Year 1
Introduction to Python

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Computers throught history

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Examples

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Examples

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Examples

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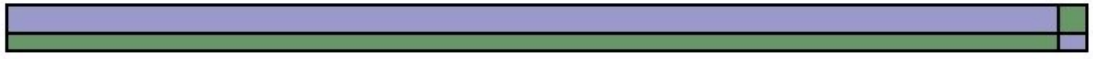
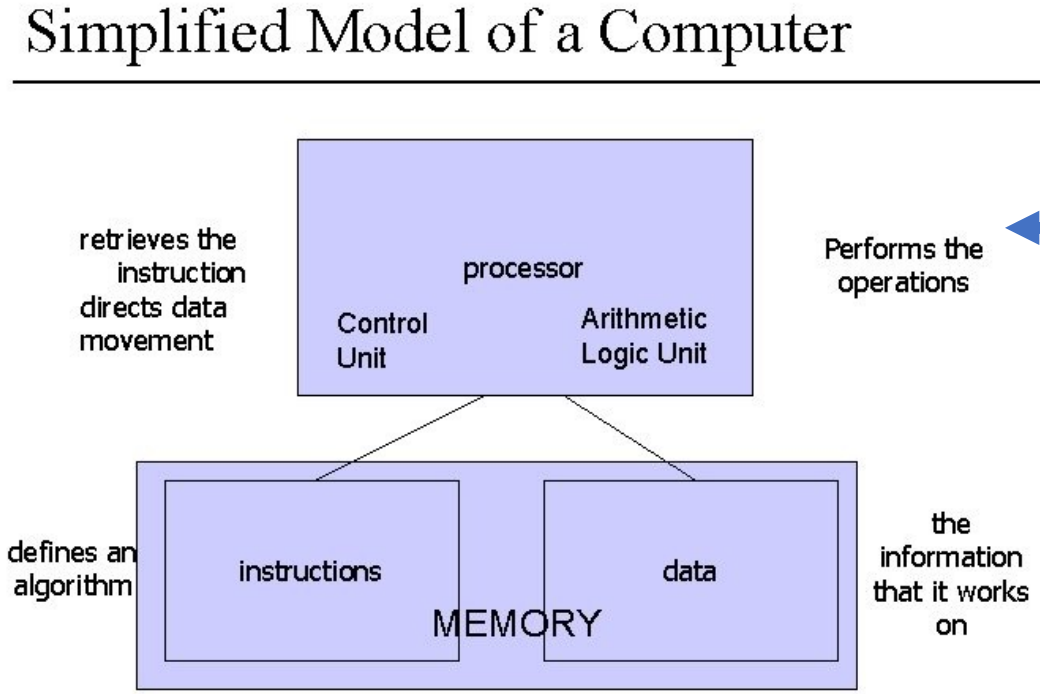
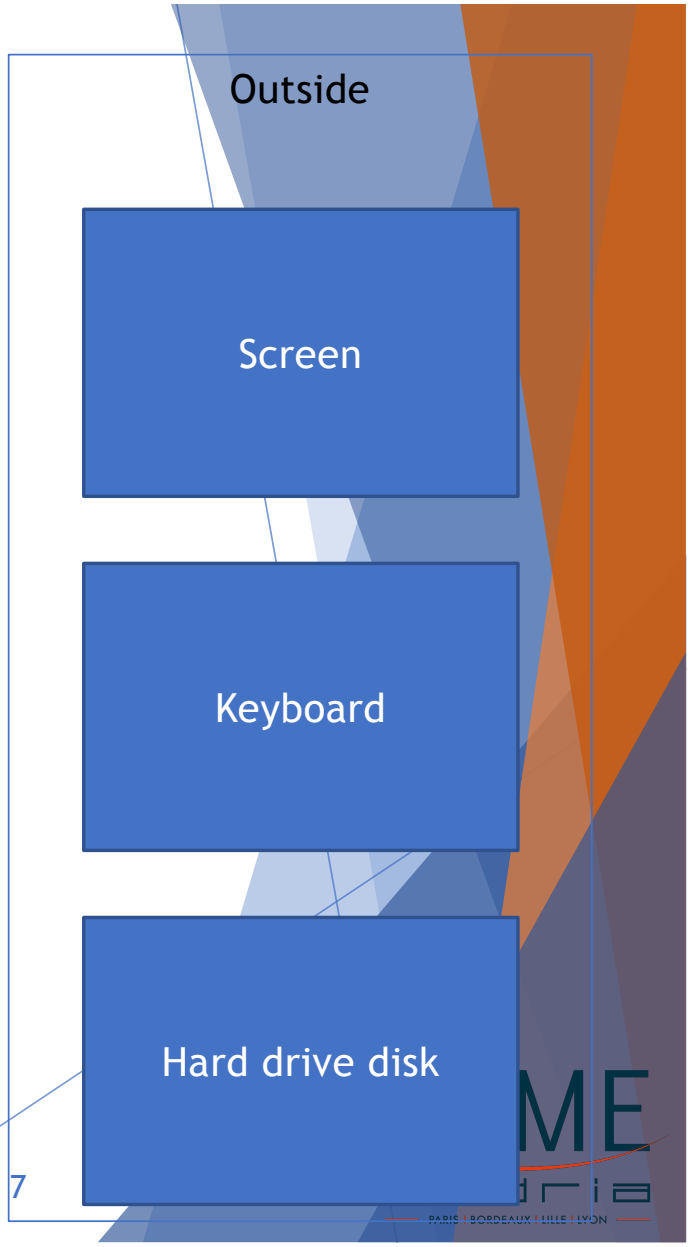
What do those computers all have in common?

What is a computer?







Programming first steps

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Operations

- Python code can be used as a calculator
- Like in math, operators have priorities
- Let’s look at the notebook and execute some operations!

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Variables

- A variable is an area of computer memory in which we store a value
- A variable is defined by its name in the programs
- A variable is a shortcut we use to reference an area of the computer memory
- Unlike in maths, variables are not limited to a single letter.
- Variables must use letters, they can include (but cannot be limited to) figures and special characters
- Name your variables sensibly!
- Variables are CASE SENSITIVE. variable MyVar is not the same as myvar or my_var

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Assigning a variable

- In order to store a value in a variable, we use the assignment operator
- The assignment is ”=“ in python.
- Here “=“ does **not** mean things are equal!
- ”a = 5“ means that we want to store 5 in variable a
- To test if two pieces of data are equal, we use “==“ (more on that later)

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Variable types

- Integers
  - 3
- Floating point numbers
  - 3.2
- Characters
  - ‘c’
- Strings
  - “Hello!”
- Boolean
  - True

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Notebook examples

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Inputs and outputs (I/O)

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Functions and print

- Like in math, Python enables you to manipulate functions
- We will see how to define your own functions in a later class
- Python has built-in functions that you can use!
- The print function enables you to display something in the console. Try print(“toto”)
- You can also print the content of a variable
- The print function produces an **output**
- Let’s look at some examples!

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Input

- The input function allows you to ask something to the user
- The argument of the input function is a string, usually the question you want to ask the user
- If you want to keep the user's answer, you need to assign it to a variable
- The input function is an input, i.e. the I in I/O

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Instructions

Understanding the different kinds of instructions

- x = 3
  Assignment : modifies memory
- 5 + 2
  Computation : uses the processor
- print(“toto”)
  I/O: changes what is displayed
- x = x + 5
  Computation then assignment : uses the processor then modifies the memory
- print(x + 5)
  Computation then I/O
- x == 3
  Computation : uses the processor (computes the boolean value of the expression)

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Exercices

x = 3

- What is the type of:
  - x
  - x + 2
  - print(x)
  - x == 4
  - x == n

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