

## LAB

### Task

Our task was to complete the given code implementing the fully connected neural network with the forward propagation and backward propagation algorithms.

### Parameters

After completing the code I have introduced some experiments. I got best results using learning rate as 0.1 and parameters for each layer shown in the table below.

Layer	Activation function	Number of neurons
1st	ReLu	80
2nd	Tanh	70
3rd	None	10

Table 1: Parameters for each layer

### Results

With presented parameters, the graphs of validation and train loss are shown below.

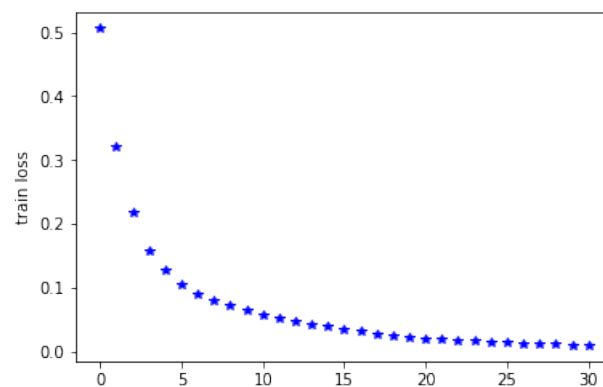


Figure 1: Train loss graph

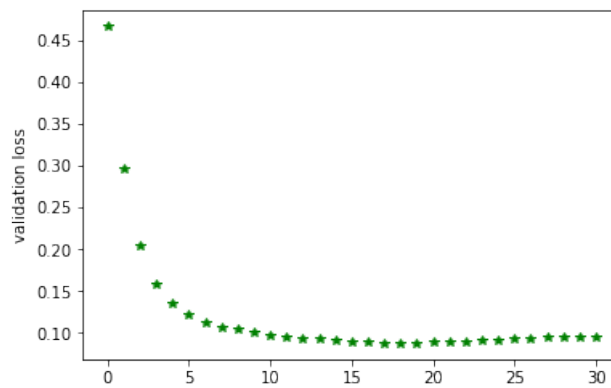


Figure 2: Validation loss graph

After 30 epochs validation error is about 2.2 and duration about 95s.

## Comments

Aka problems that I have faced:

- I spent more than 10 hours on that project. I think, mostly because I am not that familiar with Python. Unfortunately, I was not able to code dropout and regularization.
- Really hard was also to find the best performing parameters. In my last project, I used a genetic algorithm to find them, however, I could not find time to apply it.