Homework II

Due on September 4, 2017

1 Gradient Problems

Note: For the following problems use the developed data sets.

1. Implement the Gradient Solution of the Linear Regression under the following constraints:
   (a) Implement η step size using the Golden Method
   (b) Use Ridge Regularization.
   (c) Wrap the method in a way that you can take λ values in an interval $(0, 100)$ in steps of one unit.
      - Explain what happens
2. Given the Fisher Linear Discriminant (Original Equations) please:
   (a) Integrate the Ridge Regularization.
   (b) Wrap the method in a way that you can take λ values in an interval $(0, 100)$ in steps of one unit.
      - Explain what happens

2 Bayesian Classification

1. Derive the gradient of the negative log-likelihood for the multiclass logistic regression case.
   - Use it to classify your three class problem.
2. Do the following problems:
   - Machine Learning Theodoridis Problem 7.20 at Chapter 7.