

DM825 - Introduction to Machine Learning

Sheet 9, Spring 2013

Exercise 1

Suppose that the following are a set of points in two classes:

$$\text{class 1: } \begin{bmatrix} 0 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \end{bmatrix} \begin{bmatrix} 2 \\ 1 \end{bmatrix}$$

$$\text{class 2: } \begin{bmatrix} 1 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 \\ 1 \end{bmatrix}$$

Plot them and find out which of the basis functions seen at lecture separate this data.

Exercise 2

Task 3 of Exam 2010.

Exercise 3

In R support vector machines are implemented in the function `svm` of the `e1071` package. Read the documentation of that function, try out the examples and understand them with reference to the theory.