Assignments

Assignment 1 - Returned - Pending Resubmission

In progress
Submitted
Returned

Assignment Details

Title	Assignment 1 📎
Student	Botao He
Submitted Date	Feb 17, 2024, 12:19 AM - late
Grade	**14.70 (max 15.00)**
History	Feb 16, 2024, 11:36 PM EST Botao He (bhe54) saved draft Feb 16, 2024, 11:36 PM EST Botao He (bhe54) submitted Feb 16, 2024, 11:39 PM EST Botao He (bhe54) saved draft Feb 16, 2024, 11:39 PM EST Botao He (bhe54) submitted Feb 17, 2024, 12:12 AM EST Botao He (bhe54) saved draft Feb 17, 2024, 12:12 AM EST Botao He (bhe54) submitted Feb 17, 2024, 12:13 AM EST Botao He (bhe54) saved draft Feb 17, 2024, 12:13 AM EST Botao He (bhe54) submitted Feb 17, 2024, 12:14 AM EST Botao He (bhe54) saved draft Feb 17, 2024, 12:14 AM EST Botao He (bhe54) submitted Feb 17, 2024, 12:16 AM EST Botao He (bhe54) saved draft Feb 17, 2024, 12:16 AM EST Botao He (bhe54) submitted Feb 17, 2024, 12:19 AM EST Botao He (bhe54) saved draft Feb 17, 2024, 12:19 AM EST Botao He (bhe54) submitted

Instructions

Hi all,

Assignment 1 is available now, and the due date is **23:55 on February 16th.**

If you have any questions, please ask me or the TAs during office hours.

For this assignment, you also need to submit your code (python/matlab/R...), and the assignment should be in the .pdf format. Alternatively, you can also use the IPython notebook and submit a .ipynb file that includes the code and solutions together.

For Q2&Q3 (linear and polynomial regression), you are NOT allowed to use any existing toolbox in Python/Matlab for regression (e.g., fitlm function in Matlab) -- this is the simplest machine learning model and you should implement the regression algorithm by yourself to make sure that you have fully understood it (see Lectures 3&4). However, you may call functions for matrix operations (e.g., numpy for matrix inverse, matrix multiplication) and cross-validation.

In addition to the lecture slides, the following materials could be helpful:

Lecture 2: [1] Section 2.3, Appendix C; [2] Section 2.4.1, 2.5.1, 2.5.2, 4.1.1, 4.1.2, 4.1.3; [3] Section 2, 5.1, 5.2

Lecture 3: [1] Section 3.1; [2] Section 7.1, 7.2, 7.3

Lecture 4: [1] Section 1.1, 1.3; 3.1.4; [2] 1.4.7, 1.4.8, 7.5.1

Lecture 5: [1] Section 4.3.2, 4.3.3, 4.3.4; [2] Section 8.1, 8.2, 8.3

[1] Bishop, "Pattern Recognition and Machine Learning", Springer, 2006.

[2] Murphy, "Machine Learning: a Probabilistic Perspective", MIT Press, 2012.

[3] Deisenroth, "Mathematics for Machine Learning", Cambridge University Press, 2020.

best,

Boyu

Additional resources for assignment

- 📄 hw1xte.dat (1 KB; Feb 3, 2024, 8:35 pm)
- 📄 hw1yte.dat (1 KB; Feb 3, 2024, 8:35 pm)
- 📄 hw1ytr.dat (1 KB; Feb 3, 2024, 8:36 pm)
- 📄 2024winter_CS4442B_CS9542B_AI2.pdf (205 KB; Feb 3, 2024, 8:42 pm)
- 📄 hw1xtr.dat (1 KB; Feb 3, 2024, 8:35 pm)

Original submission text with the instructor's comments inserted if applicable

Hello there, I am sorry to resubmit because I found out the first version of file somehow missed some text.

this is final submission, all text and graphs show up now, please no late submission penalty, please

Please no late submission penalty, thank you!!!

Submitted Attachments

- 📄 asn1.ipynb (598 KB; Feb 17, 2024, 12:16 am)

Additional instructor's comments about your submission

Student Name	Botao He	TA:	Gezheng XU (gxu86@uwo.ca)
Question	Full Grades	Student Grades	Comments
Q1	25		
a	5	5	a \circ b
b	5	5	ABw + (AB)^{T}w (should give the simplified format)
c	5	5	AB + (AB)^{T} (should give the simplified format)
d	5	5	Non convex
e	5	3	Should be (exp(-w^{T}x)/(1 + exp(-w^{T}x))) x or 1/(1 + exp(w^{T}x))) x
Q2	50		
a	5	5	
b	10	10	
c	5	5	
d	10	10	
e	10	10	
f	10	10	

Q3	25		
a	10	10	
b	10	10	
c	5	5	
Total	100	98	
Days of delay			1 day delay
Final		98	
Final (rescaled)		14.7	

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