

# CAIS 380: Intro Machine Learning

Spring 2024

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## Homework 01: Fit and Linear Regression

*Assignment is DUE as indicated on the course schedule.*

*This is a **group assignment**. Work with 1-2 classmates, and submit as a group on GitHub and Gradescope.*

### Notes

**Your final submission must include code *and* text.** It is your responsibility to create a report that is easily readable and includes both sections of text and sections of code. Your code should perform any computations you are asked to complete, and your text should clearly explain the output of your code and contextualize it within the problem you are solving.

RMarkdown and Jupyter Notebooks will both export to PDF and allow you to include text. It is recommended that you complete assignments in these file formats.

Chapter 2.3 in your textbook includes an introduction to R/Python.

### Code

Chapter 3.6 in your textbook includes a thorough overview of performing Linear Regression with R and Python. Please use this chapter as a reference for this assignment.

Accept the assignment below, and follow the instructions in the repository.

- R version: <https://classroom.github.com/a/Oqr8p2m3>
- Python version: <https://classroom.github.com/a/qK6L8Dr4>

### Submission

Push your final code to GitHub. Submit a PDF of your report, with the link to your repository on Gradescope.

## Rubric

	Missing / Not Complete (0)	Approaching (2)	Meets (4)	Exceeds (5)
<b>Readability</b>	Assignment is unreadable or not submitted.	Assignment includes formatting, but significant improvements could be made. For example, headers, better interweaving of text and code, proofreading.	Assignment includes formatting, but minor improvements could be made. For example, headers, better interweaving of text and code, proofreading.	Assignment is well formatted and easy to read. Text and code are interspersed appropriately, and text has been proofread.
<b>Code</b>	No code is included in the assignment, or the code included is unreadable.	Code is missing one or a few key elements such as documentation, attributing sources, modularity, or appropriate variable and function names. Or code includes these elements but significant improvement could be made.	Code includes documentation, attributes sources, is modular, and has appropriate variable and function names, but minor improvements in one or more of these areas could be made.	Code is well done. It includes appropriate documentation, attributes sources, is modular, and has appropriate variable and function names.
<b>Implementation</b>	Nothing has been implemented, or most of assignment has not been done.	Code does not run consistently or efficiently. Some outputs match expected outputs. All parts of the assignment are completed except for a few small parts.	Code mostly runs consistently and efficiently. Most outputs match expected outputs, and all parts of the assignment are completed.	Code runs consistently and efficiently. Outputs match expected outputs, and all parts of the assignment are completed.
<b>Explanations</b>	No explanations included, or most are incorrect or missing.	Text demonstrates some conceptual understanding of machine learning theory and techniques, but multiple details are incorrect.	Text demonstrates a conceptual understanding of machine learning theory and techniques, but one or a few details are incorrect.	Text demonstrates a deep conceptual understanding of machine learning theory and techniques. All explanations are accurate.