Assignment-1

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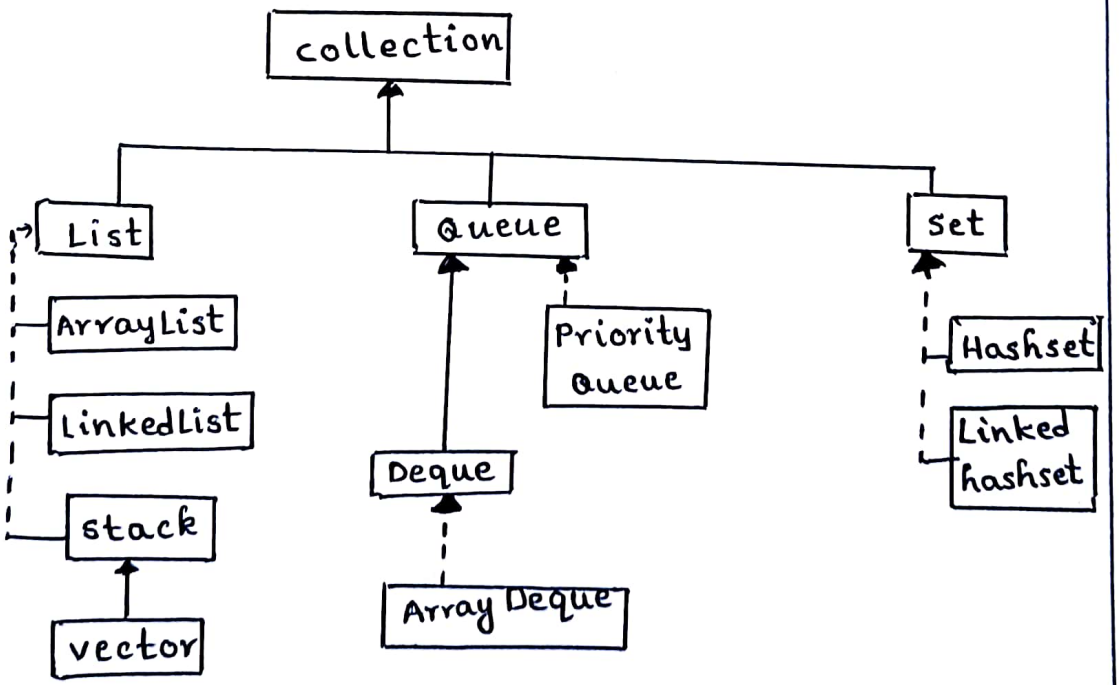
1. What is Collection framework?

A. Any group of individual objects which are represented as a single unit is known as the collection of the objects. In Java, a separate framework named the "Collection Framework" has been defined in JDK 1.2 which holds all the collection classes and interface in it

The Collection interface (java.util.Collection) and Map interface (java.util.Map) are the two main "root" interfaces of Java collection classes.



2. Discuss different methods available under Array List class by suitable example?

A. ArrayList is a part of collection framework and is present in java.util.package. It provides us with dynamic arrays in Java.

Methods in Java ArrayList:

Here, ? (Question Mark) means that method can accept any type of objects even custom objects.

add(int index, Object element) - This method is used to insert a specific element at a specific position index in a list.

add(Object o) - This method is used to append a specific element to the end of a list.

Program:

```
import java.util.*;
public class Sum {
    public static void main(String[] args)
    {
        ArrayList<String> a = new ArrayList<>();
        a.add("Hi");
        System.out.println(a);
    }
}
```

Output:

[Hi]

3. Discuss different methods available under List Iterator by suitable example?

A. ListIterator is one of the four java cursors. It is a java iterator which is used to traverse all types of lists including Arraylist, Vector etc.

void add(E e) - This method inserts the specified element in the list

boolean hasNext() - This returns true if the list has more elements to traverse.

```
import java.util.*;
public class ListIteratorDemo {
    public static void main(String[] args)
    {
      List<String> names = new Linkedlist<>();
      names.add("Hello");
      names.add("World");
      ListIterator<String> d = names.listIterator();
      while(d.hasNext()){
          System.out.println(d.next());
      }
      for (String s: names){
          System.out.println(s);
      }
}
```

4. Discuss different methods available under HashMap class by suitable example?

A. HashMap<k,V> is a part of Java's collection. This class is found in java.util package.

clear() - Remeves all of the mapping from this map.

containsKey(Object key) - Return true if this map contains a mapping for the specified key.

```
import java.io.*;
import java.util.*;
public class Hashmap{
      public static void main(String args[])
      {
         HashMap<Integer,String> hm1= new HashMap<>();
         HashMap<Integer,String> hm2= new HashMap<>();
         hm1.put(1,"geeks");
         hm2.put(1,"geeks");
         System.out.println("HashMap 1 : "+hm1);
         System.out.println("HashMap 2: "+hm2);
      }
}
```

Output:

HashMap 1 : {1=geeks}

HashMap 2 : {1=geeks}

5. Discuss different methods available under Hash Table class by suitable example?

A - Hashtable is an array of a list. Each list is known as bucket. The position of the bucket is identified by calling the hashcode() method. A Hashtable contains values based on the key.

void clear() - It is used to reset the hashtable

Object clone() - It returns a shallow copy of hashtable.

```
import java.util.*;
class Table{
  public static void main(String args[]){
   Hashtable<Integer,String> a=new Hashtable<>();
     a.put(100,"Amit");
     a.put(102,"Ravi");
     a.put(101,"Vijay");
     a.put(103,"Rahul");
     for(Map.Entry m:a.entrySet()){
       System.out.println(m.getkey()+" "+m.getValue());
    }
  }
}
```

Output:

```
103 Rahul
102 Ravi
101 Vijay
100 Amit
```