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.

```python
In [1]:  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)
```

```python
In [2]:  coordinate1 = (3,2)
         coordinate2 = (8,10)

         li = Line(coordinate1,coordinate2)
```

```python
In [3]:  li.distance()
```

```
Out[3]:  9.433981132056603
```

```python
In [4]:  li.slope()
```

```
Out[4]:  1.6
```

Problem 2

Fill in the class

```python
In [5]:  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)
```

In [6]: `c = Cylinder(2,3)`

In [7]: `c.volume()`

Out[7]: 56.52

In [8]: `c.surface_area()`

Out[8]: 94.2