

Characteristics of Class

- Class contains two things as Characteristics and Behaviours.
- Characteristics are considered as a variables which are part of class.
- Object-oriented programming allows for variables to be used at the class level or the instance level.
- Variables are essentially symbols that stand in for a value you're using in a program.
- At the class level, variables are referred to as class variables, whereas variables at the instance level are called instance variables.
- When we expect variables are going to be consistent across instances, or when we would like to initialize a variable, we can define that variable at the class level.
- When we anticipate the variables will change significantly across instances, we can define them at the instance level.

In python there are two types of variables as

- 1.Instance variable
- 2.Class variable

Class Variable :

- Class variables are defined within the class construction.
- Because they are owned by the class itself, class variables are shared by all instances of the class.
- They therefore will generally have the same value for every instance unless you are using the class variable to initialize a variable.
- Defined outside of all the methods, class variables are, by convention, typically placed right below the class header and before the constructor method (init) and other methods.
- We can access class variables without creating the object of a class by using class name.

Instance Variables :

- Instance variables are owned by instances of the class.
- This means that for each object or instance of a class, the instance variables are different.
- Unlike class variables, instance variables are defined within init method.
- We can access instance variable after creating object.

Consider below application which demonstrates types of characteristics

```
print("---- Marvellous Infosystems by Piyush Khairnar-----")
```

```
print("Demonstration of Characteristics of Class")
```

```
class Demo:
```

```
    x = 10
```

```
    def __init__(self,no1,no2):  
        self.i = no1  
        self.j = no2
```

```
obj1 = Demo(10,20)
obj2 = Demo(11,21)
```

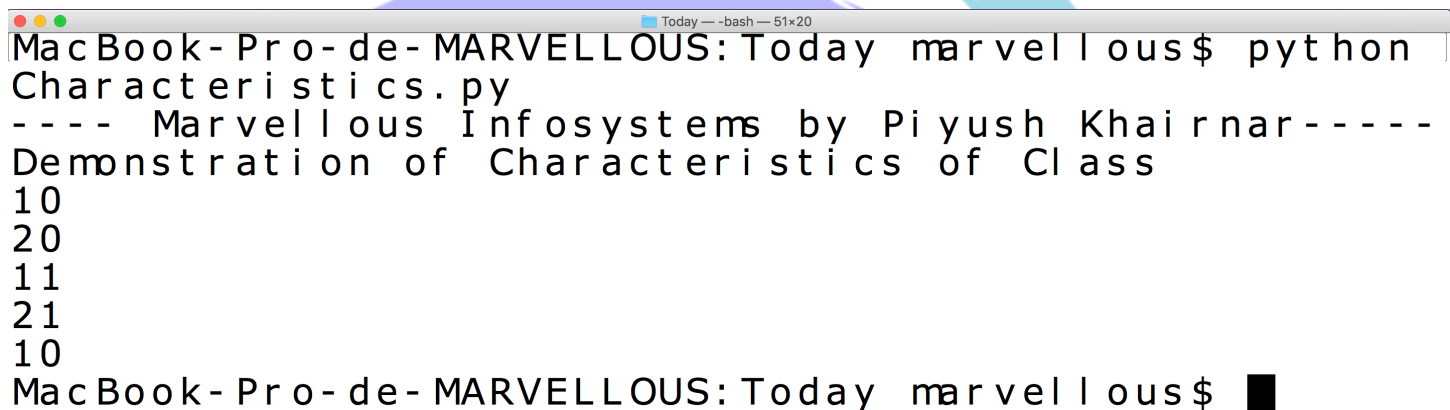
```
print(obj1.i)
print(obj1.j)
```

```
print(obj2.i)
print(obj2.j)
```

```
print(Demo.x)
```

In above application there is one class named as Demo. That class contains X as a class variable and i,j as a instance variables.

Output of above application



```
MacBook-Pro-de-MARVELLOUS:Today marvellous$ python
Characteristics.py
---- Marvellous Infosystems by Piyush Khairnar ----
Demonstration of Characteristics of Class
10
20
11
21
10
MacBook-Pro-de-MARVELLOUS:Today marvellous$
```