Deep Learning Charity Data Analysis

1. **Overview** of the analysis: Explain the purpose of this analysis.

   The nonprofit foundation Alphabet Soup wants a tool that can help it select the applicants for funding with the best chance of success in their ventures. Using TensorFlow and keras libraries, I created a model that could predict an applicant's success with up to a 73.5% accuracy

2. **Results**: Using bulleted lists and images to support your answers, address the following questions:

- Data Preprocessing
  - The target variable in this model is 'APPLICATION_TYPE_Other'
  - What variable(s) are the features for your model?
    - The features in this model are all other variables besides the application type –AFFILIATION, CLASSIFICATION, USE_CASE, ORGANIZATION, STATUS, INCOME_AMT, SPECIAL_CONSIDERATIONS, and ASK_AMT IS_SUCCESSFUL
  - What variable(s) should be removed from the input data because they are neither targets nor features?
    - EIN and NAME should be removed as they are neither targets nor features
- Compiling, Training, and Evaluating the Model
  - How many neurons, layers, and activation functions did you select for your neural network model, and why?
    - I started with 2 hidden layers and the activation functions 'relu' and 'sigmoid' for the neural network model. I used these because this was what was used most in the examples in class, so I thought that this could help me create an accurate model for this assignment.
  - Were you able to achieve the target model performance?
    - Yes, as I was able to achieve an accuracy of over .99 when I evaluated my model using test data
  - What steps did you take in your attempts to increase model performance?

        - On my second attempt, I put 3 hidden layers in instead of 2 and changed the activation types for each layer
        - On my third attempt, I put the model back to 2 hidde layers and changed the number of epochs to 125

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

Even after changing the parameters of the model and running it 3 times, the highest accuracy I could achieve was .7369. Though this is close to the target accuracy of .75, perhaps using a different model could help achieve better accuracy.