

What variables are the targets for your model?

- The Boolean variable “IS\_SUCCESSFUL”. 1 represents our target, 0 will yield if the model was unsuccessful.

What variables are the features of your model?

- APPLICATION\_TYPE AFFILIATION CLASSIFICATIONUSE\_CASE ORGANIZATION STATUS  
INCOME\_AMT SPECIAL\_CONSIDERATIONS ASK\_AMT IS\_SUCCESSFUL

What variables should be removed from the input data because they are neither targets nor features?

- “EIN” and “NAME” were removed

How many neurons, layers, and activation functions did you select for your neural network model and why?

- There were three layers

```
# First hidden layer
net.add(tf.keras.layers.Dense(units=hidden_nodes_layer1, input_dim=input_features_length, activation='relu'))

# Second hidden layer
net.add(tf.keras.layers.Dense(units=hidden_nodes_layer2, activation='relu'))

# Output layer
net.add(tf.keras.layers.Dense(units=1, activation='sigmoid'))
```

Were you able to achieve the target model performance?

- My accuracy was 73%. This number does not reach the target of 75%.

```
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[30]: # Evaluate the model using the test data
      model_loss, model_accuracy = net.evaluate(X_test_scaled,y_test,verbose=2)
      print(f"Loss: {model_loss}, Accuracy: {model_accuracy}")

268/268 - 1s - loss: 0.5541 - accuracy: 0.7270 - 982ms/epoch - 4ms/step
Loss: 0.5541436672210693, Accuracy: 0.7269970774650574
```

What steps did you take in your attempts to increase model performance?

- I utilized layers to help the machine better parse through data efficiently.

Summary

The model was fairly accurate, though it did not reach my target of 75%. With 73% prediction accuracy the company can still adequately use the model to determine funding options. Adding more layers can potentially increase the model's accuracy percentage, in addition to experimenting with different algorithms and working with more diverse datasets.