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Object Oriented Programming in Python | Set 2 (Data Hiding and Object Printing)

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Prerequisite : Object Oriented Programming in Python | Set 1 (Class, Object and Members)

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Data hiding

In Python, we use double underscore (Or __) before the attributes name and those attributes will not be directly visible outside.

```python
class MyClass:

    # Hidden member of MyClass
    __hiddenVariable = 0

    # A member method that changes
    # __hiddenVariable
    def add(self, increment):
        self.__hiddenVariable += increment
        print (self.__hiddenVariable)

# Driver code
myObject = MyClass()
myObject.add(2)
myObject.add(5)

# This line causes error
print (myObject.__hiddenVariable)
```

Output :

```
2
7
Traceback (most recent call last):
  File "filename.py", line 13, in
```

```
    print (myObject.__hiddenVariable)
 AttributeError: MyClass instance has
 no attribute '__hiddenVariable'
```

In the above program, we tried to access hidden variable outside the class using object and it threw an exception.

We can access the value of hidden attribute by a tricky syntax:

```python
# A Python program to demonstrate that hidden
# members can be accessed outside a class
class MyClass:

    # Hidden member of MyClass
    __hiddenVariable = 10

# Driver code
myObject = MyClass()
print(myObject._MyClass__hiddenVariable)
```

Output :

```
 10
```

Private methods are accessible outside their class, just not easily accessible. **Nothing in Python is truly private; internally**, the names of private methods and attributes are mangled and unmangled on the fly to make them seem inaccessible by their given names [See this for source].

Printing Objects

Printing objects gives us information about objects we are working with. In C++, we can do this by adding a friend ostream& operator << (ostream&, const Foobar&) method for the class. In Java, we use toString() method. In python this can be achieved by using __repr__ or __str__ methods.

```python
class Test:
    def __init__(self, a, b):
        self.a = a
        self.b = b

    def __repr__(self):
        return "Test a:%s b:%s" % (self.a, self.b)

    def __str__(self):
        return "From str method of Test: a is %s," \
                "b is %s" % (self.a, self.b)

# Driver Code
t = Test(1234, 5678)
print(t) # This calls __str__()
print([t]) # This calls __repr__()
```

Output :

```
From str method of Test: a is 1234,b is 5678
[Test a:1234 b:5678]
```

Important Points about Printing:

- If no __str__ method is defined, print t (or print str(t)) uses __repr__.

```python
class Test:
    def __init__(self, a, b):
        self.a = a
        self.b = b

    def __repr__(self):
        return "Test a:%s b:%s" % (self.a, self.b)

# Driver Code
t = Test(1234, 5678)
print(t)
```

Output :

```
Test a:1234 b:5678
```

- If no __repr__ method is defined then the default is used.

```python
class Test:
    def __init__(self, a, b):
        self.a = a
        self.b = b

# Driver Code
t = Test(1234, 5678)
print(t)
```

Output :

```
<__main__.Test instance at 0x7fa079da6710>
```

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This article is contributed by **Shwetanshu Rohatgi**. Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.

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