Object Oriented Programming

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https://github.com/Jnsll/ModelisationScientifique



What is OOP?

An object is characterized by:

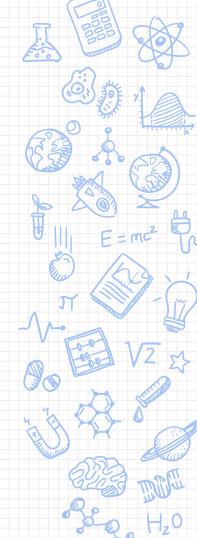
Object-Oriented Programming is based on the concept that an object application is a set of objects that communicate to provide a global service to its user.

- its identity,
- its data
- the operations it knows how to carry out and proposes to other objects.



Main concepts: Encapsulation

- The object protects its data in order to preserve its integrity.
- Only the object can modify its own data.
- Only the object knows how the data are managed.



Main concepts: Responsability

- The object is responsible for the operations that it knows how to carry out and that it proposes.
- It has all the necessary data.





The class

A class describes a set of objects that have the same data types and the same types of operations.

Objects of the same class have their own data.

class Person:

pass



The class

All classes have a function called __init__O, which is always executed when the class is being initiated.

Use the __init__() function to assign values to object properties, or other operations that are necessary to do when the object is being created.



The class: __Init__()

```
def init (self, fname, lname):
    self.firstname = fname
```

self.lastname = lname



The class: methods

The methods correspond to the operations the objects belonging to the class can carry out.



Heritage (Parent/Child classes)

A class can inherit the functionality from another class

class Student(Person):

pass



Heritage: super()

The super() function makes the child class inherit all the methods and properties from its parent



Heritage: adding properties

The super() function makes the child class inherit all the methods and properties from its parent

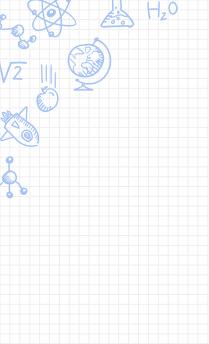
```
def init (self, fname, lname):
super(). init (fname, lname)
self.graduationyear = year
```



References

- Programmation Orientée Objet Cours 1, Xavier Blanc https://www.youtube.com/watch?v=BNEtWb3WceQ
- W3School Tutorial
 https://www.w3schools.com/python/python_classes.asp
 s.asp
- https://realpython.com/python3-object-oriented-p rogramming/







THANKS!

Any questions?



