

## 1. Why Map interface doesn't extend Collection interface?

- Set is unordered collection and does not allow duplicate elements.
- List is ordered collection allows duplicate elements.
- Where as Map is key-value pair.
- It is viewed as set of keys and collection of values.
- Map is a collection of key value pairs so by design they are separated from collection interface.

## 2. What is difference between HashMap and Hashtable?

- Synchronization or Thread Safe
- Null keys and null values
- Iterating the values
- Default Capacity

	HashMap	Hashtable
Synchronized	No	Yes
Thread-Safe	No	Yes
Null Keys and Null values	One null key ,Any null values	Not permit null keys and values
Iterator type	Fail fast iterator	Fail safe iterator
Performance	Fast	Slow in comparison
Superclass and Legacy	AbstractMap , No	Dictionary , Yes

[Click here for the Differences between HashMap and Hash-table](#)

## 3. Differences between comparable and comparator?

- Comparable Interface is actually from java.lang package.
- It will have a method compareTo(Object obj) to sort objects
- Comparator Interface is actually from java.util package.
- It will have a method compare(Object obj1, Object obj2) to sort objects

Read more : [comparable vs comparator](#)

## 4. How can we sort a list of Objects?

- To sort the array of objects we will use Arrays.sort() method.
- If we need to sort collection of object we will use Collections.sort().

## 5. What is difference between fail-fast and fail-safe?

- Fail fast is nothing but immediately report any failure. whenever a problem occurs fail fast system fails.
- In java Fail fast iterator while iterating through collection of objects sometimes concurrent modification exception will come there are two reasons for this.
- If one thread is iterating a collection and another thread trying to modify the collection.

- And after remove() method call if we try to modify collection object

## 6. What is difference between Iterator ,ListIterator and Enumeration?

- Enumeration interface implemented in java 1.2 version. So Enumeration is legacy interface.
- Enumeration uses elements() method.
- Iterator is implemented on all Java collection classes.
- Iterator uses iterator() method.
- Iterator can traverse in forward direction only.
- ListIterator is implemented only for List type classes
- ListIterator uses listIterator() method.

Read more :

## What is difference between Iterator ,ListIterator and Enumeration?

## 7. What is difference between Set and List in Java?

- A set is a collection that allows unique elements.
- Set does not allow duplicate elements
- Set allows only one null value.
- Set having classes like :
  - HashSet
  - LinkedHashSet
  - TreeSet
- List having index. and ordered collection
- List allows n number of null values.
- List will display Insertion order with index.
- List having classes like :
  - Vector
  - ArrayList
  - LinkedList

## 8. Differences between arraylist and vector?

- Vector was introduced in first version of java . that's the reason only vector is legacy class.
- ArrayList was introduced in java version 1.2, as part of java collections framework.
- Vector is synchronized.
- ArrayList is not synchronized.

Read more: [Differences between arraylist and vector](#)

## 9. What are the classes implementing List interface?

- ArrayList
- LinkedList
- Vector

## 10. Which all classes implement Set interface ?

- HashSet
- LinkedHashSet
- TreeSet

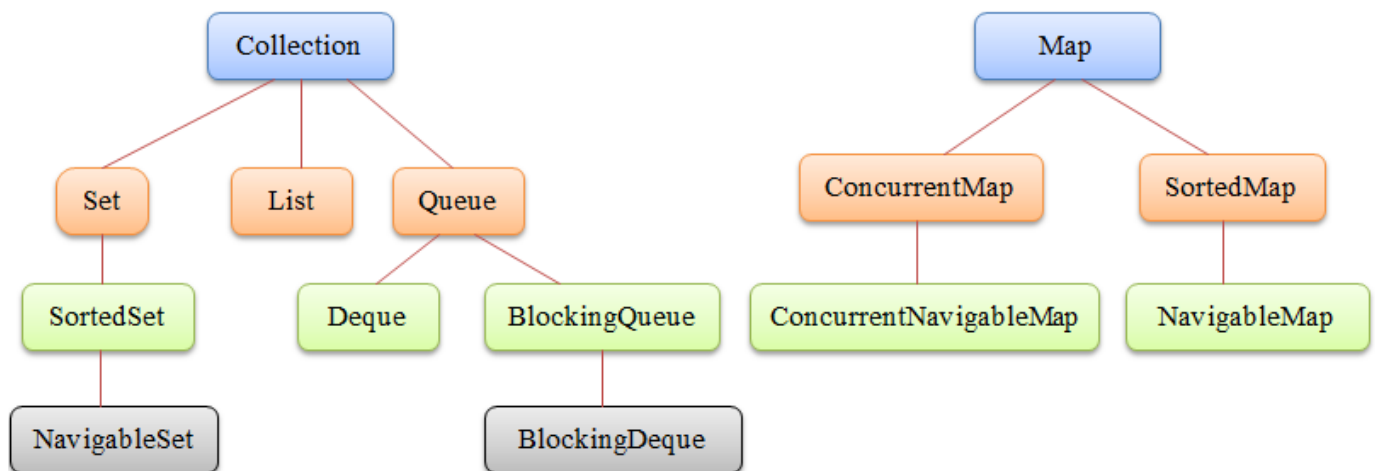
### 11. How to make a collection thread safe?

- Vector, Hashtable, Properties and Stack are synchronized classes, so they are thread-safe and can be used in multi-threaded environment.
- By using `Collections.synchronizedList(list)` we can make list classes thread safe.
- By using `java.util.Collections.synchronizedSet()` we can make set classes thread safe.

### 12. Can a null element be added to a TreeSet or HashSet?

- One null element can be added to HashSet.
- TreeSet does not allow null values

### 13. Explain Collection's interface hierarchy?



[www.instanceofjava.com](http://www.instanceofjava.com)

### 14. Which design pattern Iterator follows?

- Iterator design pattern

### 15. Which data structure HashSet implements?

- HashSet implements HashMap internally.

### 16. Why doesn't Collection extend Cloneable and Serializable?

- List and Set and Queue extend Collection interface.
- SortedMap extends Map interface.

### 17. What is the importance of hashCode() and equals() methods? How they are used in Java?

- equals() and hashCode() methods defined in "Object" class.
- If equals() method returns true on comparing two objects then hashCode() of those two objects must be the same.

### 18. What is the difference between array & ArrayList?

- Array is a collection of similar type of objects and is fixed in size.
- ArrayList is a collection of homogeneous and heterogeneous elements.

### 19. What is the Properties class?

- Properties is a subclass of Hashtable. It is used to maintain lists of values in which the key and the value is String.

## 20.How to convert a string array to arraylist?

- `ArrayList al=new ArrayList( Arrays.asList( new String[]{"java", "collection"} ) );`
- `arrayList.toArray();` from list to array