Deep-Learning Report

*Data Preprocessing*

1. What variable(s) are the target(s) for your model?

* **The target variable is the 'IS\_SUCCESSFUL' column from application\_df**

1. What variable(s) are the features for your model?

* **The feature variables are every other column from application\_df --> this was defined by dropping the 'IS\_SUCCESSFUL' column from the original dataframe**

1. What variable(s) should be removed from the input data because they are neither targets nor features?

* **Both 'EIN' and 'NAME' columns were dropped/removed, because they were neither targets nor features for the dataset.**

*Compiling, Training, and Evaluating the Model*

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

* **In the first attempt, I used 10 and 5 which were random number guesses.**

1. Were you able to achieve the target model performance?

* **I was not able to achieve the 75% model accuracy target. I tried 6 times but I kept getting an accuracy percentage of 73% no matter how I changed it.**

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

* **I added 2 more layers, removed more columns, added additional hidden nodes in each layer, switched up the activation functions associated with each layer, and cut the epochs in half to 50 in an attempt to achieve higher model accuracy and I still got 73%.**

Summary:

**Overall, the deep learning model was around 73% accurate in predicting the classification problem. Using a model with greater correlation between input and output could likely result in higher prediction accuracy.**