Neural Network Models with combinations of Hyperparameters

Python code:

You will write code to optimize the performance of a neural net by trying various combination of hyper-parameters and evaluating their results.

Below are the requirements and suggested steps of the program:

• In the main method, the program passes path to the data file. Be sure to point that to a network path that your program can access.

• In the preprocess method, you are required to do standard pre-processing tasks such as handling null values, ensuring data integrity, and standardization of attributes.

• Complete the train evaluate method. Perform at least the following steps:

– Create different neural networks with all possible combination of hyperparameters specified. You are free to use any library or package that creates the neural network for you using the chosen combination
of hyperparameters.

– Keep track of model history i.e. model performance (accuracy) vs number of epochs in every case. Plot the model history for all the cases on a single plot. If that becomes too congested, you can break
it up into two or three parts, and plot each part on the same plot.

– Output a table of results containing following columns: model hyperparameters, training and test accuracies, and training and test errors (e.g. mean squared error)

Dataset:

You can use any one dataset from the UCI ML repository:

https://archive.ics.uci.edu/ml/datasets.php

Note: If the above direct link does not work, you can just Google the UCI ML repository.