

# Homework #5: Machine Learning

Kyler Little

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## Problem #1

Exercise 8.15 (e-Chap:8-38) in LFD.

## Problem #2

Exercise 8.16 (e-Chap:8-42) in LFD. Please ignore part (c) and only do (a), (b), (d).

## Problem #3

- (a) Describe what are hinge loss, logistic regression loss, and 0-1 loss mathematically. Describe their similarities and differences using the unified picture we developed in class.
- (b) By relying on the result in the above question, consider a point that is correctly classified and distant from the decision boundary. Why would SVMs decision boundary be unaffected by this point, but the one learned by logistic regression be affected?

## Problem #4

Summarize your observations from the coding portion into a short report. In your report, please report the accuracy result and total support vector number of each model. A briefly analysis based on the results is also needed.