OOP -- Classes & Objects

2. Creating Classes & Objects

In [9]:
```
class Person:

    count = 0

    def __init__(self, name, age):
        self.name = name
        self.age = age
        Person.count += 1

    def changeAge(self, age):
        self.age = age

    def getCount(self):
        return Person.count

    def __str__(self):
        return self.name + '--' + str(self.age)


p1 = Person("John", 20 )
print(p1)
print(p1.getCount())

p2 = Person("Gary", 18 )
print(p2)
print(p2.getCount())


p2.changeAge(19)
print(p2)
print(p2.getCount())
```

```
John--20
1
Gary--18
2
Gary--19
2
```

3. Inheritance

In [12]:
```
class Person:

    def __init__(self, name, age):
        self.name = name
        self.age = age

    def changeAge(self, age):
        self.age = age

    def __str__(self):
        return self.name + '--' + str(self.age)

#-----------------------------------------------

class Student( Person ):

    def __init__(self, name, age, grade, gpa ):
        Person.__init__(self, name, age)
        self.grade = grade
        self.gpa = gpa

    def changeGpa(self, gpa):
        self.gpa = gpa

    def __str__(self):
        return Person.__str__(self) + '--' + str(self.grade) + '--'
+ str(self.gpa)


s1 = Student( "John", 18, 12, 3.8 )
print(s1)

s1.changeGpa(3.9)
print(s1)

s1.changeAge(19)
print(s1)
```

```
John--18--12--3.8
John--18--12--3.9
John--19--12--3.9
```

4. Multiple Inheritance

In [21]:
```
class Person:

    def __init__(self, name, age):
        self.name = name
        self.age = age

    def changeAge(self, age):
        self.age = age

    def __str__(self):
        return self.name + '--' + str(self.age)

#-----------------------------------------------

class Addr:

    def __init__(self, city, state):
        self.city = city
        self.state = state

    def changeCity(self, city):
        self.city = city

    def __str__(self):
        return self.city + '--' + self.state


#-----------------------------------------------

class Student( Person, Addr ):

    def __init__(self, name, age, city, state, grade, gpa ):
        Person.__init__(self, name, age)
        Addr.__init__(self, city, state)
        self.grade = grade
        self.gpa = gpa

    def changeGpa(self, gpa):
        self.gpa = gpa

    def changeAge(self, age):
        self.age = age + 10

    def __str__(self):
        return Person.__str__(self) + '--' + Addr.__str__(self) +
'--' + str(self.grade) + '--' + str(self.gpa)


    #-----------------------------------------------

s1 = Student( "John", 18, "New York", "NY", 12, 3.8 )
print(s1)
s2 = Student( "Jane", 17, "Princeton", "NJ", 11, 3.95)
```

```
print(s2)

s1.changeAge(19)
print(s1)

s1.changeCity("Flushing")
print(s1)
```

```
John--18--New York--NY--12--3.8
Jane--17--Princeton--NJ--11--3.95
John--29--New York--NY--12--3.8
John--29--Flushing--NY--12--3.8
```