

## Outline for May 13, 2014

**Reading:** *text*, §11, 18

**Assignment due:** Homework #3, due May 21, 2014

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1. Program to compute some statistics [*addup.py*]
2. What you can do with lists
  - a. Check membership: `in`, `not in`
  - b. `+`: concatenation
  - c. `*`: repetition
  - d. `list[a:b]`: slice list from  $a$  to  $b - 1$
  - e. `del list[i]`: delete element `list[i]`;  $i$  can be a slice
3. Objects, references, aliasing
  - a. For strings, one copy: assume `a = "banana"`
    - i. After `b = a` or `b = a[:]`, then `a is b` is `True`
  - b. For lists, multiple copies: assume `A = [ 1, 2, 3 ]`
    - i. After `B = A`, then `A is B` is `True`
    - ii. After `B = A[:]`, then `A is B` is `False`
4. `enumerate(L)` produces pairs (*index*, *list element*)
5. Lists as parameters: can change list elements in function and they are changed in caller [*args2.py*]
  - a. Add elements to, remove elements: `L.append(x)`, `L.extend(l)`, `L.insert(i, x)`, `L.pop()`, `L.remove(x)`
  - b. Element ordering: `L.reverse()`, `L.sort()`
  - c. Other: `L.count(x)`, `L.index(x)`
6. Tuples
  - a. Used to group data
  - b. Like lists, but immutable
7. Recursion
  - a.  $n$  factorial [*nfact.py*]
  - b. Fibonacci numbers [*rfib.py*]
  - c. Sum of digits [*sumdigits.py*]