Lecture 27: Collections Cont

Last time:
1. Collections: Stack
Today
1. Collections: Array List
2. For/each looping construct
3. String Buffer

ArrayList Collection
- Like arrays ... but support for inserting/deleting new elements
  - Sequences of elements
    - All elements must be in same (base) type
  - Syntax: ArrayList<E>
  - Documentation: http://java.sun.com/j2se/1.5.0/docs/api/java/util/ArrayList.html
  - See example: ArrayListExample.java
    - ArrayList<String> a = new ArrayList<String>();
      Creates an ArrayList of strings
    - Reason
      * String implements Comparable interface
      * ArrayList<E> implements List<E> interface

for ... each ... in
- New construct available in Java 1.5 (not available in older versions of Java)
- Use with arrays
- Use with any collection
- Limitations:
  - modifications limited
  - can’t modify the list being iterated
  - can’t modify the contents of the element of the list
  - access only one
  - only a single collection can be traversed at a time
  - can’t access the one before or the one after on this iteration
  - limited to forward and one at a time
  - can’t traverse the list in the reverse order
  - can’t go to every other element or any variation
Mutable Strings

- **Strings are immutable**
  - Once a String object is created, it cannot be altered
  - For String objects, reference = shallow = deep copying (why?)
- Sometime mutable strings would be handy
  - Sometimes a small change needs to be made to a string (e.g. misspelled name)
  - Don’t want to create a whole new String object in this case
- **StringBuffer: Java’s class for mutable Strings**

---

StringBuffer Basics

- See documentation at: [http://java.sun.com/j2se/1.5.0/docs/api/java/lang/StringBuffer.html](http://java.sun.com/j2se/1.5.0/docs/api/java/lang/StringBuffer.html)

- **Main methods**
  - `append`: add characters to end
  - `insert`: add characters in middle
  - `delete`: remove characters

- **Note**
  - `append, insert` return object of type `StringBuffer`
  - This is alias to object that the methods belong to!
- See `StringBufferExample.java`