ASSIGNMENT 6 SandeepSir

1. Declare a single-dimensional array of 5 integers inside the main Traverse the array to print the default values. Then accept records from the user and print the updated values of the array.

```java
package com.assignment7.array;

import java.util.Scanner;

public class Program1 {
    private static Scanner sc=new Scanner(System.in);
    private static void acceptRecord(int[]arr) {
        for(int index=0;index<arr.length;index++) {
            System.out.println("Enter["+index+"]index:");
            arr[index]=sc.nextInt();
        }
    }
    private static void printRecord(int []arr) {
        for(int index=0;index<arr.length;index++) {
            System.out.println(arr[index]);
        }
    }

    public static void main(String[] args) {
        int []arr=new int[5];
        System.out.println(arr);
        //System.out.println(arr[0]);
        //System.out.println(arr[1]);
        for(int index=0;index<arr.length;index++) {
        System.out.println(+arr[index]);


    }
```

```
        Program1.acceptRecord(arr);
        Program1.printRecord(arr);


}}
```

1. Declare a single-dimensional array of 5 integers inside the main Define a method named acceptRecord to get input from the terminal into the array and another method named printRecord to print the state of the array to the terminal.

```java
package com.assignment7.array;

import java.util.Scanner;

public class Program2 {
private static Scanner sc=new Scanner(System.in);
private static void acceptRecord(int []arr) {
    for(int index=0;index<arr.length;index++) {
        System.out.println("Enter["+index+"] array: ");
        arr[index]=sc.nextInt();
    }
}

    private static void printRecord(int []arr) {
        for(int index=0;index<arr.length;index++) {
            System.out.println(arr[index]);
        }
    }

    public static void main(String[] args) {
        int []arr=new int [5];
        Program2.acceptRecord(arr);
        Program2.printRecord(arr);



    }
```

```
  }
```

1. Write a program to find the maximum and minimum values in a single-dimensional array of integers.

```java
package com.assignment7.array;

import java.util.Scanner;

public class Program3 {
private static Scanner sc=new Scanner(System.in);
private static void acceptRecord(int []arr) {
    //System.out.println("Enter array nu:");

    for(int index=0;index<arr.length;index++) {
        System.out.print("Enter ["+index+"]array: ");
        arr[index]=sc.nextInt();
    }

}
private static void printRecord(int arr[]) {
    for(int index =0;index<arr.length;index++) {
        System.out.println(arr[index]);
    }
}
private static void max(int arr[]) {
    int max=arr[0];
    for(int index=0;index<arr.length;index++) {
        if(arr[index]>max) {
            max=arr[index];
        }
    }
    System.out.println("Max Value:"+max);
}
```

```java
private static void min(int arr[]) {
    int min=arr[0];
    for(int index=0;index<arr.length;index++) {
        if(arr[index]<min) {
            min=arr[index];
        }
    }
    System.out.println("Min Value:"+min);
}
    public static void main(String[] args) {
        System.out.println("Enter number array:");
        int n=sc.nextInt();
        int[]arr=new int[n];
        Program3.acceptRecord(arr);
        Program3.printRecord(arr);
        Program3.max(arr);
        Program3.min(arr);


    }

}
```

1. Write a program to remove duplicate elements from a single-dimensional array of integers.

```java
package com.assignment7.array;

import java.util.Scanner;

public class Program4 {

    private static Scanner sc=new Scanner(System.in);

    private static void acceptRecord(int arr[]) {
```

```java
        for(int index=0;index<arr.length;index++) {
            System.out.print("Enter ["+index+"] array: ");
            arr[index]=sc.nextInt();
        }
    }
    private static void printRecord(int arr[]) {
        System.out.println("Array:");
        for(int index=0;index<arr.length;index++) {
            System.out.println(arr[index]);
        }
    }
    private static void duplicateNumber(int arr[]) {
        System.out.println("Duplicate Numbers:");
        for(int index=0;index<arr.length;index++) {
            for(int index1=index+1;index1<arr.length;index1++) 
                if(arr[index]==arr[index1]) {
                    //System.out.println("Dup");
                    System.out.println(arr[index1]);
                    break;
                }

            }

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

        System.out.print("Enter no of array:");
        int n=sc.nextInt();
        int arr[ ]=new int[n];

        Program4.acceptRecord(arr);
        Program4.printRecord(arr);
        Program4.duplicateNumber(arr);
```

```
        }


  }
```

1. Write a program to find the intersection of two single-dimensional arrays.

```java
package com.assignment7.array;

import java.util.Scanner;

public class  Program5{
private int arr[];
private int arr1[];
    public Program5(){

    }
    public Program5(int []arr,int[]arr1){
        this.arr=arr;
        this.arr1=arr1;
    }
    public int[] getArray() {
        return arr;
    }
    public void setArray(int []arr) {
        this.arr=arr;
    }
    public int[] getArray1() {
        return arr1;
    }
    public void setArray1(int []arr1) {
        this.arr1=arr1;
    }
    public  void intersection() {
```

```java
        System.out.println("Intersection:");
        for(int i=0;i<arr.length;i++) {
            for(int j=0;j<arr1.length;j++) {
                if(arr[i]==arr1[j]) {
                    System.out.println(arr[i]);
                }

            }
        }

    }
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);

        System.out.print("Enter number of array:");
        int n=sc.nextInt();
        int[]arr=new int[n];//array size
        System.out.println("Enter first array:");
        for (int i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }

        System.out.print("Enter number of array1:");
        int m=sc.nextInt();
        int[]arr1=new int[m];
        System.out.println("Enter second array:");
        for (int i = 0; i < m; i++) {
            arr1[i] = sc.nextInt();
        }

        Program5 p=new Program5(arr,arr1);
        p.intersection();

    }
```

1. Write a program to find the missing number in an array of integers ranging from 1 to N.

```java
package com.assignment7.array;


import java.util.Scanner;

public class Program6 {
    private static Scanner sc=new Scanner(System.in) ;

    private static int missingNumber(int arr[],int n) {
        int totalSum=n*(n+1)/2;

        int totalArraySum=0;
        for(int element:arr) {
            totalArraySum+=element;
        }
        return totalSum-totalArraySum;
      //System.out.println(Arrays.toString(arr));
    }

    public static void main(String[] args) {
        System.out.print("Enter n number array:");
        int n=sc.nextInt();
        int arr[]=new int[n];
         //Program6.missingNumber(arr);
        System.out.println("Enter n-1 number:");
        for(int i=0;i<=n-2;i++) {
            arr[i]=sc.nextInt();
        }
    // int miss=missingNumber(arr,n);
        //System.out.println("Missing value is:"+miss);
        System.out.println("Missing value is:"+Program6.missingN
```

```
    }
}
```

1. Declare a single-dimensional array as a field inside a class and instantiate it inside the class constructor. Define methods named acceptRecord and printRecord within the class and test their functionality.

```java
package com.assignment7.array;

import java.util.Arrays;
import java.util.Scanner;

public class Program7 {
  private int[]arr;
    public Program7(){

    }
    public Program7(int n) {
        this.arr=new int[n];
    }
    private static Scanner sc=new Scanner(System.in);
    public void acceptRecord() {
        for(int n=0;n<this.arr.length;n++ ) {
            System.out.print("Enter ["+n+"]index:");
            this.arr[n]=sc.nextInt();
        }
    }
    public void printRecord() {
        //for(int i=0;i<this.arr.length;i++ ) {
        //  System.out.println(this.arr[i]);
        //  this.arr[i]=sc.nextInt();
        //}
        System.out.println(Arrays.toString(arr));
        //System.out.println();
```

```java
    }
    public static void main(String[] args) {
        System.out.println("Enter N:");
        int n=sc.nextInt();
        Program7 p=new Program7(n);
        p.acceptRecord();
        p.printRecord();


    }

}
```

1. Modify the previous assignment to use getter and setter methods instead of acceptRecord and printRecord.

```java
package com.assignment7.array;

import java.util.Scanner;

public class Program8 {
 private int arr[];
    public Program8(){

    }
    public Program8(int []arr){
        this.arr=arr;
    }
    public int[] getArray() {
        return arr;
    }
    public void setArray(int []arr) {
        this.arr=arr;
    }
```

```java
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);

        System.out.print("Enter number of array:");
        int n=sc.nextInt();

        int[]arr=new int[n];//array size

        System.out.println("Enter["+n+"] element:");
        for(int i=0;i<n;i++) {
            arr[i]=sc.nextInt();
        }
        //instance
        Program8 p=new Program8(arr);

        //display
        int[]resultArry=p.getArray();
        System.out.println("Array:");

      for(int e:resultArry) {
          System.out.println(e+" ");
      }

    }

 }
```

1. You need to implement a system to manage airplane seat assignments. The airplane has seats arranged in rows and columns. Implement functionalities to:

- Initialize the seating arrangement with a given number of rows and columns.

- Book a seat to mark it as occupied.

- Cancel a booking to mark a seat as available.

- Check seat availability to determine if a specific seat is available.

- Display the current seating chart.

```
package com.assignment7.array;

import java.util.Scanner;

public class Program9 {

    private boolean seat[][];

    public Program9(int rows,int cols){
        seat=new boolean[rows][cols];
    }

    public void bookSeat(int rows,int cols) {
        if(!seat[rows][cols]) {
            seat[rows][cols]=true;
            System.out.println("Seat ["+(rows+1)+","+(cols+1)+"]

        }else {
            System.out.println("Not available ,booked already."
        }
    }
    public void CancelSeat(int rows,int cols) {
        if(seat[rows][cols]) {
            seat[rows][cols]=true;
            System.out.println("Seat ["+(rows+1)+","+(cols+1)+"]

        }else {
            System.out.println("Not Possible to cancel available
        }
    }
     public void displaySeatingChart() {
            System.out.println("Seating Chart (B = book, A = ava
            for (int i = 0; i < seat.length; i++) {
```

```java
            for (int j = 0; j < seat[i].length; j++) {
                System.out.print(seat[i][j] ? "B " : "A ");
            }
            System.out.println();
        }
    }

    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);

        System.out.println("Enter rows:");
        int rows=sc.nextInt();
        System.out.println("Enter cols:");
        int cols=sc.nextInt();

        Program9 p=new Program9(rows,cols);
        //p.bookSeat(rows, cols);
        //p.CancelSeat(rows, cols);
        //p.menuList();
        //int choice;
        while(true) {
            //Scanner sc=new Scanner(System.in);
            System.out.println("0.Exit");
            System.out.println("1.Book seat");
            System.out.println("2.Cancel seat");
            System.out.println("3.Display:");
            System.out.println("Enter choice:");
            int choice=sc.nextInt();

            switch(choice) {

            case 1:
                System.out.println("Row between 1 to "+rows+"nur
                int brows=sc.nextInt()-1;
                System.out.println("Cols between 1 to "+cols+"nu
                int bcols=sc.nextInt()-1;
```

```java
                p.bookSeat(brows, bcols);
                break;

            case 2:
                System.out.println("Row number:");
                int crows=sc.nextInt()-1;
                System.out.println("Cols number:");
                int ccols=sc.nextInt()-1;
                p.CancelSeat(crows, ccols);
                break;

            case 3:
                p.displaySeatingChart();
                break;

            case 4:
                System.out.println("Exit.");
                return;

            default:
                System.out.println("Invalid");
            }
        }

    }

}
```