

Machine Learning, Winter 2022
Practice Assignment 6

Exercise 6-1

Consider the one-dimensional dataset below:

x	Target Value
1	-1
2	-1
5	+1
p	+1

Apply the least squares classifier to obtain the corresponding decision boundary if:

- a) $p = 6$
- b) $p = 20$

Exercise 6-2

Consider the two-dimensional dataset below:

x_1	x_2	Target Value
1	1	+1
5	-5	-1
-1	-1	+1
-5	5	-1

Apply the least squares classifier to obtain the corresponding decision boundary if. Comment on the outcome. What could you do to make this classifier work on this dataset?

Exercise 6-3

Discuss what would happen to the decision boundary obtained using the least-squares classifier for a linearly separable dataset if:

- a) Target values used are -2 and +2 instead of -1 and +1
- b) Target values used are -2 and +4 instead of -1 and +1

Exercise 6-4 Coding Question

Implement the question 1 and 2 using Python.