PIC 16, Winter 2018

Lecture 3W: Classes

Wednesday, January 24, 2018

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Announcements

- Assignment 2F due
- Office hours after class delayed until 1 p.m.; I'll stay longer

Intended Learning Outcomes

By the end of lecture, students are intended to be able to:

- convert numerics and objects to strings;
- define a class, including class variables, instance variables, methods, and a custom constructor;
- instantiate objects, manipulate class and instance variables, and call object methods; and
- write “magic methods” to enable built-in operators, functions, and constructs to work with your classes.

Activities

- Finish assignment 2F
- Work on assignment 3M
- Start assignment 3W
- Activity: see Fall 2017 Final Exam (Optional) Part II

Differences between C++/Java and Python

- "magic methods" vs operator overloading
- no truly private variables
- no interfaces/abstract methods
- multiple inheritance (but we'll talk about this later)
- no `static`, but class variables are similar
- won't write "constructor"; we write an "initializer"
- can create class/instance variables "on the fly"

str, repr

```
class C(object):

    def __str__(self):
        print “str”
        return "a"

    def __repr__(self):
        print “repr”
        return "b"

c = “c”
c = C()
print c
```

What prints?

Class/Instance variables

```
class MyClass:
    a = 1;
print MyClass.a


o = MyClass()
print MyClass.a
print o.a

o.a = 2
print MyClass.a
print o.a

del o.a
print MyClass.a
print o.a
```

Overloading Initializers

- Can we overload initializers?