

# Deep Learning Model Analysis

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## 1 Overview of the Analysis

More than 34,000 loan applicants and their data are used to create a neural network model that predicts successful campaigns.

## 2 Results

### 2.1 Data Preprocessing

- The target is a binary variable called “Success” which indicates whether a given campaign was successful.
- Feature variables include organization type, loan amount and income.
- “EIN” and “Name” are removed from the data set as they do not provide useful information.

### 2.2 Compiling, Training, and Evaluating the Model

- There are two layers with 80 and 40 neurons respectively. “Relu” activation function was used for the two layers while “sigmoid” was used for the final layer.
- The model did not quite achieve the 75% accuracy level consistently. The model accuracy hovers around 74%.

- Various combinations of activation functions were used, but “relu” always seemed to perform the best. I tried adding a third layer, but accuracy usually decreased a few points. Decreasing the number of features used also tended to decrease the accuracy score.

### 3 Summary

The overall results were good despite not quite achieving the target level. 74% is still well above the 50% accuracy level that would occur by chance. Other models that might be appropriate include decision tree models which would be helpful because they can provide insight on feature importance.