

## Object Oriented Programming

### Homework Assignment

**Problem 1** Fill in the Line class methods to accept coordinates as a pair of tuples and return the slope and distance of the line.

```
class Line(object):

    def __init__(self,coor1,coor2):
        self.coor1 = coor1
        self.coor2 = coor2

    def distance(self):
        x1,y1 = self.coor1
        x2,y2 = self.coor2
        return ((x2-x1)**2 + (y2-y1)**2)**0.5

    def slope(self):
        x1,y1 = self.coor1
        x2,y2 = self.coor2
        return (y2-y1)/(x2-x1)

coordinate1 = (3,2)
coordinate2 = (8,10)

li = Line(coordinate1,coordinate2)

li.distance()

9.433981132056603

li.slope()

1.6
```

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**Problem 2** Fill in the class

```
class Cylinder:

    def __init__(self,height=1,radius=1):
        self.height = height
        self.radius = radius

    def volume(self):
```

```
        return self.height*3.14*(self.radius)**2

    def surface_area(self):
        top = 3.14 * (self.radius)**2
        return (2*top) + (2*3.14*self.radius*self.height)

c = Cylinder(2,3)
c.volume()
56.52
c.surface_area()
94.2
```