UTA Data Analytics Bootcamp

Module 21 Challenge

Overview:

The nonprofit foundation Alphabet Soup needs help selecting optimal applicants for funding. Using a dataset containing successfully funded organizations we can implement machine learning and neural networking to create a tool that will help solve this problem.

Results:

Data Preprocessing:

The target variable for my model is “IS_SUCCESSFUL” – this is the column that specifies if funding for the organization was successful.

The following columns are the feature variables:

- APPLICATION_TYPE
- AFFILIATION
- CLASSIFICATION
- USE_CASE
- ORGANIZATION
- STATUS
- INCOME_AMT
- SPECIAL_CONSIDERATIONS
- ASK_AMT

“EIN” and “NAME” were dropped from the model due to them being ID columns.

Compiling, Training, and Evaluating the Model:

The initial model had three layers, two hidden layers both using the “relu” function and the output layer using the “sigmoid” function. This resulted in a 72% accuracy rate.

The next optimized model had four layers, two hidden layers using “softplus”, one using “softsign”, and the output layer using “sigmoid”. The “STATUS” column was also dropped because of it seeming ambiguous. This resulted in a 73% accuracy rate.

The final optimized model had the same layer setup as the previous but with one hidden layer added using the “relu” function. The “SPECIAL_CONSIDERATIONS” column was dropped along with “STATUS” due to it also seeming ambiguous. This resulted in the accuracy dropping back down to 72%.