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Charity Funding Predictor Report

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. The purpose of this analysis is to predict whether applicants will be successful if funded by Alphabet Soup using machine learning and neural networks.

Results

Data Preprocessing – The target variable is ‘ IS_SUCCESSFUL’, which shows whether applicants will be funded or not. The feature variables are APPLICATION_TYPE, AFFILIATION, CLASSIFICATION, USE_CASE, etc. Variables that can be removed include EIN, NAME, STATUS, and SPECIAL_CONSIDERATIONS as they are irrelevant to the model.

Compiling, Training, and Evaluating the Model – In the initial model, I used two layers with 50 and 20 neurons, and relu and sigmoid activation functions. The score was 0.7298. In the optimization model, I used the same two layers and activation functions and used 200 and 150 nodes to try to get the accuracy score up. In the optimization model, I removed EIN, STATUS, and SPECIAL_CONSIDERATIONS. NAME could be useful since the frequency of a company to ask for a fund could be relevant. Other variables like application_type, classification, organization, use_case, affiliation, and income use bins to try to organize the counts in a more efficient way and avoid any small counts. The optimization model score was at least 0.75 using these changes.

Summary – A 0.75 score was achieved only dropping EIN, STATUS, and SPECIAL_CONSIDERATIONS. Two layers were used with relu and sigmoid activation functions and 200/150 nodes. The rest of the features used bins.