

Collections Assignment:-

① Difference b/w Array and collection?

A) Array

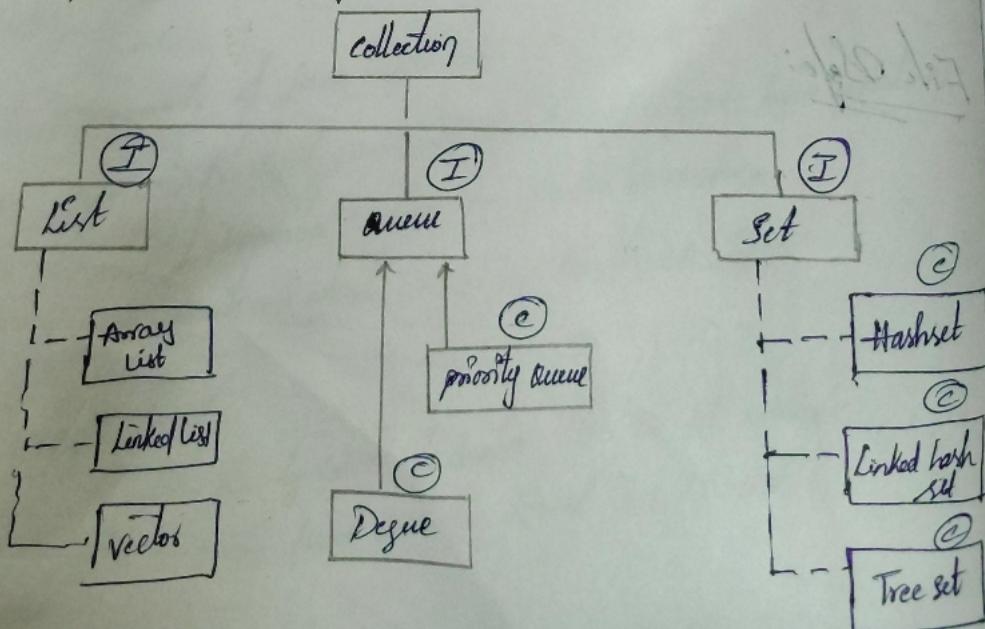
1. Array itself is a data structure and has some restrictions for entering the values
2. Arrays are not growable
3. Array elements cannot be removed
4. Array doesn't allow null values

collection

1. Collection has various data structures available providing freedom to user for manipulating objects
2. Collections are growable
3. In collections elements
4. Collections allow null values.

List:-

2. Explain various interfaces used in collection framework?



Set:-

List:-

The children of list are as follows (Sub classes)

→ ArrayList

→ Vector

→ Linked List

List is adopted when,

a) insertion order is of high priority

b) when insertion & deleting the elements wanted
to be feasible.

c) when sorting is of last priority

Set:-

→ The children of set are

→ HashSet

→ Linked HashSet

→ TreeSet

Set is adopted when

a) Duplicate value is to be removed

b) when we don't want insertion order

c) when we want to do sorting

3) Difference b/w ArrayList and vector?

ArrayList:-

* ArrayList comes from non legacy class (ii) V1.2

* It is not Threadafe and unsynchronized.

* Initially the new capacity is meant to be

$(\frac{3}{2} * \text{old capacity}) + 1$
 (also changed to 50% (i.e., 0.5f load factor))

Vector:

- * Vector comes from legacy class (i.e. v1.6)
- * Vector is synchronized and thread safe (but not fast)
- * The capacity is $(2 * \text{old capacity})$ i.e., 100%.

3) Difference b/w Arraylist and linkedlist?

A) ArrayList

1. Data structure of Array list is growable
2. It is used for data retrieval and when insertion order is highly prioritised.
3. It implements serialization, cloneable and random access

Linked list

1. Data structure of linked list is double linked list
2. used for deletion of data (or) insertion order.

3. It implements serialization, cloneable

5) Difference b/w List Iterator & iterator?

A)

Iterator	List Iterator
* iterator is the wrapper class which is used to fetch the data among other	* List iterator is the interface that extends iterator
* Iterator can only point forward	* List iterator can point in forward and backward

* Iterator
 first - to last

b) Difference

A)

* List
 insertion
 priority

* delete
 recons

* List
 sort

C) Diff

A)

* Has

* S

* Sing

* -

ad factor)

- * Iterator points from first to last
- * List iterators can point to any specified position.

(but not fast)

b) Difference b/w List and Set?

A)

List	Set
* List is adopted when insertion order is high priority	* Set is adopted to remove duplicate values
* Deleting the element is recommended as go to last	* Set is used when insertion order is not mandatory
* List is used when sorting is of last priority	* Set is used when sorting is given priority.

c) Difference b/w HashSet and TreeSet?

A)

HashSet	TreeSet
* Data structure of HashSet is Hash-table	* Data structure of TreeSet is Binary tree
* Iteration order of HashSet is Arbitrary.	* Iteration order of TreeSet is sorted.
* Single null values are allowed	* Null values are not allowed.
* Hashed process is fast compared to TreeSet	* Tree set processing time is slow compared to HashSet

8) Difference b/w HashSet and HashMap?

A)	HashSet	HashMap
	* Duplicate values are not allowed in HashSet	* Duplicate keys are not allowed but duplicate values are allowed
	* Single null value is allowed	* Single null key allowed but multiple null values are allowed.
	* In HashSet we use add() method to add the data	* Here in HashMap we use put() method to add the data

9) Difference b/w HashMap and Hashtable?

A)	HashMap	Hashtable
	* HashMap is non synchronized and not thread safe	* Hashtable is synchronized and thread safe
	* HashMap allows one null key and multiple null values	* Hashtable doesn't allow any null key or value
	* HashMap is fast	* Hashtable is slow
	* HashMap is traversed by iterators	* Hashtable is traversed by Enumeration & Iterator

10) Diff

Ans:-

- * S
- * T
- * C
- * E

11)

A)

10) Difference b/w comparator and comparable?

And	Comparator	Comparable
	* multiple Sorting Sequences	* provides Single Sorting Sequence
	* Comparator doesn't affect the original class (i.e. The actual class is not modified)	* Comparable doesn't affects the original class (i.e. The actual class will be modified)
	* Comparator is present in java.util package	* Comparable is present in java.lang package.
	* Comparator ^{to} provides compare () method to sort elements	* Comparable provides compareTo () method to sort elements

CompareTo();

compares this object with an object
and returns an integer

Compare(); Compares the first object with the second
object and returns an integer

11) How to synchronize list set and map elements?

A) 1. In order to get a synchronized list from an ArrayList
we use ~~get~~ synchronized list (List<T>) method.

2. Collections.synchronizedSet() method is used to synchronize
set elements

3. Collections.synchronizedMap (HashMap) method is used to

Synchronize map elements.

12) What do you understand by fail fast and fail safe?

Ans In java, collections supports two types of iterators they are

1. fail fast 2. These are very useful in exception handling.
2. fail safe.

1. Fail Fast:

The fail fast iterator aborts the operation as soon it exposes failure and stops the entire operation completely.

2. Fail Safe:

The fail safe iterator doesn't aborts the operation in case of failure. Instead it tries to avoid failures as much as possible.

13) Difference between Array and ArrayList?

A)

Array	ArrayList
* Array is a dynamically created object	* The ArrayList is a class of Java collections framework
* Array is static in size	* ArrayList is dynamic in size
* Array is fixed length data structure	* ArrayList is variable length data structure
* It's mandatory to provide size of an array while initializing or with the constructor	* We can create an instance of array list without specifying its size.

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