**Overview of the Analysis**

To create a deep learning model that predicts whether organizations funded by Alphabet Soup will be successful or not. The goal is to achieve a predictive accuracy higher than 75%.

**Results**

* Data Preprocessing
  + Target Variable
    - The target variable for the model is `IS\_SUCCESSFUL`. This indicates whether an organization was successful in receiving funding or not.
      * (1)funding, (0)no funding
  + Features
    - The features for the model include multiple attributes of the organizations, such as application type, income amount, special considerations, etc.
  + Variables Removed
    - The `EIN` (Employer Identification Number) and `NAME` columns were removed since they are not targets or features for the model.
* Compiling, Training, and Evaluating the Model
  + Neurons, Layers, and Activation Functions
    - I selected a neural network model with the following architecture:
      * The first hidden layer with 128 neurons and ReLU activation.
      * The second hidden layer with 64 neurons and ReLU activation.
      * The third hidden layer with 32 neurons and ReLU activation.
      * The output layer with 1 neuron and a sigmoid activation function
* Reasoning
  + Increasing the number of neurons and adding more hidden layers to help the model learn complex patterns and potentially improving its performance.
* Model Performance
  + After training the model with 100 epochs and a batch of 256, the model achieved the following performance:
    - Loss: 0.467
    - Accuracy: 0.775
* Steps Taken to Increase Performance
  + I adjusted the neural network by increasing the number of neurons and adding more hidden layers.
  + Increased the training epochs to 100 to allow the model more time to learn.
* Implemented early stopping with a ModelCheckpoint callback to save the best model weights during training.
  + Ensured proper data preprocessing.

**Conclusion**

In conclusion, the deep learning model surpassed the target performance of 75% accuracy, and predicted 77.5% accuracy. The model shows overall promise in its accuracy, providing valuable insights for decision-making.