Java Collection

1 What is collection and collections?

Collection- is an interface

Collections - is a class. Mainly used for sort and synchronise collection elements.

2 Difference between List and Set?

Set- No Duplicates

List-Ordered collection and can have duplicates

3 Array vs ArrayList

Array can contain primitive or objects.

ArrayList can contain only objects.

Arrays are fixed in size.

AL are dynamic in size.

Arrays can be multidimensional

AL are not.

When to go for array----when the size is fixed and elements are of primitive data type ,also when there is a   multidimensional situation.

4 ArrayList vs LinkedList

Both implements list interface. Both are non synchronised. Can be synchronised by Collections.synchronizedLIst() method.

Search option--ArrayList is faster because it maintains index based system for its elements.

Deletion and addition --Linked list is faster because it implements doubly linked list .

Memory consumption is more for LL bcoz it maintains elements and two pointers for neighboring nodes.

5 HashTable vs HashMap

HashTable----Legacy class

                       Synchronised

                      slow

                      No null key and value

                      Traversed by iterator/enumerator

HashMap------Not a legacy class

                       Not Synchronised

                       fast

                       Allows one null key and multiple null values.

                       Traversed by iterator

6 ArrayList vs Vector

ArrayList  - Non synchronised and fast

Vector     - Synchronous and slow

When resized ,AL can grow by half of its size and Vector grows by double the size.

7 Comparable vs Comparator

Comparable -------SIngle sorting experience   (sort with id or name etc)

                     -------java.lang package

                     -------compareTo() method

Comparator --------Multiple sorting (sort with id and name)

                    --------java.util

                    --------compare() method

8 Fail fast and fail safe?

Fail-fast iterator throws ConcurrentModificationException when the collection are modified between an iteration.

Fail-safe iterator will not throw  such exception bcoz they work on a clone of Collection instead of original collection.

9 Iterator and ListIterator?

Iterator-----for traversing on both List and Set, can traverse only in forward direction.

ListIterator---for traversing on List only, can traverse both forward and backward.

10 How to convert ArrayList to Array and Array to ArrayList in java??

1. **public** **class** LengthVsSizeArrayList {
2. **public** **static** **void** main(String[] args) {
3. //creating Arraylist
4. List<String> fruitList = **new** ArrayList<>();
5. //adding String Objects to fruitsList ArrayList
6. fruitList.add("Mango");
7. fruitList.add("Banana");
8. fruitList.add("Apple");
9. fruitList.add("Strawberry");
10. fruitList.add("Pineapple");
11. System.out.println("Converting ArrayList to Array" );
12. **String[] item = fruitList.toArray(new String[fruitList.size()]);**
13. **for**(String s : item){
14. System.out.println(s);
15. }
16. System.out.println("Converting Array to ArrayList" );
17. **List<String>l2 = new ArrayList<>();**
18. **l2 =  Arrays.asList(item);**
19. System.out.println(l2);
20. }