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Exercise 4

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Exercise 4

7 points possible (graded)

ESTIMATED TIME TO COMPLETE: 12 minutes

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

9. Classes and Inheritance
Finger Exercises

10. An Extended Example
Finger Exercises

Problem Set 5
Problem Set due Mar 2, 2017 15:30 PST

- Week 6: Algorithmic Complexity
- Sandbox

```
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

```
obj = D()
```

then what is printed by each of the following statements?

1. `print(obj.a)`

2. `print(obj.b)`

3. `print(obj.c)`

4. `print(obj.d)`

5. `obj.x()`

6. `obj.y()`

7. `obj.z()`

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Exercise 4

Topic: Lecture 9 / Exercise 4

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