Finishing the List class.

1. Questions?

2. We finish building the List, an extensible array structure.

   (a) Recall: Based on arrays of Objects. The length cannot be changed. Instead, we allocate new space, periodically, and keep it up to date.

   (b) Recall: We keep track of data, size, allocation.

   (c) Recall: ensureCapacity(int n) allows us to check to see if a Vector has the ability to hold n values.

   (d) We continue by implementing the following methods:
      
      i. insert(int i, Object v). Insert a value at a specific location.
      ii. contains(Object v). Check to see if the List contains a value.
      iii. remove(Object v). Remove an object by value.
      iv. indexOf(Object v). A function that ends up simplifying our other functions.

   (e) As we implement container classes, we worry about the time and space required.

   (f) In languages like Java (and Python), unused objects are silently collected and their memory is recycled. Still, we have to be attentive to possible memory leaks by dereferencing garbage as necessary.

   (g) We use, where possible, assertions to perform basic testing. These must be explicitly enabled at runtime with the -ea switch.

3. Steps from here:

   (a) Learn about Java’s interfaces.

   (b) Learn about Java’s generic type system.

   (c) Learn about more data structures.

   (d) See http://www.cs.williams.edu/~bailey/JavaStructures.

   (e) Similar discussions, using Python, are available in Python Structures. See Duane if you’re interested.