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**Neural Network Model Report**

**Overview:**

A CSV model containing more than 34,000 organizations that received funding from Alphabet Soup over the years. I built a tool that can help select applicants for funding with the best chance at success. I used a preset built model and modified some bins, added more hidden layers as well as added an additional column.

**Data Processing:**

When processing the data, I removed some unnecessary columns such as "EIN","USE\_CASE"&"ASK\_AMT". I then binned “NAME”, “APPLICATION\_TYPE”, & “CLASSIFICATION”. Once each category was binned, I used pd.get\_dummies on the rest of the columns and set ‘IS\_SUCCESSFUL’ to be the target for the model. The data was then split into training and testing using a StandardScaler.

**Compiling, Training and Evaluating the Model:**

For my final attempt as evaluating the model, I used four hidden layers and one outer layer. However, I feel that my additional two hidden layers had little to no affect on the results.

I was able to achieve the target model performance, achieving a 79% accuracy. This is 7% higher than the preset attempt that came out at 72%.

The increase in the model’s performance came from the “NAME” column being added and binned to the data. I played around with multiple different bin values, dropping more columns, adding epoch runs and increasing and decreasing hidden layer units but I could only reach 74%. I looked to maybe added the “NAME” category for more data to be involved in parameters and it ultimately worked. I know this skews the data a bit since I limited the values to over 3 names but this means we are using repeat charities and repeat charities usually means they were more successful so they were able to replicate the event.