



"I don't want to come off as arrogant here, but I'm the greatest botanist on this planet." (Go watch *The Martian*!)

Week 3: Lists

Notes for today

- Checking exercises today for awarding points!
 - Deadline: 11:59 today for Exercises 01
 - Point structure as described on website:
 - 2 points per correct normal problem submitted before deadline
 - 3 points per correct bonus part/advanced problem submitted before deadline
 - 1 point per correct normal problem submitted after deadline
 - 0 points per bonus part/advanced problem submitted after deadline
- Add me on Miitomo!
- Short lecture today since I'll be checking exercises at the beginning; I'll post more slides later since these are kind of sparse
- Big news: Python 3.6 is out now with cool new features!

A sneak peek at lists

A **list** is a **mutable** sequence of items. By "mutable," we mean that you can change the list (such as by adding items to the list or changing the items in the list).

You can construct lists with brackets. Lists are zero-indexed, meaning that the first item in a list has index 0, the next item has index 1, and so on...

You can retrieve the first item from list `a` by typing `a[0]`.

Examples:

```
a = [] # empty list
b = [2, 3, 5, 7]
c = ["Hello", "Goodbye"]
d = ["Hello", 32] # lists can contain items of
                  # different types
```

List Methods

You can find these on the documentation!

Consider a list named `abc`.

`abc.append(x)` – add an item `x` to the end of a list

`abc.extend(L)` – add a list `L` to the end of a list

`abc.insert(i, x)` – insert an item `x` at a given index `i`

`abc.index(x)` – return the index of item `x`

`abc.count(x)` – return the number of occurrences of `x` in the list

`abc.sort()` – sort list `abc`

`abc.reverse()` – reverse list `abc`

Stacks and LIFO

- Stacks – pop() and append()
- Demonstration!



List comprehensions (super big deal)

This is possibly one of Python's most famous features in terms of power and potential.

You can create new lists based on previous lists!
[function for item in list]

Topics today:
 basic usage
 filtering with if

If we have time...

A sneak peek at dictionaries!