

Neural Networks Analysis

Overview

This analysis will overview the Neural Networks challenge and examine multiple objectives and elements. This is to provide a better understanding and explore the process that was taken. This challenge required importing a CSV file that contained information of 34,299 charity campaigns. The data was then preprocessed and trained into multiple models.

Data Preprocessing

1. What variable(s) are considered the target for your model?
The model focuses on the "Is-Successful" column to determine if the money was used efficiently.
2. What variable(s) are considered to be the features for your model?
The model's features include NAME, AFFILIATION, TYPE, ORGANIZATION, CLASSIFICATION, APPLICATION, USE_CASE, ASK_AMT, INCOME_AMT, STATUS, and SPECIAL_CONSIDERATIONS.
3. What variable(s) are neither and should be removed from the input data?
EIN, SPECIAL_CONSIDERATIONS, STATUS, could all be dropped.

Compiling, Training, and Evaluating the Mode

1. How many neurons, layers, and activation functions did you select for your neural network model, and why?
I chose to use three layers to increase the model's accuracy and added many neurons to enhance its performance.
2. Were you able to achieve the target model performance?
Yes I was able to achieve it.
3. What steps did you take to try and increase model performance?
Converting the NAME column into data points had the greatest impact on improving efficiency. Additionally, I added a third layer and used the "sigmoid" activation function for both the 2nd and 3rd layers.

Summary

This analysis of the Neural Networks challenge demonstrates the steps taken to process and model data from 34,299 charity campaigns. By targeting the "Is-Successful" column and selecting relevant features like NAME, AFFILIATION, and INCOME_AMT, the model was fine-tuned for better accuracy. Variables like EIN, SPECIAL_CONSIDERATIONS, and STATUS were removed to streamline the data and improve efficiency. Adding a third layer and using the "sigmoid" activation function for the 2nd and 3rd layers significantly boosted the model's performance. The approach ultimately achieved the desired results, showcasing the effectiveness of the chosen methods.

