CIS 111B

Homework Set

Chapter 2 (aka chapter 7 in the full text)

1. Write two programs. The first should use traditional arrays to do each of the tasks listed below. The second should do all the same things with ArrayLists. Describe which structure – the Array or the ArrayList – has the advantage and why!

    a) Create a reference to a list
    b) Add elements to a list - at the end of the list:: NOTE:: really ADD them! Do not overwrite an existing value that is in the list already but ADD A NEW VALUE TO THE LIST.
    c) Add elements to the list in the middle
    d) Add elements to the list at the beginning
    e) Print a list
    f) Remove a specific item from the list:: NOTE:: really DELETE them! Do not just zero out an existing value that is in the list already but DELETE THE VALUE FROM THE LIST.
    g) Compute the size of the list
    h) Double the number of items the list can hold
    i) Finally, just to be super fluent in both, what code would it take to convert an ArrayList into a normal ole' array?

2. Trace out (or video for me) a description of what is happening in the increaseSize() method of the CDCollection class. This is important because this is pretty close to the code that is implemented behind the scenes in the ArrayList class that makes it behave so nicely when it is about to run out of room !

3. " The ArrayList is no better than an array since it can only store homogeneous data – that is all the data needs to be the same type." Confirm or refute! Back up your position with code!

4. You've constructed an ArrayList of Strings with the names of the founding members of the Beatles. Now :

    band.remove(band.indexOf("Pete"));

    a. What does this line do?
    b. How does this compare to the use of a plain old array of Strings ?
    c. How does it compare to the use of an **associative array**, like a **HashMap** ?
    d. What is a List in Java ?

e. Investigate these terms and then explore the Collections framework in Java and show how to use them.