Programming Assignment 6

Bookmark this page

Programming Assignments due Jul 26, 2022 23:00 PKT Completed

Click this link to download the Perceptron at Work notebook and then complete problems 1-2.

Click this link to download the Sentiment SVM notebook and then complete problems 3-4.

Click here to download the Multiclass Perceptron and SVM notebook and then complete problem 5.

Problem 1

1/1 point (graded)

This problem is based on the *Perceptron At Work* notebook. You should work through that notebook before entering answers here.

In implementing the Perceptron algorithm, why is it useful to set a limit on the number of iterations of learning? Select all that apply.

- [x] Otherwise the procedure will go into an infinite loop, when data is not linearly separable.
- [x] Since the number of iterations taken by the Perceptron algorithm is not known beforehand, this is a useful way of limiting the total runtime of the learning process.
- [ ] After the first iteration, subsequent iterations only lead to tiny improvements in the quality of the classifier.

✔

Submit

Problem 2

1/1 point (graded)

Which of the following situations most closely captures when the Perceptron algorithm would require many iterations to converge, when the data is linearly separable? Choose the best answer.

- ○ When there are many data points.
- ○ When the dimension is high.
- ◉ When points of opposite label are close together.

✔

Submit

Problem 3

0 points possible (ungraded)

This problem is based on the *Sentiment Analysis With SVMs* notebook. You should work through that notebook before entering answers here.

When plotting the cross-validation error for different choices of C, which of the following did you find?

a) The graph was U-shaped, with the chosen value of C at the bottom.

b) The graph was monotonically decreasing, and the chosen value of C was the largest value that was tested.

c) The graph was monotonically increasing, and the chosen value of C was the smallest value that was tested.

d) The graph went up and down a few times, and the chosen value of C was the best of the local optima.

Submit

Problem 4

1/1 point (graded)

What was the final *test error* for the value of C that you ended up choosing?

- ○ Below 0.15.
- ◉ Between 0.15 and 0.20.
- ○ Between 0.20 and 0.25.
- ○ Above 0.25.

✔

Submit

Problem 5

1/1 point (graded)

This problem is based on the *Multiclass Perceptron and SVM* notebook. You should work through that notebook before answering the question.

In experimenting with the multiclass SVM on the two given toy data sets, how would you describe the effect of varying the parameter C? Select all that apply.

- ☑ The classification accuracy on the training set degraded as C was reduced.
- ☐ The classification accuracy on the training set degraded as C was increased.
- ☐ The margins of the decision boundaries increased as C was reduced.
- ☑ The margins of the decision boundaries increased as C was increased.

✔

Submit

‹ Previous

Next ›

edX

About
Affiliates
edX for Business
Open edX
Careers
News

Legal

Terms of Service & Honor Code
Privacy Policy
Accessibility Policy
Trademark Policy
Sitemap

Connect

Blog
Contact Us
Help Center
Media Kit