ELEC946 Intelligent System Design, Spring 2021
Chapter 6 Techniques related to learning
Homework Programming Assignment 5

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1 Introduction

The purpose of programming assignment 5 is practicing various techniques for learning neural networks on FashionMnist and digits in Chapter 6.

Generally, practice all the codes from https://github.com/WegraLee/deep-learning-from-scratch/ch06.

5.1 Fashion MNIST

The codes in Chapter 6 are examples with MNIST. Work through all the codes by running them on your machine, and modify the codes so that it should work on Fashion MNIST database. Reduce the number of samples if you feel it is necessary.

Submission hw5-1.py

Standalone file include all the codes in the above single file

Using your own methods/classes If you added any extra methods or classes, include them in the above single file so that you do not need to extra files.

Parameters If necessary, change the parameters.

5.2 sckit-learn's digits

Modify the above code for digits from scikit-learn.

Submission hw5-2.py

Standalone file include all the codes in the above single file

Using your own methods/classes If you added any extra methods or classes, include them in the above single file so that you do not need to extra files.

Parameters If necessary, change the parameters.

Requirements any unspecified conditions such as data splitting, following homework assignment 4.

5.3 Report

Prepare a document that explains implementations and the execution results. No format, but it has to explain what kind of modification that you have maid.

Submission `hw5-doc.pdf`

Submission Guidelines and Grading Scheme

Common Requirements:

1. write or replace with ID and NAME of yours at the beginning of the code as well as your report (10%).
2. Use python 3.7 or higher.
3. specify the names of used packages in your code in the first comment block. You may install new packages (libraries) locally by python3 command ‘‘`pip3 install ...`’’
4. make sure that you have installed most recent version of scikit-learn (0.23.2, as of November 22, 2020) to properly run the example. Use the command ‘‘`pip3 install sklearn>=0.23.2`’’
5. Make a zip file `hw5.zip` of all the necessary python `.py` and report `.pdf` files, and upload it to `lms.knu.ac.kr`
6. This programming assignment is rougly 7-9% of total score.

Grading: The grading score is composed of

10% Basic score for submission

10% Name, ID, and other information is correct

50% Executability and correctness of the output

30% Report (subjective)

Plagiarism

- For copy and being-copied, all the assignment scores will become 0. General rule: “do not give out or share *FILES* in any cases”
- In this assignment, the policy for the code is “carbon” — only identical files will be regarded as COPY
- Obvisouly, the policy for the report is “regular”

Due and late submission see LMS.

Late submission deduction 10% deduction per hour afer the regular submission deadline.