Leonard Korp 302582
Nikita Malyschkin 319500
Valentin Engelke 358096

WS 2017/18
19.10.2017

Foundations of Data Science

Exercise sheet 2

Exercise 1

$$w_1 = \begin{pmatrix} -4 \\ -2 \\ -1 \end{pmatrix} w_2 = \begin{pmatrix} 4 \\ -4 \\ -4 \end{pmatrix} w_3 = \begin{pmatrix} 3 \\ -3 \\ -5 \end{pmatrix} w = \begin{pmatrix} -1 \\ -5 \\ -6 \end{pmatrix}$$

Exercise 2

The order of the set of examples matters, as the number of steps can change. With the given set S the algorithm needs to update w 4 times. With S' as

$$S' = [([4, 2, 1], -1), ([-1, 2, -4], 1), ([1, -1, 1], -1), ([2, -2, 5], -1), ([-6, 2, 7], -1), ([8, -2, -3], 1)]$$

only 2 update steps are needed.

Exercise 3

a)

b)

Exercise 4

a)

b)

c)

d)