Iterators

AP Computer Science
Unit 5
What does it mean to iterate?

- To repeat something; To do the same thing again
- Iterators in Computer Programming move through a list
- The underlying list is called the...
  - Backing Collection or Store
  - This is where the data is stored
- NEVER make changes to the Backing Store while using an Iterator
- If you have two Iterators in use on the same list DO NOT use the remove method
The Current Position

- Every Iterator must maintain its current position in the list
  - Before the first item (initial position zero)
  - Between two items (you are at position x if you are before the item at position x in the list)
  - After the last item (position n where n is the size of the list)
- If you want to get to the beginning of the list just instantiate a new Iterator on the list
Iterator is an Interface

- **java.util.Iterator** (Page 457 – 459)
  - hasNext()
  - next()
  - remove()

- **java.util.ListIterator** (extends Iterator)
  - hasPrevious()
  - previous()
  - nextIndex()
  - previousIndex()
  - add(obj)
  - set(obj)
Using an Iterator

- To instantiate an Iterator on a list named mylist
  - Iterator iter = mylist.iterator();
- To Iterate to the end of a list
  - While (iter.hasNext())
    - obj = iter.next();
Assignments

- Written Assignment
  - Page 462 #1 and #2
- Lab Assignment
  - Traversals (remember triangles, rowmajor, border,...?)
- Reading Assignment
  - Page 457 – 462
- Review Book Assignment
  - Section 4.1