CHAPTER 12 – CLASSES, ATTRIBUTES AND METHODS

12.1

Python is a multi paradigm program, as it allows for more than one approach:

* Procedural approach 🡪 splitting the program in multiple sub-programs creating a pyramidal hierarchy of smaller and smaller blocks
* Functional approach 🡪 program takes form of a sequence of mathematical functions
* Object-oriented approach (OOP) 🡪 most efficient – we create objects made of attributes (how they are made) and methods (how they are changed)

The definition of class is the code block which contains both the obeject’s attributes list and the methods (i.e. the procedural attributes)

Advantages of OOP:

* Encapsulation 🡪 not making the structural and functional features of a class visible to other objects
* Inheritance 🡪 construction of classes that allows to build new classes starting from older ones
* Polymorphism 🡪 same name can be given to methods that perform the same type of operations

12.2

A class is the abstract description of an object, the family or set of objects of a certain type with common methods, a class is the evolution of elementary data.

An instance indicates a specific case of a class, identified via its attributes.

Elementary data types (integers, floats, strings, logicals) and complex data types (strings, tuples, lists,…) go under the name of literals.

12.3

In order to create/use an object, its class must be defined:

1. Enunciate the abstract and generic version of the object made up of attributes, variables and/or constants
2. Declare the interface, the set of methods the user can apply to the object