

CoE202 Assignment 1: Linear and Polynomial Fitting

Due 11:59pm, March 25th, 2021

1. Overview

This first assignment is to implement linear and polynomial fitting algorithms using closed-form solution and gradient descent. You should work on assignment using Google Colab.

For those of you who are not familiar enough with Numpy, there is a brief introduction to how to use Numpy. <https://numpy.org/doc/stable/user/quickstart.html>

2. Programming Details

There are three ipynb files that you need to work on for this assignment. For each file, there are small problems that you need to fill out.

- a. HW1a_linear_fitting_nD_SGD_np.ipynb – 8 problems.
- b. HW1b_polynomial_fitting_exact.ipynb – 2 problems.
- c. HW1c_polynomial_fitting_GD – 3 problems.

3. Grading Policy

A. Criteria

If all of (total 13 problems) your solutions are correct, 100% score will be given. We will give you the partial grading according to how many problems you correctly solved.

B. Plagiarism Alert

Be aware of plagiarism! TAs will compare your and other student's source code. If you violate the academic conduct, probation or suspension can happen according to the KAIST school regulation article 59 and 60.
<https://ee.kaist.ac.kr/en/node/15401>

4. Submission (Important!!)

4.1 After implementing, save your colab session (with output) and you have to download ipynb file from Google colab.

```
[ko] 구글 코랩에서 [파일] - [.ipynb 다운로드]  
[en] from Google colab, [File] - [Download .ipynb]
```

4.2 If the downloaded file has .txt extension, you have to change the extension to .ipynb by simply renaming it.

```
You can rename file by press [F2], if you can't see it,  
[ko] 파일 탐색기에서 [보기] - 표시/숨기기 칸의 [파일 확장명] 체크 (on 으로)  
[en] from File Explorer, [View] - check [File name extensions] in Show/hide
```

4.3 You have to compress three ipynb files into zip format and rename it as {student ID}_{Name}.zip. The architecture of the zip file must be as follows.

```
20201234_GildongHong.zip  
| -- CoE202_HW1_note03b_linear_fitting_nD_GD_np.ipynb  
| -- CoE202_HW1_note04b_polynomial_fitting_exact.ipynb  
| -- CoE202_HW1_note04c_polynomial_fitting_GD.ipynb
```

5. Late Submission Policy

We will **NOT** accept works that are submitted after the due date.

6. Updates/Announcements

If there is any update or error in the assignment, it will be announced on the notice board of KLMS. Please check the notice board of KLMS frequently.

7. Extra Notes

- A. It is your own responsibility to read this README carefully. Submissions that do not comply with the guideline may **NOT** be graded.
- B. If you have any question, please use KLMS Q&A board. We will not reply to an email unless it's a private question.
- C. After implementing codes using Google Colab, you should save the output. **DOUBLE CHECK** if the output is saved.
- D. All outputs must be reproducible. If your code does not run on Google Colab (which TAs will check), your grade may be deducted.