Study questions set #7

1. Conceptually speaking, the Stack data structure is best classified by which category of collections?
   a. Sets
   b. Lists
   c. Queues/Deques
   d. Maps

2. Rewrite each of the following loops; first using a for-each loop (if possible), and then using an iterator. If it is not possible to rewrite using a for-each loop, state why not.

   ```java
   for(int i = 0; i < arrayList.size(); i++) {
       System.out.println(arrayList.get(i));
   }
   
   for(int i = 0; i < arrayList.size(); i++) {
       arrayList.set(i, arrayList.get(i)+1);
   }
   
   for(int i = 0; i < arrayList.size(); i++) {
       if(arrayList.get(i) % 2 == 0) {
           arrayList.set(i, arrayList.get(i) % 3);
       }
   }
   
   for(int i = 0; i < arrayList.size(); i++) {
       if(arrayList.get(i) % 2 == 0) arrayList.remove(i);
   }
   ```

3. Implement a generic, public, static method called “genericZip(…)“. This method will take two arguments: an array of keys, and an array of values. The method will return the corresponding HashMap, in which the key at index i is mapped to the value at index i. If the arrays are different lengths, throw an IllegalArgumentException. If a key occurs more than once, the highest-index mapping should result. The data-types stored in each array must be parameterized.