

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 Tsgol.com;
import java.util.*;
public class Intarraylist {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the number of integers: ");
        int n = sc.nextInt();

        ArrayList<Integer> al= new ArrayList<Integer>();

        System.out.println("Enter " + n + " integers:");
        for(int i=0; i<n; i++) {
            int num = sc.nextInt();
            al.add(num);
        }

        Collections.sort(al); // Sorts the elements in ascending order

        System.out.print("Enter an integer to find its frequency: ");
        int element = sc.nextInt();

        int freq = Collections.frequency(al, element);

        System.out.println(element + " appears " + freq + " times in the list.");
    }
}
```

Output:

```
Enter the number of integers: 8
Enter 8 integers:
```

```
10 12 15 20 4 24 20 6
```

Enter an integer to find its frequency: 20

20 appears 2 times in the list.

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 Collections.test;
public class Books {
    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 Collections.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 Collections.test;
import java.util.Enumeration;
import java.util.Hashtable;
public class Hashtable_demo {
    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