1.Read and store 'n' no. of integer values to Array List object, sort the elements.

Find the frequency of a specific element inside the array list. (while store storing element give duplicate entities)

E.g.:

12,1,45,12,56,-34,56,0,23,13,12,56

Frequency of 12 :   3

```java
package jeevan;
import java.util.*;


public class Arraylist_lab {

                public static void main(String[] args)
                {
                        ArrayList al = new ArrayList();//creating object

                        int i, n;  //declration variables
                        Scanner sc = new Scanner (System.in);

                        System.out.println("How many elements ");
//display on the screen
                        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
6
Enter 0 Element
12
Enter 1 Element
66
Enter 2 Element
12
Enter 3 Element
77
Enter 4 Element
12
Enter 5 Element
88
Array elements [12, 66, 12, 77, 12, 88]
Enter an element to find frequency
12
Frequency of 12 is 3
```

2. Create a user defined class to store Books information

(bookid, title, author name, price)


Add 5 books record into vector and display the same information from vector.


```
  package jeevan; //SUBCLASS
```

```java
public class Book {
      public String bkid,bktitle,author;
      public float price;

      public Book(String id,String title, String author,float p)
      {
            bkid=id;
            bktitle=title;
            this.author=author;
            price=p;
            }

}
package jeevan;   //MAIN CLASS
import java.util.*;
public class Vector_implementation {

      public static void main(String[] args) {


            Book obj[] = new Book[5];

            obj[0]= new Book("1","java programming", "james", 340f);
            obj[1]= new Book("2","C progrmming", "Dennis", 1340f);
            obj[2]= new Book("3","Mysql ", "william", 300f);
            obj[3]= new Book("4","AI", "Jegan", 99940f);
            obj[4]= new Book("5","java programming", "Gosling", 2240f);



            Vector<Book> v = new Vector<Book>();


            v.add(obj[0]);
            v.add(obj[1]);
            v.add(obj[2]);
            v.add(obj[3]);
            v.add(obj[4]);



            for(Book b : v) {
                  System.out.println(b.bkid +" "+ b.bktitle + " "+b.author
+" "+b.price);
                  }



      }
}

 OUTPUT:
 1 java programming james 340.0
2 C progrmming Dennis 1340.0
```

```
3 Mysql  william 300.0
4 AI Jegan 99940.0
5 java programming Gosling 2240.0
```

3. use Hastable to Store key and value pair of  book title and category.
Store 10 records and display the same.

```java
  package jeevan;
import java.util.Enumeration;
import java.util.Hashtable;
public class Hash_table
{
public static void main(String[] args) {


                            Hashtable<String, String> hashtable = new
Hashtable<>();
                            // Adding elements to the hashtable
                            hashtable.put("C programming", "IT");
                            hashtable.put("Bhagavat Geeta", "Religious");
                            hashtable.put("Road not Taken", "Literatur");
                            hashtable.put("Book2", "Non-fiction");
                            hashtable.put("Game of thrones", "fantasy");
                            hashtable.put("Dear stranger i know how you feel",
"Romance");
                            hashtable.put("I Robot", "Science Fiction");
                            hashtable.put("Steve jobs", "Biography");
                            hashtable.put("The rise and fall of the third
reich", "Histroy");
                            hashtable.put("The lord of the Rings", "Fantasy");


                            // Getting values from the hashtable
                            String valueA = hashtable.get("Road not Taken");
                            System.out.println("Value of Road not Taken: " +
valueA);

                            // Enumerating the elements of the hashtable
                            Enumeration<String> keys = hashtable.keys();
                            while (keys.hasMoreElements()) {
                                    String key = keys.nextElement();
                                    System.out.println("Key: " + key + ", Value:
" + hashtable.get(key));
                            }
                    }
            }


  OUTPUT:
  Value of Road not Taken: Literatur
Key: Book2, Value: Non-fiction
Key: The lord of the Rings, Value: Fantasy
Key: The rise and fall of the third reich, Value: Histroy
Key: Road not Taken, Value: Literatur
```

```
Key: Game of thrones, Value: fantasy
Key: Bhagavat Geeta, Value: Religious
Key: Steve jobs, Value: Biography
Key: C programming, Value: IT
Key: I Robot, Value: Science Fiction
Key: Dear stranger i know how you feel, Value: Romance
```