09-05-2024 Python

Introduction to the Object Oriented Programming

In order to understand Object Oriented Programming we need to understand the different paradigms of Programming.

Programming has two popular paradigms

Procedure Oriented Programming

It uses a top to bottom approach wherein all items need to be defined in a procedural way and declarations need to be done prior to performing actual logical operations. In Procedure Oriented programming paradigms, series of computational steps are divided modules which means that the code is grouped in functions and the code is serially executed step by step so basically, it combines the serial code to instruct a computer with each step to perform a certain task. This paradigm helps in the modularity of code and modularization is usually done by the functional implementation. This programming paradigm helps in an easy organization related items without difficulty and so each file acts as a container.

- Example 1:

```
i= 10
i.upper()
```

- Example 2:

```
# Procedural way of finding sum
# of a list

mylist = [10, 20, 30, 40]

# modularization is done by
# functional approach
def sum_the_list(mylist):
    res = 0
    for val in mylist:
        res += val
    return res

print(sum_the_list(mylist))
```

Object Oriented Programming

Object Oriented Programming employs the following concepts:

1. Class

Class can be simply explained as a Blueprint.
Example- A Car can have various specifications and which give a general outline as to what a car is.

2. Object

3. Encapsulation
4. Abstraction
5. Inheritance
6. Polymorphism