

CS150 - Classes (Ch. 6)

Note Title

2/17/2012

Announcements

- HW is due Tuesday (not Monday)
- Next Friday - in class review
- Following Monday is midterm 1 up through Ch. 5.2

Objects

We've seen many objects.

Each is a "container" for some kind of data, and comes paired with a set of operations, called methods.

Examples:

lists: sort, reverse, [], [:], ...

strings: [:], in, index, ...

mylist.sort()

list()
str()

Writing a class

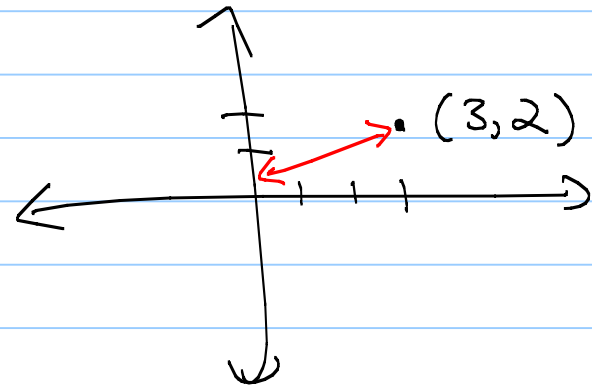
Today we'll start our first class.

We have ints + floats, but in 2-dimensional geometry, a point is a pair of numbers: (x, y)

Methods

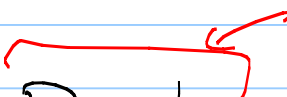
Operations on points

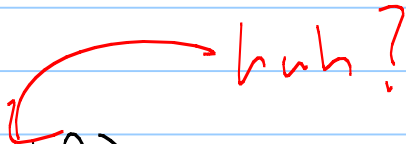
- constructor
- norm
- $p1 + p2$
 $(x_1 + x_2, y_1 + y_2)$
- scale
- ⋮



myList

Point class: Syntax

class Point:  name of class (always capitalized)

constructor
def __init__(self):  huh?

[code for constructor
(builds a point)

other functions
def setX(self, value):

Self:

What is the input parameter self?

Think of how we'll use this:

```
p1 = Point() ← calling constructor
p2 = Point()
p1.setX(3)
p1.setY(2)
p2.setX(4)
p3 = Point()

p3 = p1 + p2
```

"self" — which point is this method being called for.

Basic point class

Let's code a basic point class.

Methods:

- Constructor
- get X, set X
- get Y, set Y

Once we get these working, we'll extend to add, scale, etc. ∪