, and activation functions did you select for your neural network model, and why?
    - I chose 70 neurons, three layers, and ReLU activation function. I chose ReLU because it’s faster and isn’t impacted by the vanishing gradient problem.
  + Were you able to achieve the target model performance?
    - No. I wasn’t ever able to get accuracy to be greater than 74%.
  + What steps did you take in your attempts to increase model performance?
    - I chose a few different configurations of neurons, layers, and activation functions to achieve greater accuracy. I also tried altering the number of dimensions that were used to train the model.

1. **Summary**: The model did a decent job of predicting successful loan outcomes. Some things we could possibly do to increase performance include creating a manual verification dataset instead of an automatic one or trying a different model (such as k-Fold cross validation). K-Fold may have performed better since its great at estimating the performance of a model on unseen data.