Lesson 1

Assessment

What is your MSE/MAE with linreg vs tuned network?

       MSE for linear regression model is 24.29, and MAE is 3.19.

       Increase NE to 20, the MSE for tuned network is 13.69, and MAE is 2.36.

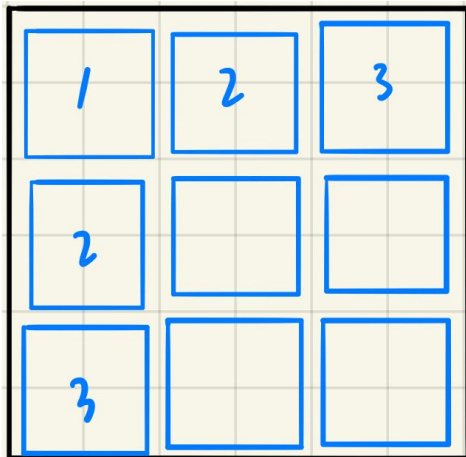What happens to your train and test results if you add 5 hidden layers with 128 neurons each?

       After adding 5 hidden layers with 128 neurons and activation 'relu',

       The MSE decreased to 10.32, and MAE decreased to 2.09.

Lesson 3

Assessment

If I apply a pooling of 2 (2,2 window with a stride of 2) to a (6,6) array, what is the resulting size?

The resulting size will be 3 X 3.

Lesson 4

Assessment

What is my output size if: Input = (100,100), kernel size=(2,2), stride of 1 and no pooling?

Calculation: O =(I - F + 2P)/S + 1 = (100 - 2 + 0)/1 + 1 = 99

The output size is 99 X 99.

How many weights do I have if I have 24 such filters stacked (conv2_24)?

Calculation: 2 X 2 X 24 = 192

What is a better idea: To use one larger kernel (7,7) or multiple stacked smaller ones, 3x(3,3)?

3X(3,3) because the output will be more dense.

Solve for the padding (P), in terms of I, F and S, if we want the input and output size to remain the same.

Calculation:

O =(I - F + 2P)/S + 1

(I - F + 2P)/S = O - 1

(I - F + 2P) = S(O - 1)

2P = S(O - 1) - I + F

P = (S/2)(O - 1) - (1 - F)/2