Review Test Submission: Quiz 7: Perceptron & Gradient Ascent & SVM

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Course	CS-584-Parent.17S
Test	Quiz 7: Perceptron & Gradient Ascent & SVM
Started	4/12/17 4:34 PM
Submitted	4/12/17 5:08 PM
Due Date	4/12/17 11:59 PM
Status	Completed
Attempt Score	50 out of 50 points
Time Elapsed	34 minutes out of 2 hours
Results Displayed	All Answers, Submitted Answers, Correct Answers

Question 1

10 out of 10 points

Given a data point on a 2D plane with coordinates (0, -1), calculate its distance to the line $2x + 3y - 3 = 0$. Note that distance should be a positive value. Also your answer should be within the distance of 0.001 from the correct answer.

Selected Answer: 1.6641

Correct Answer: 1.664100589 ± 0.001

Question 2

10 out of 10 points

Given a function, $f(x) = -4x^2 + 6x + \ln(5 - 2x) + 3\exp(x^3 + 2)$, calculate $\nabla f(-0.25)$. Your answer should be within 0.001 of the correct answer. Do not round intermediate results.

Selected Answer: 11.7283

Correct Answer: 11.7282695501

Answer range +/- 0.001 (11.7272695501 - 11.7292695501)

Question 3

10 out of 10 points

We have dataset composed of three instances, two attributes and one label. Attributes are

numerical values, labels are binary.

x0	x1	y
-0.5	0.2	-1
0.5	1.5	1
2	1.7	-1

Given initial weight values as $w_0 = 1, w_1 = 1, w_2 = 1$ run perceptron algorithm (online version) on this dataset, updating the weights once for each example in the given order . What are the weight values after one pass?

w_0=**[a]**

w_1=**[b]**

w_2=**[c]**

Specified Answer for: a ✓ -1.0

Specified Answer for: b ✓ -0.5

Specified Answer for: c ✓ -0.9

Correct Answers for: a		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✓ *Pattern Match*	-1(.0)?	
Correct Answers for: b		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✓ *Exact Match*	-0.5	
Correct Answers for: c		
Evaluation Method	**Correct Answer**	**Case Sensitivity**
✓ *Exact Match*	-0.9	

Question 4

10 out of 10 points

Given a function, $f(x) = 4x^2 + 9x - 4$, we would like to minimize it using gradient descent, with learning rate, η=0.1. When x=2 currently, what will x be in the next step. That is, run gradient descent for just one step. Your answer should be within 0.001 range of the correct answer.

Selected Answer: ✓ -0.5

Correct Answer: ✓ -0.500 ± 0.001

Question 5

10 out of 10 points

Given a data set and α values computed as follows:

x1	x2	y	α
-2	6	1	0

1 3 1 4
3 1 -1 7
6 -2 -1 0

We would like to calculate w1 and w2 for a hard margin linear SVM. w1 is x1's weight and w2 is x2's weight. Calculate w2. Your answer should be exactly correct.

Selected Answer: 5

Correct Answer: 5 ± 0

Friday, April 28, 2017 5:38:58 PM CDT

← OK