Tutorial 6

Machine Learning and Big Data for Economics and Finance

List of activities

I. Complete **Section 5.3 Lab: Cross-validation and the Boostrap**, subsection 5.3.4.

II. Complete the list of exercises in this tutorial.

Exercise 1. Bootstrap for the logistic regression model
Consider the logistic regression model

$$\Pr\{Y=1|X=x\}=\frac{1}{1+\mathrm{e}^{-\beta_0-\beta_1 x-\beta_2 x^2}}$$

Write your own code to maximize the likelihood function with respect to $(\beta_0, \beta_1, \beta_2)$ and to compute the standard errors of the parameter estimators by the bootstrap method. Test your code on the dataset in `LR2.csv`.

Exercise 2. Linear discriminant analysis
Derive formula 4.13 in the textbook.