1. Read and store ‘n’ no. of integer values to Arraylist objects,sort the elements.Find the frequency of a specific element inside the Arraylist.(while storing element give duplicate values)

```
package collection.test;
import java.util.*;
public class Arraylist {
public static void main(String[] args) {
          // TODO Auto-generated method stub
               ArrayList al = new ArrayList();
               int i, n;
               Scanner sc = new Scanner (System.in);
               System.out.println("How many elements ");
               n=sc.nextInt();
               for(i=0;i<n;i++)
               {
               System.out.println("Enter "+ i + " Element ");
                         al.add(sc.nextInt());
               }
               System.out.println("Array elements "+ al);
               System.out.println("Enter an element to find
frequency ");
               int element = sc.nextInt();
               int freq=0, value;
               for(i=0;i<n;i++)
               {
               Object obj= al.get(i);
               value= (int)obj;
               if(value==element)
               freq++;
               }
System.out.println("Frequency of " + element + " is " + freq);
                    }
          }
```

Output:

```
How many elements
5
Enter 0 Element
25
Enter 1 Element
50
Enter 2 Element
75
Enter 3 Element
50
Enter 4 Element
80
Array elements [25, 50, 75, 50, 80]
Enter an element to find frequency
50
Frequency of 50 is 2
```

2. Create a user-defined class to store Books information (bookid,title,author name,price) Add 5 books records into vector and display the same information from vector.

```
package collection.test;

public class Books {
          // TODO Auto-generated method stub
          public String bookid,booktitle,author;
          public float price;
          public Books(String id,String title, String
author,float pr) {
          bookid=id;
          booktitle=title;
          this.author=author;
          price=pr;
          }

          }
package collection.test;
import java.util.Vector;
public class Vector_book {
     public static void main(String[] args) {
          Vector<Books> v = new Vector<Books>();
          v.add(new Books("1" ,"Java Programming", "James
Gosling", 380f));
          v.add(new Books("2" ,"HTML","Tim Berners-
Lee",430f));
          v.add(new Books("3" ,"CSS","Hakon",640f));
          v.add(new Books("4" ,"JavaScript","Brenden",567f));
          v.add(new Books("5" ,"Angular", "Misko
Hevery",489f));
          for(Books b: v) {
          System.out.println("bookid:" +b.bookid + "\n" +
"booktitle:"
          +b.booktitle +"\n"+ "Author:" +b.author+"\n"+
"Price:" +b.price);
          }
     }
}
```

Output:

```
bookid:1
booktitle:Java Programming
Author:James Gosling
Price:380.0
bookid:2
booktitle:HTML
Author:Tim Berners-Lee
Price:430.0
```

```
bookid:3
booktitle:CSS
Author:Hakon
Price:640.0
bookid:4
booktitle:JavaScript
Author:Brenden
Price:567.0
bookid:5
booktitle:Angular
Author:Misko Hevery
Price:489.0
```

3. Use Hashtable to store key and value pair of booktitle and category.Store 10 records and display the same.

```
package collection.test;
import java.util.Enumeration;
import java.util.Hashtable;
public class HashTable1{
public static void main(String[] args) {
// TODO Auto-generated method stub
Hashtable ht=new Hashtable();
ht.put("C language", "ComputerScience");
ht.put("The girl in the room 105", "Mystery");
ht.put("The way of Kings", "Fantasy");
ht.put("The Silent Patient", "Thriller");
ht.put("Frankenstein ", "ScienceFiction");
ht.put("Heart of Darkness", "Adventure");
ht.put("The Art of War", "Philosophy");
ht.put("The Water Dancer", "Fantasy");
ht.put("Bird Box", "Horror");
ht.put("The Queen of Hearts", "Women's Fiction");
Enumeration e = ht.keys();
while (e.hasMoreElements())
{
String key = (String) e.nextElement();
Object value = ht.get(key);
System.out.println(key + " - " + value);
}
Enumeration values = ht.elements();
ht.elements();

}
     }
```

```
Output:
The Silent Patient - Thriller
Heart of Darkness - Adventure
The Queen of Hearts - Women's Fiction
The Art of War - Philosophy
The girl in the room 105 - Mystery
```

Bird Box - Horror
The way of Kings - Fantasy
Frankenstein - ScienceFiction
C language - ComputerScience
The Water Dancer - Fantasy