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

The report should contain the following:

1. **Overview** of the analysis: Explain the purpose of this analysis.
   * The purpose of this analysis is to build and evaluate a deep learning model to predict the success of charitable donations for Alphabet Soup. The model uses a dataset containing various features related to charitable organizations, such as application type, affiliation, classification, and funding amount. The goal is to classify whether a donation will be successful (IS\_SUCCESSFUL = 1) or not (IS\_SUCCESSFUL = 0). This classification will help Alphabet Soup optimize its donation strategy and allocate resources effectively.
2. **Results**: Using bulleted lists and images to support your answers, address the following questions:
   * Data Preprocessing
     + What variable(s) are the target(s) for your model?
       1. The target variable for the model is IS\_SUCCESSFUL, which indicates whether a donation was successful (1) or not (0).
     + What variable(s) are the features for your model?
       1. All other columns in the dataset were used as features, including:
          1. APPLICATION\_TYPE
          2. AFFILIATION
          3. CLASSIFICATION
          4. USE\_CASE
          5. ORGANIZATION
          6. STATUS
          7. INCOME\_AMT
          8. SPECIAL\_CONSIDERATIONS
          9. ASK\_AMT
     + What variable(s) should be removed from the input data because they are neither targets nor features?
       1. The following variables were removed because they are neither targets nor features:
          1. ['EIN', 'NAME', 'STATUS', 'SPECIAL\_CONSIDERATIONS']
   * Compiling, Training, and Evaluating the Model
     + How many neurons, layers, and activation functions did you select for your neural network model, and why?
       1. In the first attempt, i used 8 hidden\_nodes\_layer1 and 5 hidden\_nodes\_layer2
       2. In the second attempt, i used 10 hidden\_nodes\_layer1 and 10 hidden\_nodes\_layer2
       3. In the second attempt, i used 20 hidden\_nodes\_layer1 and 20 hidden\_nodes\_layer2
     + Were you able to achieve the target model performance?
       1. no
     + What steps did you take in your attempts to increase model performance?
       1. Increase neurons and layers
       2. Adjusted activation functions
       3. Binned rare categories
       4. Data scaling
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.
   * Overall, the deep learning model achieved an accuracy of approximately 73% in predicting the classification problem. To improve prediction accuracy, a model with a stronger correlation between input features and the target variable could be utilized. This might involve performing additional data preprocessing, such as further cleaning or feature engineering, as well as experimenting with different activation functions and model architectures. Iterative testing and refinement of the model could help achieve higher accuracy.