

Curso > Week 5... > 9. Class... > Exercis...

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## **Exercise:** coordinate

Finger Exercises due Aug 5, 2020 20:30 -03

Exercise: coordinate

5/5 points (graded)

### **ESTIMATED TIME TO COMPLETE: 7 minutes**

Consider the following code from the last lecture video:

```
class Coordinate(object):
    def __init__(self, x, y):
        self.x = x
        self.y = y

    def getX(self):
        # Getter method for a Coordinate object's x coordinate.
        # Getter methods are better practice than just accessing an attribute directly
        return self.x

def getY(self):
    # Getter method for a Coordinate object's y coordinate return self.y

def __str__(self):
    return '<' + str(self.getX()) + ',' + str(self.getY()) + '>'
```

Your task is to define the following two methods for the Coordinate class:

1. Add an \_\_eq\_\_ method that returns True if coordinates refer to same point in the plane (i.e., have the same x and y coordinate)

2. Define  $\_repr\_$ , a special method that returns a string that looks like a valid Python expression that could be used to recreate an object with the same value. In other words, eval(repr(c)) == c given the definition of  $\_eq\_$  from part 1.

For more on \_\_repr\_\_\_, see this SO post.

```
1 class Coordinate(object):
      def __init__(self,x,y):
 2
 3
          self.x = x
 4
          self.y = y
 5
 6
      def getX(self):
 7
          # Getter method for a Coordinate object's x coordinate.
 8
          # Getter methods are better practice than just accessing an attribute dir
 9
          return self.x
10
11
      def getY(self):
          # Getter method for a Coordinate object's y coordinate
12
13
          return self.y
14
15
      def __str__(self):
          return 'c' + str(self getX()) + ' ' + str(self getV()) + '>'
```

Press ESC then TAB or click outside of the code editor to exit

Correta

```
class Coordinate(object):
    def __init__(self,x,y):
        self.x = x
        self.y = y
    def getX(self):
        # Getter method for a Coordinate object's x coordinate.
        # Getter methods are better practice than just accessing an attribute directly
        return self.x
    def getY(self):
        # Getter method for a Coordinate object's y coordinate
        return self.y
    def __str__(self):
        return '<' + str(self.getX()) + ',' + str(self.getY()) + '>'
    def __eq__(self, other):
        # First make sure `other` is of the same type
        assert type(other) == type(self)
        # Since `other` is the same type, test if coordinates are equal
        return self.getX() == other.getX() and self.getY() == other.getY()
    def repr (self):
        return 'Coordinate(' + str(self.getX()) + ',' + str(self.getY()) + ')'
```

# Test results

```
Hide output
CORRECT
          Test: equal 1
          Output:
                > print(c1)
                <1,-8>
                > print(c2)
                <1,-8>
                > print(c1 == c2)
                True
          Test: equal 2
```

```
Output:
```

```
> print(c1)
<20,20>
> print(c2)
<20,20>
> print(c1 == c2)
True
```

Test: not equal 1

#### Output:

```
> print(c1)
<-15,-6>
> print(c2)
<7,2>
> print(c1 == c2)
False
```

Test: not equal 2

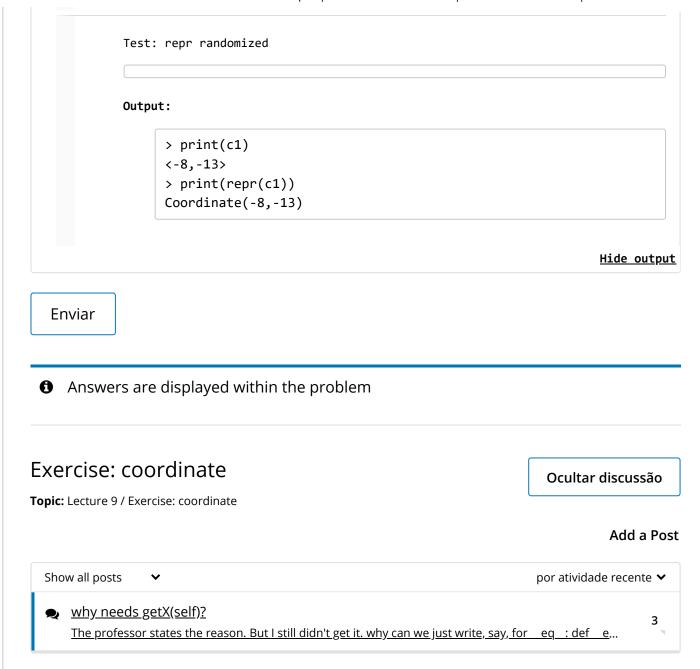
### Output:

```
> print(c1)
<2,0>
> print(c2)
<-11,-17>
> print(c1 == c2)
False
```

Test: repr

#### Output:

```
> print(c1)
<17,38>
> print(repr(c1))
Coordinate(17,38)
```



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