

# SF2935 Modern Methods of Statistical Learning

## Project 1

The project should be done in groups of **two**.

A computer written<sup>1</sup>, self-containing, report of the subjects presented below should be handed in no later than **Tuesday 21 November 2016 13:00** by email to `flrios@math.kth.se`. The **subject** of the email should be

SF2935 Project 1: Full Name 1, Full Name 2

and **name the document**

SF2935Project1-FullName1-FullName2.pdf

Also bring a **printed copy to the project presentation seminar**.

If Johan Westerborn and Felix Rios submits project 1 then the email subject should be SF2935 Project 1: Johan Westerborn, Felix Rios and the document should be names SF2935Project1-JohanWesterborn-FelixRios.pdf they also bring one copy to the presentation seminar.

## Classification

In the book four different classification algorithms are described, Logistic Regression, LDA, QDA and KNN. In this project will look at these four methods. The written report should contain the following:

- A brief explanation of the different methods
- In Figure 1 draw (approximately) the LDA, QDA and KNN (with  $K = 1$ ) classification boundaries. The plot is available on the course homepage.
- Solve and present solutions to the Conceptual exercises 4 and 5 in chapter 4 on page 168-169.<sup>2</sup>
- Solve and present a solution to the Applied exercise 11 in chapter 4 on page 171.

---

<sup>1</sup>Preferably using  $\LaTeX$

<sup>2</sup>If you don't have the course book it can be downloaded as a pdf for free at <http://www-bcf.usc.edu/~gareth/ISL/>

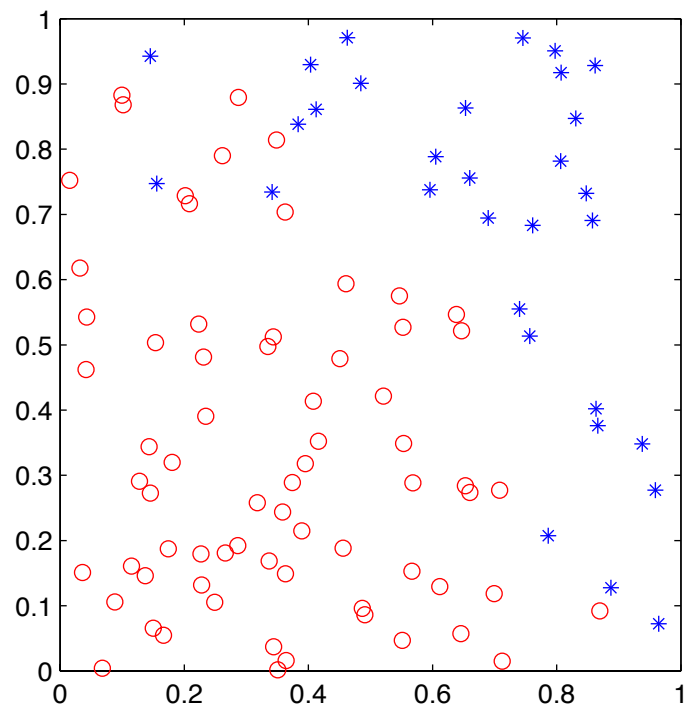


Figure 1: Plot of a two variable classification setting. The two classes are defined by stars and circles.