Concept Quiz Over Week 5 Material

Due Nov 5 at 11:59pm **Points** 1 **Questions** 5
Available Nov 1 at 12am - Nov 5 at 11:59pm **Time Limit** None

Score for this survey: **1** out of 1
Submitted Nov 3 at 7:45pm
This attempt took 6 minutes.

Question 1

What do the slack variables accomplish in the soft-margin SVM formulation?

Your Answer:

It allows some penalty for the misclassification

The slack variables allow for violations of the margin in the constraints and are then penalized in the objective to minimize them.

Question 2

When the slack penalty hyperpameter C is set to zero, the soft-margin SVM reverts to a hard-margin SVM.

- True
- False

ou Answered

False. When the penalty is set to zero, the margin can grow infinitely large as incorrect predictions are not penalized in the objective.

Question 3

We can use any function to define a kernel.

ou Answered

- (•) True
- ( ) False

False. Only certain functions can define a kernel. Specifically, ones which result always result in positive semidefinite Gram matrices.

Question 4

We can use kernel functions for any machine learning algorithm based only on dot products between feature vectors.

- ( ) True

ou Answered

- (•) False

True. Kernels are a very general idea. We showed them for SVMs and Perceptron.

Question 5

Computing a quadratic kernel requires quadratic computation in the dimensionality of the input vectors.

ou Answered

- (•) True
- ( ) False

False. The quadratic kernel between a and b is (a^Tb+1)^2 and takes only linear time in the dimensionality.

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