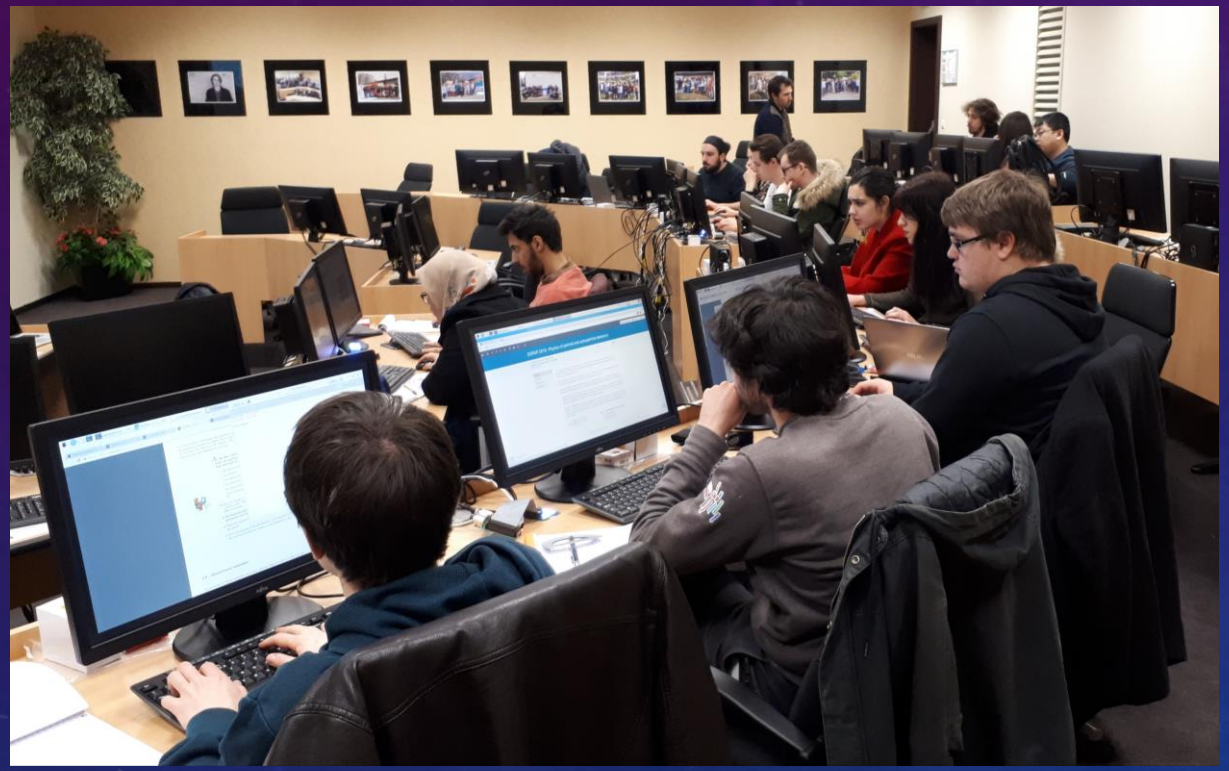
ESIPAP COMPUTING SESSION 2

WEDNESDAY 14:00 – 17:15

REMINDER OF SESSION 1



- Acquiring sensor data (temperature, pressure, relative humidity) with your own code.
- Saving data into a CSV file
- Displaying the current temperature on the LEDs with a bar chart.

WHAT ARE THE NEXT STEPS ?

- First analysis of the acquired data.
- Computing the dew temperature and warning the user if we are close to the condensation point.
- Improving the display with the LEDs.
- Celebrating Saint-Valentin?

3 CLASSES TO IMPLEMENT

StatisticsCalculator

Computing statistical information over data acquired in session 1

For instance: average, standard deviation, mediane, …

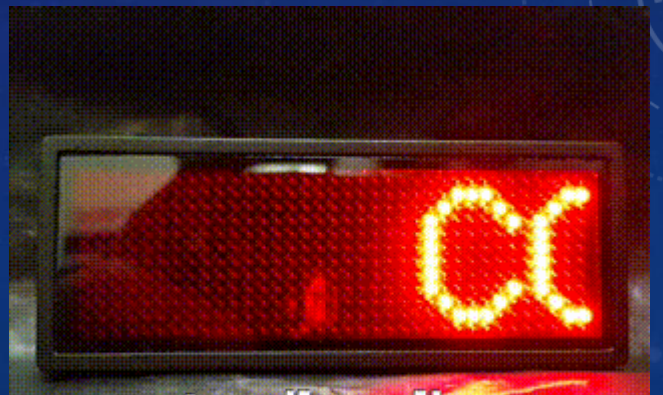
PsychrometricCalculator

Computing properties of the humid air from data acquired in session 1,

In particular: the dew temperature

PixelWriter

Displaying any messages with 8x8 LEDs of the Sense Hat board



IMPLEMENTATION STEP-BY-STEP

Step 1

First implementation of the class

Test with a main program

Step 2

Enriching the functionalities of the class

Adding an algorithm part to the work

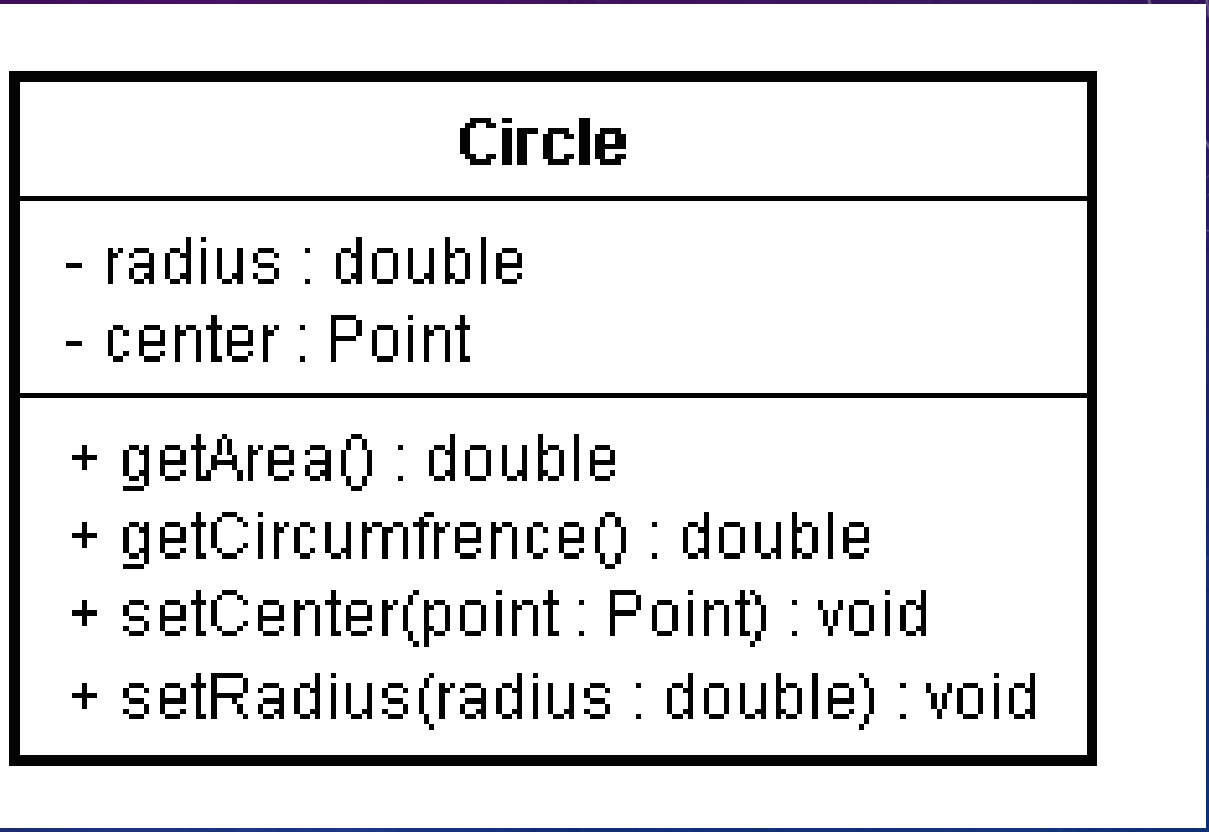
Step 3

Enriching the structure of the class

Copy constructor, overloading operators, …

UML DIAGRAM

Visual representation of the content of a class



CHOOSE YOUR CLASS

StatisticsCalculator

Difficulty:
+

Tricky part:
- Sorting table
- Reading CSV files

Development machine:
PC or Raspberry

PsychrometricCalculator

Difficulty:
++

Tricky part:
- Coding math formulas
- Finding zero of functions

Development platform:
PC or Raspberry

PixelWriter

Difficulty:
+++

Tricky part:
- Using external libraries
- Scrolling screen

Development platform:
Raspberry only

SAVING CODE

- End of session: sending your code to the supervisors for assement

- Using a web service: www.wetransfer.com
  - destination: eric.conte@iphc.cnrs.fr
  - author: filling your address email

- A URL link is created: put it on the following spreadsheet

https://docs.google.com/spreadsheets/d/1QF1hbePGmzLfQ4jQGMD180Ix8dLivxRkPI5sIzGXBO8/edit?usp=sharing