MITx 6.00.1x
Introduction to Computer Science and Programming Using Python

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Exercise 4

7/7 points (graded)
ESTIMATED TIME TO COMPLETE: 12 minutes

Python supports a limited form of multiple inheritance, demonstrated in the following code:

```python
class A(object):
    def __init__(self):
        self.a = 1
    def x(self):
        print("A.x")
    def y(self):
        print("A.y")
    def z(self):
        print("A.z")

class B(A):
    def __init__(self):
        A.__init__(self)
        self.a = 2
        self.b = 3
    def y(self):
        print("B.y")
    def z(self):
        print("B.z")

class C(object):
    def __init__(self):
        self.a = 4
        self.c = 5
    def y(self):
        print("C.y")
    def z(self):
        print("C.z")

class D(C, B):
    def __init__(self):
        C.__init__(self)
        B.__init__(self)
        self.d = 6
    def z(self):
        print("D.z")
```

Which `__init__` methods are invoked and in which order is determined by the coding of the individual `__init__` methods.

When resolving a reference to an attribute of an object that's an instance of class `D` , Python first searches the object's instance variables then uses a simple left-to-right, depth first search through the class hierarchy. In this case that would mean searching the class `C` , followed the class `B` and its superclasses (ie, class `A` , and then any superclasses it may have, et cetera).
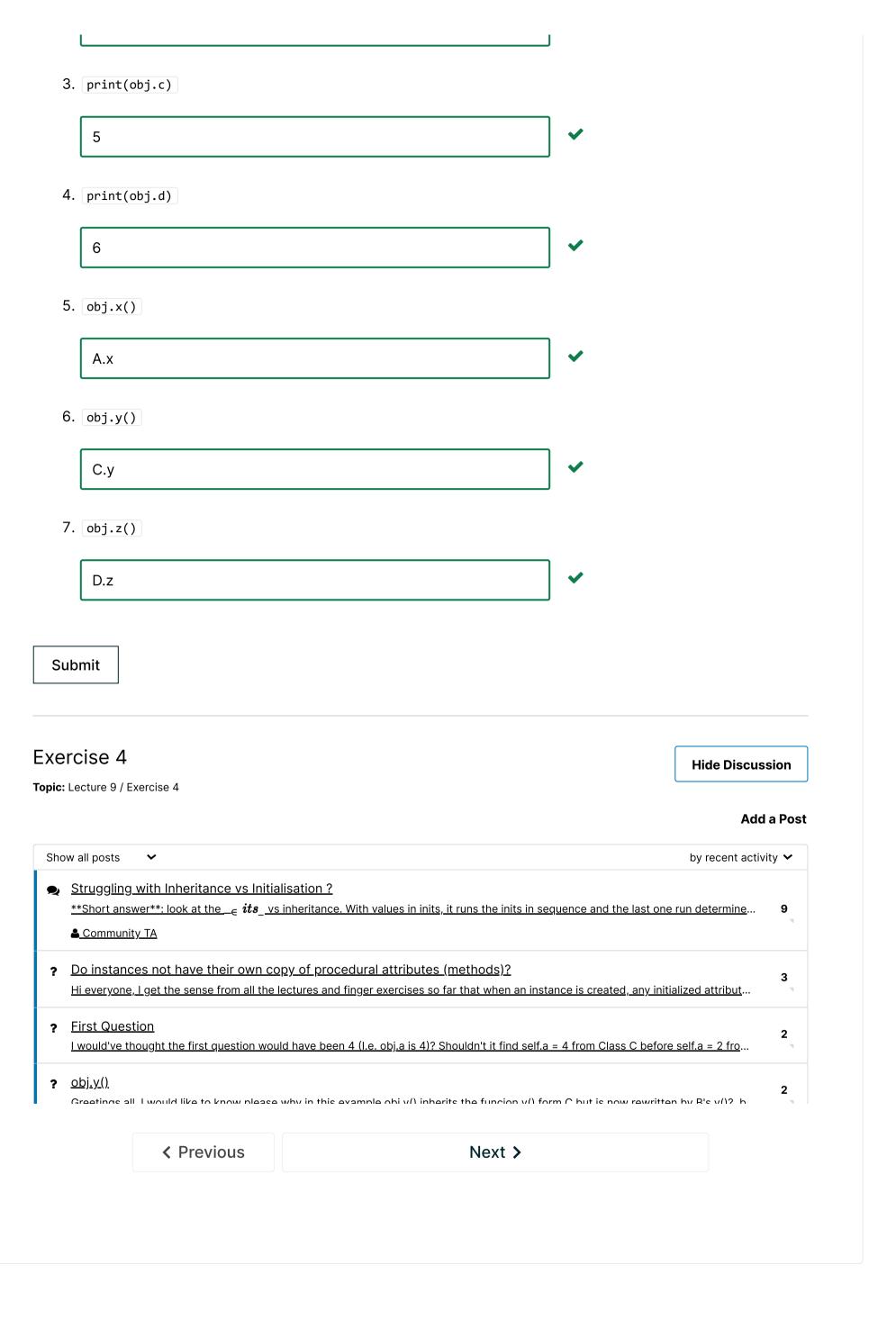
With the definitions above if we define

```python
obj = D()
```

then what is printed by each of the following statements?

1. `print(obj.a)`

   ```
   2
   ```
   ✔

2. `print(obj.b)`

   ```
   3
   ```
   ✔

3. `print(obj.c)`

5 ✓

4. `print(obj.d)`

6 ✓

5. `obj.x()`

A.x ✓

6. `obj.y()`

C.y ✓

7. `obj.z()`

D.z ✓

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Exercise 4

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💬 **Struggling with Inheritance vs Initialisation ?**
Short answer: look at the _∈ *its* _ vs inheritance. With values in inits, it runs the inits in sequence and the last one run determine... 9
👤 Community TA

❓ **Do instances not have their own copy of procedural attributes (methods)?**
Hi everyone, I get the sense from all the lectures and finger exercises so far that when an instance is created, any initialized attribut... 3

❓ **First Question**
I would've thought the first question would have been 4 (I.e. obj.a is 4)? Shouldn't it find self.a = 4 from Class C before self.a = 2 fro... 2

❓ **obj.y()**
Greetings all. I would like to know please why in this example obj.y() inherits the funcion y() form C but is now rewritten by B's y()? h... 2

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