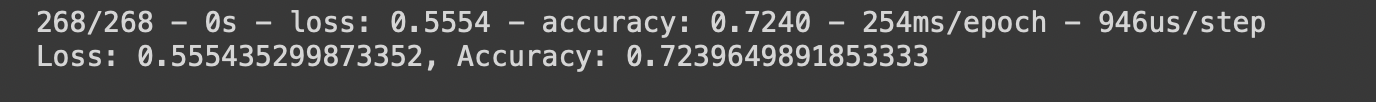
March 2023

Alphabet Soup Analysis:

1. **Overview**: 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 machine learning and neural networks, the provided dataset was used to create a binary classifier that can predict whether applicants will be successful if funded by Alphabet Soup.
2. **Results:**

* Data Preprocessing
  + The variable (y) that are the target of our model is IS\_SUCCESSFUL
  + Features of the model that are features include APPLICATION\_TYPE and CLASSIFICATION
  + Variables that were removed because they have no use were EIN and NAME
* Compiling, Training, and Evaluating the Model
  + I was not able to reach the target model performance of 75%, all three of my edited optimizations remained around 72%
  + To do these, I changed the number of hidden layers, and the number for each layer, as well as the epochs from 100 to 75, as well as the type of activation between ‘relu’ and ‘sigmoid’

Main Model:



Text

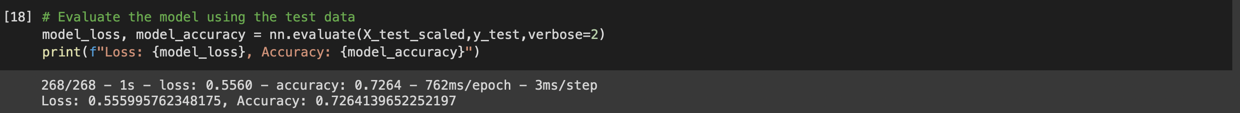
Description automatically generated

Chart

Description automatically generated

Attempt 1: Text

Description automatically generated



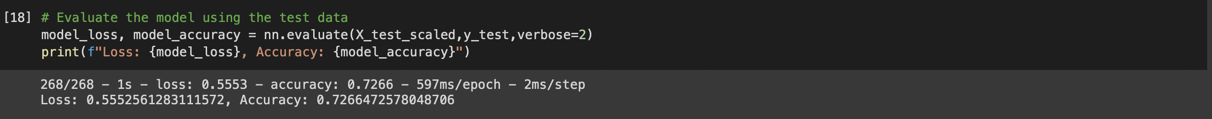
Chart

Description automatically generated

Attempt 2:

Text

Description automatically generated



Chart, line chart

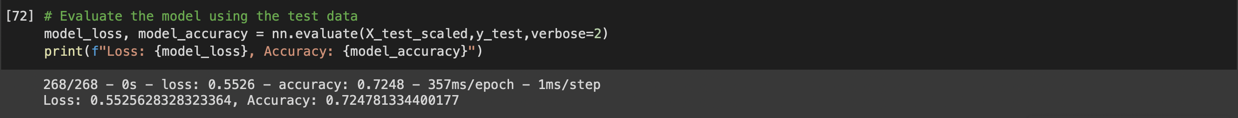
Description automatically generated

Attempt 3:

Note: only one with changed epoch of 75

Text

Description automatically generated



1. **Summary:** In the end, I was unable to reach the targeted accuracy no matter what changed I made to the model. I remained in the 72% range through every model, with changed activations or layers. I think if I was to do this a again, I would recommend changing the bins, which may change the accuracy.