



RE-BOOTCAMP

Collections

QUESTIONS

- Difference between Array vs ArrayList?
 - Arrays have fixed sizes
ArrayLists' size is automatically adjusted
 - Arrays can hold primitives and object
ArrayList can hold only objects
 - Array is a build in data structure
ArrayList is implementing class of List interface in Collection framework

QUESTIONS

- List vs Set

List > Ordered and Indexed Collection, May contain duplicates

Set > Collection of Unique values, not ordered, no indexing

- Do you use data structures in your current automation project?

- Yes, I am very comfortable with data manipulations using Arrays, Collections framework, maps etc. I choose my data structure based on my data and requirements.

EXAMPLES

- I have used TreeSet to print dropdown list in for non duplicate values and ascending order
- I have used HashMaps to compare values from a database with expected values

QUESTIONS

- What is the difference ArrayList vs LinkedList?
 - ArrayList is array based, internally uses array
 - LinkedList is a doubly linked list
 - LinkedList consists of nodes/values that are related to each other
 - ArrayList and LinkedList both maintain ordering
 - ArrayList and LinkedList both allow duplicates
 - ArrayList is better to store and get information. LinkedList is better to manipulate information

QUESTIONS

- Difference between ArrayList vs Vector?
 - ArrayList is not thread safe/not synchronized
 - Vector is thread safe/synchronized
 - ArrayList is faster than Vector
 - Both allow duplicate values and keep ordering
 - Both are implementations of List interface

QUESTIONS

- Iterator vs ListIterator
 - Iterator will cycle through the elements from beginning to end, but ListIterator is able to go in both directions.
 - Iterator can be used in any collection type which implements the collection interface, but ListIterator can only be used for the classes that implement List
 - There is a remove method for Iterator, but ListIterator has more operations available like add, set, remove

QUESTIONS

- Difference between HashMap and Hashtable?
 - Hashtable is thread-safe/synchronized | HashMap is not thread safe and faster
 - Hashtable does not allow any null key | HashMap allows one null key
- Difference between HashMap and TreeMap?
 - HashMap doesn't maintain any order | TreeMap will store keys in ascending order
 - HashMap can have one 'null' key | TreeMap cannot have any 'null' key
 - Neither HashMap nor TreeMap are synchronized

QUESTIONS

- Difference between HashSet and TreeSet?
 - Both are implementing the Set interface
 - HashSet performs better than TreeSet
 - HashSet doesn't guarantee any ordering, but TreeSet will maintain natural order
- How can you avoid the ConcurrentModificationException while iterating through collections?
 - You shouldn't change the collection during the iteration, but if you need to you can use an object such as ConcurrentHashMap which is similar to HashMap but will allow you to make modification during iteration

COLLECTION FRAMEWORK KEY POINTS

- All collections are Iterable and all collections are core interface. sync (means slow) not sync (means fast)
- LIST: Can store duplicate values, maintains / keeps the insertion order. It allows any number of null values; from list we can read a certain value by index.
 - ArrayList(not sync), LinkedList(not sync, can work as stack, queue and dequeue) and Vector(sync)=>(all are class and it implements list)
- SET: can only store unique values (no duplicates), and does not maintain order
 - HashSet(not sync, no order, allow null), LinkedHashSet(no sync, ordered, allow null, and maintains double LinkedList) and TreeSet(sorted in ascending order(S-L))=>(all are class and it implements Set). Sorted set(not sync, ordered, comparable interface and it extends Set)

TASK - 1

- Create a method that will take any String of letters and numbers and sort each substring of numbers and letters

Ex:

Input: "DC501GCCCCA098911"

OutPut: "CD015ACCCCG011899"

TASK - 2

- Create a method that will accept an ArrayList and sort the ArrayList into ascending order (s \rightarrow l).

Do not sure any ready sort method.

\rightarrow How will you do the opposite direction (l \rightarrow s)?

TASK - 3

- Create a method that will accept a String and returns a version that removes duplicate instances of any character

Ex: `removeDup("AAABBBCCCD") ==> ABCD`

TASK - 4

- Create a method that will accept a String and return a version that has only the unique characters.

Ex: `unique("AAABCCCDDEFFS") ==> "BES"`

TASK - 5

- Create a method that will accept a String and be print how many times each characters is found in the String

EXTRA TASKS IF NEEDED

- Anagram with int array counter