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Q1. 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

```
package LAB3;
import java.util.*;
public class Array_List {

	public static void main(String[] args) {
		ArrayList<Integer> al = new ArrayList<Integer>();
		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
8
Enter 0 Element
25
Enter 1 Element
69
Enter 2 Element
12
Enter 3 Element
36
Enter 4 Element
12
Enter 5 Element
85
Enter 6 Element
12
Enter 7 Element
69
Array elements [25, 69, 12, 36, 12, 85, 12, 69]
Enter an element to find frequency
12
Frequency of 12 is 3
```

Q2. 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 LAB3;
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 LAB3;
import java.util.*;
public class Book_implementation {

	public static void main(String[] args) {
		Book obj[] = new Book[5];

		obj[0]= new Book("1","java programming", "james",550f);
		obj[1]= new Book("2","C progrmming", "Dennis",2000f);
		obj[2]= new Book("3","Mysql ","william",600f);
		obj[3]= new Book("4","AI","Jegan", 952f);
		obj[4]= new Book("5","java programming", "Gosling", 670f);

		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 : 550.0
2, C progrmming : Dennis : 2000.0
3, Mysql : william : 600.0
4, AI : Jegan : 952.0
5, java programming : Gosling : 670.0

Q3. use Hastable to Store key and value pair of book title and category. Store 10 records and display the same.

```
package LAB3;

import java.util.Enumeration;

import java.util.Hashtable;

public class Book_Title {


    public static void  main(String[] args) {

        Hashtable<String, String> hashtable = new Hashtable<>();


        // Adding elements to the hashtable

        hashtable.put("Phython ", " IT ");

        hashtable.put("Ramayan", "Epic poetry");

        hashtable.put("Nightingale of India","LyricPoetry");

        hashtable.put("Shinchan", "Cartoon");

        hashtable.put("As You Like It ", "Drama");

        hashtable.put("charlie chaplin", "Autobiography ");

        hashtable.put("Harry Potter", "Fantasy");

        hashtable.put("Fiction ", "Novel");

        hashtable.put("Troy", "Epic historical  ");

        hashtable.put("Bhagavad Githa", "Hindu scripture");


        // Getting values from the hashtable

        String valueA = hashtable.get("As You Like It ");

        System.out.println("As You Like It: " + valueA);
```

```
            System.out.println();


            // 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:

```
As You Like It: Drama

Key: Nightingale of India, Value: LyricPoetry
Key: charlie chaplin, Value: Autobiography
Key: As You Like It , Value: Drama
Key: Ramayan, Value: Epic poetry
Key: Bhagavad Githa, Value: Hindu scripture
Key: Shinchan, Value: Cartoon
Key: Phython , Value:  IT
Key: Fiction , Value: Novel
Key: Harry Potter, Value: Fantasy
Key: Troy, Value: Epic historical
```