

MSc in Computer Science and Engineering

**Learning and Decision Making 2016-2017**

Homework 4. Supervised learning

**(a)**

Assuming then:

applying

which is the same as minimizing the negative of the logarithm of the function:

= = , as we wanted to show.

**(b)**

applying the gradient to with respect to **w**  we have:

**=**

**=**

**=**

**=**  **=** g**,**

thus the gradient of with respect to **w** is equal to g as we wanted to show.

**(c)**

computing the Hessian of with respect to **w**:

**=**

**=**

**=**  = H,

thus the Hessian of with respect to **w** is equal to H as we wanted to show.