Assignment 04

3/24/2010

1. Answer the following questions:

   (a) What is the primary difference between a Set and a Map?

   (b) What happens when you add a primitive type value to a collection?

   (c) What benefits does the *enhanced for* statement provide for array processing? What are its limitations?

   (d) What would be your approach for a collection containing heterogeneous objects?

2. Given the following abstraction:
   A book is a collection of chapters, each of which is a collection of pages. code the Book, Chapter, and Page classes.

   (a) Invent whatever attributes you think would be relevant, taking advantage of collections as attributes where appropriate.

   (b) Include methods in the Chapter class for adding pages, and for determining how many pages a chapter contains.

   (c) Include methods in the Book class for adding chapters, for determining how many chapters the book contains, for determining how many pages the book contains (hint: use delegation!), and for printing out a book's table of contents.

   (d) Write a simple driver program to put them through their paces.

3. Complete the printSortedNonDuplicates in the SetTest class in order to print a sorted list of all non-duplicate colors.

4. Modify the MyIntCollection class to add a method *remove(Integer o)* that, when invoked, removes *o* from the collection. (hint: you need two new methods, one for update the largestInt and another for the smallestInt)
   (hint: If you use an iterator)

   ...
   Iterator<Integer> it = this.iterator();
   while(it.hasNext()){
   int b = it.next(); //Do what you need to do...
   ...

5. [Optional] Modify both, MyIntCollection and MyIntCollection2 classes to add a method called printSortedContents that, when invoked, prints the contents of the collection in sorted order. You may make whatever changes you wish to the private details of the class in accommodating this new behavior. Was accommodating this new requirement significantly easier with one version of the custom collection than with the other?

Source code for exercises **3** and **4** available here