Lecture 12: Classes

A Point class

```
1  import math
2
3  class Point:
4
5      origin = Point(0,0)
6
7      def __init__(self, x, y):
8          self.x = x
9          self.y = y
10
11     def add(self, pt):
12         return Point(self.x + pt.x, self.y + pt.y)
13
14     def __add__(self, pt):
15         return self.add(pt)
16
17     def __repr__(self):
18         return "Point({},{})".format(self.x, self.y)
19
20     def distance(self, pt):
21         return math.sqrt((self.x - pt.x)**2 + (self.y - pt.y)**2)
```

A Rect class

```
1  class Rect:
2
3      def __init__(self, pt0, pt1):
4
5      def width(self):
6
7      def height(self):
8
9      def area(self):
```

A Rect class

```
1   class Rect:
2
3       def __init__(self, pt0, pt1):
4           self.pt0 = pt0
5           self.pt1 = pt1
6
7       def width(self):
8           return self.pt0.distance(Point(self.pt1.x, self.pt0.y))
9
10      def height(self):
11          return self.pt0.distance(Point(self.pt0.x, self.pt1.y))
12
13      def area(self):
14          return self.width() * self.height()
```