

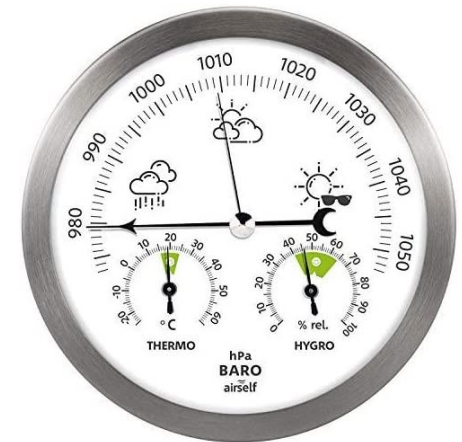
LAB 1: Linear Classification and Regression

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Two simple tasks:



Classification of daytime



*Regression on atmospheric
pressure values*

Smart Glasses



- The provided dataset contains data recorded using the new **Luxottica I-SEE glasses** in exterior conditions
- These devices provide **multiple sensors mounted inside the glasses**, which can be accessed through a Bluetooth connection
- The recorded data include UVA, UVB, pressure, temperature, humidity and many other sensors

Classification Task



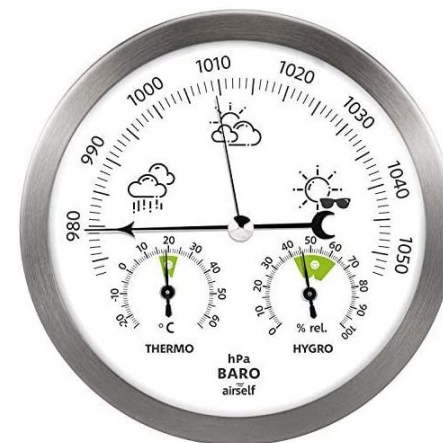
Each training sample contains 3 features acquired with the I-SEE glasses

1. *UVA*
2. *UVB*
3. *Pressure*

Task: classify into 2 classes, daytime and night-time

1. Load the data file, divide into train and test sets
2. Implement the Perceptron algorithm
3. Use Logistic Regression from Python libraries

Regression Task



Each training sample contains 2 features:

1. *Temperature*
2. *Relative humidity data*

Task: Estimate the atmospheric pressure

1. Load the data file, divide into train and test sets
2. Use Least Square implementation in Python libraries

Your Task

- ❑ You have to complete the jupyter notebook:
 - **classification** problem (daytime, perceptron and logistic regression)
 - **regression** task (atmospheric pressure, least square)
- ❑ FIRST THING TO DO: you need to **put your name and ID number** in the notebook
 - You can use the ID also as seed for random number generators
- ❑ The notebook has **missing code**: need to fill in what is missing
- ❑ You **must** write the answer to **all the questions** in the notebook
- ❑ You should also place some text/comments (to explain choices or describe results)
- ❑ But **do not change the structure or the input data files**, they will not be submitted



- ☐ Complete the jupyter notebook
 - i.e., **write the code** and **answer to the questions**
 - Place the questions' answers in the blue boxes
- ☐ Check that they run properly from the beginning with the provided data
 - **use the "restart kernel&run all" command**
- ☐ Save them as **surname_name_lab1.ipynb**
- ☐ Submit on elearning

- ❑ Fri 28/10: Homework released
- ❑ Fri 4/11: Lab 1 (room Te+Ue+Be?)
 - Recall to subscribe to one of the attendance lists
- ❑ Fri 11/11: Delivery deadline
- ❑ The outcome is an on-off mark (i.e., +1 for the exam mark if the homework is reasonably done)