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Report

Module 21

The purpose of this analysis was to predict future organizations’ ability to use loan and grant money efficiently by using a neural network based off 34,000+ prior organizations’ histories. The target variable was the column “IS\_SUCCESSFUL” which is whether or not the charity used their grant successfully.The other variables, such as Application type, Affiliation, and Classification, are the features used for the neural network model. The EIN and NAME columns were removed from the input data because they are neither categorical nor numerical features for the data and are not our target variable.

For the best model I could achieve (the third model), I did 2 layers of 8 and 5 neurons respectively, with activation functions of ‘relu’ for each. I was not able to achieve the model target performance, with the closest I could achieve being 72.5% approximately. In model 1, I attempted to reduce the binning,. I was of the belief that the overbinning was part of the problem. It ghshowed the opposite. In the second model I increased the depth of the model to 3 layers of 6 neurons each, and ended up with whjat seemed like an exact performance as the original model. The third and most accurate model reduced the binning, and actually ran for 10x the number of epochs as the other models.

In summary, the deep learning model was not able to hit the target after several different attempts and there were minimal differences in the accuracy of the models. I believe that a standard network, such as a regular supervised learning model, will have a better chance at a higher success rate, as there aren’t too many variables and the data set is not particularly too big for such a model.