**Overview of the Analysis:**

The purpose of this analysis was to predict the success of charitable donations for Alphabet Soup, by building a deep learning model. The dataset "charity\_data.csv," was used in the analysis, bringing information about various organizations' applications for funding. The model's objective was to achieve a predictive accuracy higher than 75%, helping Alphabet Soup to find which organizations are likely to be successful in using their funding effectively.

**Results:**

**Data Preprocessing:**

* Target Variable: The "IS\_SUCCESSFUL" column, which indicates if the organization's funding application was successful (1) or not (0).
* Features: Initially, all columns except "IS\_SUCCESSFUL," "EIN," and "NAME" are used as features for the model. However when optimizing the model the “NAME” column was considered as a feature as well.
* Removed Variables: At first, "EIN" and "NAME" columns were removed from the input data, however after optimizing the model the “EIN” column was the only one that seemed not to contribute to the predictive power of the model, while “NAME” seemed to increase its accuracy to over 78%.

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

* Neural Network Model: A deep neural network model was designed with multiple hidden layers to achieve high performance. The model consists of 80 neurons in the first hidden layer with 'relu' activation, 30 neurons in the second hidden layer with 'relu' activation, and 1 neuron in the output layer with 'sigmoid' activation.
* Target Model Performance: The target model performance was set to achieve an accuracy higher than 75% on the testing dataset.
* Steps to Increase Model Performance: To improve model performance, the column “NAME” was included in the training features

**Summary:**

The deep learning model achieved an accuracy higher than 75% on the testing dataset, meeting the target model performance. By adding the “NAME” column in the training features, which produced a hight accuracy percentage. This only means that adding this column probably introduced noise and overfitting to the analysis.

**Recommendation:**

For this classification problem, the deep learning model achieved a predictive accuracy of 73% on the testing dataset. The analysis found that adding the "NAME" column as a feature in the model significantly increased the accuracy to over 78%. However, this improvement may have introduced noise and overfitting, which could limit the model's generalization to new data.

For a more reliable model, it is recommended to explore alternative models, such as Random Forest Classifier. Which can provide feature importances, helping identify the most important factors influencing the success of funding applications.

In conclusion, while the deep learning model achieved the target accuracy, it is important to explore different models and optimization techniques to build a better model for the classification problem. The combination of deep learning and traditional machine learning models can provide valuable insights for decision-making while avoiding potential overfitting issues.