**1.Read and store ‘n’ no. of integer values to ArrayList object, sort the elements.**

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

**Eg:**

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

**Frequency of 12 :  3**

**package** Collections.test;

**import** java.util.\*;

**public** **class** ArrayList\_Lab {

**public** **static** **void** main(String[] args)

{

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**

**12**

**Enter 0 Element**

**12**

**Enter 1 Element**

**1**

**Enter 2 Element**

**45**

**Enter 3 Element**

**12**

**Enter 4 Element**

**56**

**Enter 5 Element**

**-34**

**Enter 6 Element**

**56**

**Enter 7 Element**

**0**

**Enter 8 Element**

**23**

**Enter 9 Element**

**13**

**Enter 10 Element**

**12**

**Enter 11 Element**

**56**

**Array elements [12, 1, 45, 12, 56, -34, 56, 0, 23, 13, 12, 56]**

**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** Collections.test;

**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);

}

}

}

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

**package** Collections.test;

**import** java.util.Enumeration;

**import** java.util.Hashtable;

**public** **class** HashTable\_demo1 {

**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");

// 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: Road not Taken, Value: Literatur**

**Key: Bhagavat Geeta, Value: Religious**

**Key: C programming, Value: IT**