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classification multi-layer perceptron model

Main idea of the model:

The main ideas is that our target column “FTR” we want to predilect will be converted to one hot encoding with extra columns each one represent unique value from the “FTR” column the output of the model will be 3 values each one represent the probability of which the model will likely pick this value, then it will choose the highest value to make it the final prediction of the model

Flow of the code:

First: data preprocessing

Get the data and put it to label "target " and features of the data set

Then we will split the data to test and train

We will use sequential function in our model to create linear stack of layers that have one input and one output.

Second: Structure

The nodes of the same layer are not connected, put each node in the layer is connected to every node from the next layer

The input layer will contain 261 unit which calculate by “unit = number of output channels \* (number of input channels + 1)”

We have 3 nodes as output that represents the three columns "we want to get the highest prediction value from them".

Third: Monitoring accuracy the loss results and optimization of the model

Fitting the model, we will make the number of epochs = 30 which is “ the number of times the neural network trained with all the training data “. And make the batch size = 30 which is the number of samples processed before the model updated

Fourth: predict with the whole data

“yhat” variable contain the probability of the three class we have, and we will use argmax to get the highest accuracy and its index so we know which team will be predicted by the model.

Fifth: predict single input

We can predict single input by pathing array with the number of features and fill this features so it can predict it.