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 collections.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);

}

// Sort the elements in ascending order

Collections.sort(al);

// Find the frequency of specific element inside the arraylist

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: 12

Enter 12 integers:

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

Enter an integer to find its frequency: 12

12 appears 3 times in the list.
```

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 collections.com;

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.com;

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
```

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

```
package collections.com;

import java.util.Hashtable;

import java.util.Enumeration;


public class BookTable {

	public static void main(String[] args) {
```

```
        Hashtable<String, String> bt = new Hashtable<>();

        // Add book title and category pairs to the Hashtable
        bt.put("Dune", "Fiction");
        bt.put("Into Thin Air", "Non-fiction");
        bt.put("Girl in Room 105", "Mystery");
        bt.put("Science Fiction", "Sci-Fiction");
        bt.put("Game of Thrones", "Fantasy");
        bt.put("Steve Jobs", "Biography");
        bt.put("Why I Am an Atheist", "History");
        bt.put("Twilight", "Romance");
        bt.put("One Arranged Murder", "Thriller");
        bt.put("Man's Search for Meaning", "Self-help");

        Enumeration<String> s = bt.keys();
        while (s.hasMoreElements()) {
            String bookTitle = s.nextElement();
            String category = bt.get(bookTitle);
            System.out.println( bookTitle+ ":" +  category);

        }
    }

}
```

Output :

```
Dune:Fiction
```

```
Why I Am an Atheist:History

Into Thin Air:Non-fiction

One Arranged Murder:Thriller

Science Fiction:Sci-Fiction

Girl in Room 105:Mystery

Man's Search for Meaning:Self-help

Game of Thrones:Fantasy

Steve Jobs:Biography

Twilight:Romance
```