Exercise - 4 (Static)

Aim: Define a class called Book Store to maintain the record of books sold. The store contains three categories of books i.e. "Kids", "Engineering", and "Story". The following details should be maintained for each book. Book category, Author, Title, Publisher, Selling price of the book, Quantity. Create a constructor that initializes the Store ID and the rest of the details of the book mentioned above. Include a method named track Sales Status that will display the total number of books sold by the store (add a static variable that tracks the total number of books sold). Also, include a method to display the quantity available corresponding to each Book ID. Write a main method to test your class.

Program:

```java
import java.util.Scanner;
public class BookStore
{
   private String category,id;
   private String author;
   private String title;
   private String publisher;
   private double sellingPrice;
   private int qty;
   private static int total_books;
   public BookStore(String id,String category,String author,String title,
         String publisher,double sellingPrice,int qty)
   {
     this.id=id;
     this.category=category;
     this.author=author;
     this.title=title;
     this.qty=qty;
     this.publisher=publisher;
     this.sellingPrice=sellingPrice;
     this.total_books=this.total_books+qty;
   }
   public static void trackSalesStatus()
   {
     System.out.println("Total no. of books sold: "+total_books);
   }
   void displayQuantity()
   {
     System.out.println("Book "+id+" is found and available quantity: "+qty);
   }
   public String getId()
   {
     return id;
   }
   public static void main(String[] args)
   {
     String id,publisher,category,author,title;
     double price;
     int qty;
```

```java
        Scanner sc=new Scanner(System.in);
        int size;
        System.out.println("Enter no.of books to be created: ");
        size=sc.nextInt();
        BookStore bs[]=new BookStore[size];
        for(int i=0;i<size;i++)
        {
            System.out.println("Enter %d book datails: "+(i+1));
            System.out.println("ID: ");
            id=sc.next();
            System.out.println("Category: ");
            category=sc.nextLine();
            System.out.println("Author: ");
            author=sc.nextLine();
            System.out.println("Title: ");
            title=sc.nextLine();
            System.out.println("Publisher: ");
            publisher=sc.nextLine();
            System.out.println("Price: ");
            price=sc.nextDouble();
            System.out.println("Quantity: ");
            qty=sc.nextInt();
            bs[i]= new BookStore(id,category,author,title,publisher,price,qty);
        }
        BookStore.trackSalesStatus();
        System.out.println("Enter book id to get details: ");
        id=sc.next();
        for(int i=0;i<size;i++)
        {
            if(bs[i].getId().equals(id))
            {
                bs[i].displayQuantity();
                break;
            }
        }
    }
}
```

Output:

Exercise - 5 (Methods)

Aim: a) You are running a courier agency. The weight of a parcel determines the number of stamps that will be needed to send that parcel. For each kilogram, a stamp of $2 is needed. Create a class to accept the weight of five parcels in floating-point values. Also, the courier company charges an additional rate depending on where the courier has to be delivered. The charges are $20 for delivery within the city of posting, and $40 for delivery anywhere else in the country. Write a computer program to calculate and display the total cost of each parcel depending on the weight and delivery location of the parcel.

Program:
```java
import java.util.Scanner;
class CourierAgency
{
    private String location[];
    private float Weight[];
    Scanner sc=new Scanner(System.in);
    //int size;
    public void readDetails()
    {
        location=new String[5];
        Weight=new float[5];
        System.out.println("Enter 5 courier parcels weights");
        //size=sc.nextInt();
        for(int i=0;i<5;i++)
        {
            System.out.print("Enter "+(i+1)+" courier weight in kgs: ");
            Weight[i]=sc.nextFloat();
        }
        for(int i=0;i<5;i++)
        {
            System.out.print("Enter "+ (i+1) +" courier location(local/non-local): ");
            location[i]=sc.next();
        }
    }
    public void displayDetails()
    {
        String x="local";
        String y="non-local";
        int rupees=80;
        double total_price;
        int stamps=2*rupees;
        int charges_local=20*rupees;
        int charges_nonlocal=40*rupees;
        for(int i=0;i<location.length;i++)
        {
```

```java
        if(location[i].equals(x))
        {
           total_price=Weight[i]*stamps+charges_local;
           System.out.println("The total price of parcel "+(i+1)+" is "+total_price);
        }
        else if(location[i].equals(y))
        {
           total_price=Weight[i]*stamps+charges_nonlocal;
           System.out.println("The total price of parcel "+(i+1)+" is "+total_price);
        }
        }
  }
  public static void main(String[] args)
  {
     CourierAgency ca=new CourierAgency();
     ca.readDetails();
     ca.displayDetails();
  }
}
```

Output:
Enter 5 courier parcels weights
Enter 1 courier weight in kgs: 1
Enter 2 courier weight in kgs: 2
Enter 3 courier weight in kgs: 3
Enter 4 courier weight in kgs: 4
Enter 5 courier weight in kgs: 5
Enter 1 courier location(local/non-local): local
Enter 2 courier location(local/non-local): local
Enter 3 courier location(local/non-local): local
Enter 4 courier location(local/non-local): non-local
Enter 5 courier location(local/non-local): local
The total price of parcel 1 is 1760.0
The total price of parcel 2 is 1920.0
The total price of parcel 3 is 2080.0
The total price of parcel 4 is 3840.0
The total price of parcel 5 is 2400.0

Aim: b) Write a program that takes as input a set of 15 numbers from the keyboard into an array of type int[] .Create another array that will also read 15 other numbers of type int into it. Now merge the elements of these two arrays into one. The output is to be a two-column list. The first column is a list of the distinct array elements; the second column is the count of the number of occurrences of each element.

Program:

```java
import java.util.*;
public class DistinctElementsCount
{
    public static void countFreq(int arr[], int n)
    {
    boolean visited[] = new boolean[n];

    Arrays.fill(visited, false);

    System.out.println("Count of distinct elements:");

    // Traverse through array elements and
    // count frequencies
    for (int i = 0; i < n; i++)
    {
        // Skip this element if already processed
        if (visited[i] == true)
            continue;

        // Count frequency
        int count = 1;
        for (int j = i + 1; j < n; j++)
        {
            if (arr[i] == arr[j])
            {
                visited[j] = true;
                count++;
            }
        }
        System.out.println(arr[i] + " " + count);
    }
}
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter Array size:");
        int size = sc.nextInt();
```

```java
        int[] firstArray = new int[size];
        int[] secondArray = new int[size];

        System.out.print("Enter elements into firstArray:");
        for(int i=0;i<size;i++)
        firstArray[i]=sc.nextInt();

        System.out.print("Enter elements into secondArray:");
        for(int i=0;i<size;i++)
        secondArray[i]=sc.nextInt();

        int fal = firstArray.length;        //determines length of firstArray
        int sal = secondArray.length;       //determines length of secondArray
        int[] result = new int[fal + sal];  //resultant array of size first array and second array
        System.arraycopy(firstArray, 0, result, 0, fal);
        System.arraycopy(secondArray, 0, result, fal, sal);

        int n = result.length;
        countFreq(result, n);
    }
}
```

Output:

Enter Array size:5
Enter elements into firstArray:1 2 3 4 5
Enter elements into secondArray:1 2 3 4 5
Count of distinct elements:
1 2
2 2
3 2
4 2
5 2