Homework1

Quang Loc Lam

16 February 2019

# ANSWERS FOR HOMEWORK 1

The result I got from the original IMDB review code:

$loss [1] 0.3058591

$acc [1] 0.87784

### When I decrease number of hidden layers from 2 to 1:

$loss [1] 0.2803026

$acc [1] 0.88744

I see that validation is increased and accuracy is increased. So it improves the model.

### When I increase number of hidden layers from 2 to 3:

$loss [1] 0.3108989

$acc [1] 0.87844

I see that validation is decreased but accuracy is increased.

### When I decrease number of hidden units from 16 to 8:

$loss [1] 0.2883873

$acc [1] 0.88372

I see that validation is increased and accuracy is increased. So it improves the model.

### When I decrease number of hidden units from 16 to 4:

$loss [1] 0.2895627

$acc [1] 0.8882

I see that validation is increased and accuracy is increased. So it improves the model.

### When I increase number of hidden units from 16 to 32:

$loss [1] 0.3647905

$acc [1] 0.86156

I see that validation is decreased and accuracy is decreased. So it makes the model worse.

### When I increase number of hidden units from 16 to 64:

$loss [1] 0.4282952

$acc [1] 0.84368

I see that validation is decreased and accuracy is decreased. So it makes the model worse.

### When I use MSE loss function instead of binary\_crossentropy loss function:

$loss [1] 0.09737746

$acc [1] 0.86892

I see that validation is increased dramatically and accuracy is decreased.

### When I use the tanh activation instead of relu activation:

$loss [1] 0.3701294

$acc [1] 0.8606

I see that validation is decreased and acuracy is decreased. So it makes the model worse.

### The best model I propose:

I propose a model with “relu” activation, “mse” loss function with 3 hidden layers and 5 hidden units. Following is the result of that model.

$loss [1] 0.08447455

$acc [1] 0.89112

So this model has the highest validity and the highest accuracy among all models that I have run. Therefore, this is the best model that I figure out.