APCS :: Lab 14 – MyArrayList and Dictionary

NOTE: this is one of those times when you need to mentally separate the work on a data structure from what you’re using it for. In this case, the real work is to implement our own version of ArrayList; then we’ll use our dictionary application to make testing it a little more interesting.

Requirements:

I. Data Structures: ArrayList and Iterator

1. Your ArrayList class must implement all the methods outlined in the AP Java subset except ListIterator
2. Finish implementing the Iterator (implement the Java.util.Iterator)
3. Implement the remove method (making sure to fill the gap left by the thing removed)
4. Implement:
   ```java
   public void add(int index, Object o)
   ```
   Which inserts the argument o at the specified index in this list. Starting with the specified index, all elements to the right of the insertion point should be shifted one higher to make room for the new element. Throw an exception if index < 0 || index >= size()
5. implement array doubling/halving for your ArrayList class

II. Usage: Dictionary

1. Modify your Dictionary so that it uses your ArrayList and Iterator instead of java.util’s. Make it work.
2. Improve word lookups using BinarySearch instead of sequential search. – That is, your Dictionary should no longer use an iterator to look for a word, it should use your binary search code.

Turning it in:
You should turn in one zipped up project that contains:

- APList interface (given)
- MyArrayList – implementation of APList using an array as described above
- MyIterator – implementation of java.util.Iterator (non-generic) returning objects
- Dictionary interface (given)
- SpellChecker -- a class and/or main method that checks the spelling of words in some text file – NOTE: this should not need to change from Lab 13.
- Other submission details given on the website.