Outline for February 7, 2018

Reading: §8

1. Lists
   a. Sequence of values (ints, floats, strings, other lists, etc.)
   b. Denoted by square brackets [ ] with values separated by commas
   c. Lists are mutable
   d. How to create a list
2. Program to print words in a line [lines.py]
3. 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
4. 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
5. `enumerate(L)` produces pairs (index, list element)
6. 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(ls), L.insert(i, x), L.pop(), L.remove(x)
   b. Element ordering: `L.reverse(), L.sort()`
   c. Other: `L.count(x), L.index(x)`
7. Tuples
   a. Used to group data
   b. Like lists, but immutable
8. Recursion
   a. $n$ factorial [nfact.py]
   b. Fibonacci numbers [rfib.py]
   c. Sum of digits [sumdigits.py]