Announcements
- HW3 is due tonight
- HW4 is posted, due in 1 week
- Midterm 1 will be next week, cover material up through 5.2
Last time:
def def name_of_function(input1,...inputk):
    # Normal program code to run
    functions go at the top
    return value
Ex: Finding longest element in a list

There is a `max` function in the list class. Uses `>=` comparison to find maximum.

On a list of strings, which string will it return? `'Apple' < 'Jello' → last in alpha. order`

Write function to find longest string in a list.
**Function inputs**

When the function is run, the program essentially sets each variable equal to what it will be called in the function.

Ex: `def print_a(a):
    print 'a=', a

print_a(3)
print_a('b')`
Mutable versus immutable

What's the difference?

- mutable: changeable - lists
- immutable: can't be changed - tuples, strings

Python treats these very differently inside a function.
Example

def func (a, b):
a += 1
b . append (1)

a = 1
b = [1]

x = 1
y = [1]
y = func (x, y)
print

Output: x is 1
y is [1, 1]
Optional Parameters

In functions, you can specify input parameters that are optional. This means if the main program specifies parameters, the function will use those. Otherwise, the function will plug in the optional parameters automatically.
Ex:

def countdown():
    for i in range(10):
        print i

Add input parameters, @then optional ones:
Practice Problems

Practice 5.18: Do this problem by hand, then code it and see if you were right.

Practice 5.19: Redo our gcd algorithm as a function gcd(a, b).