DHRUV GARG 16 BCE 1190

IWP LAB 11

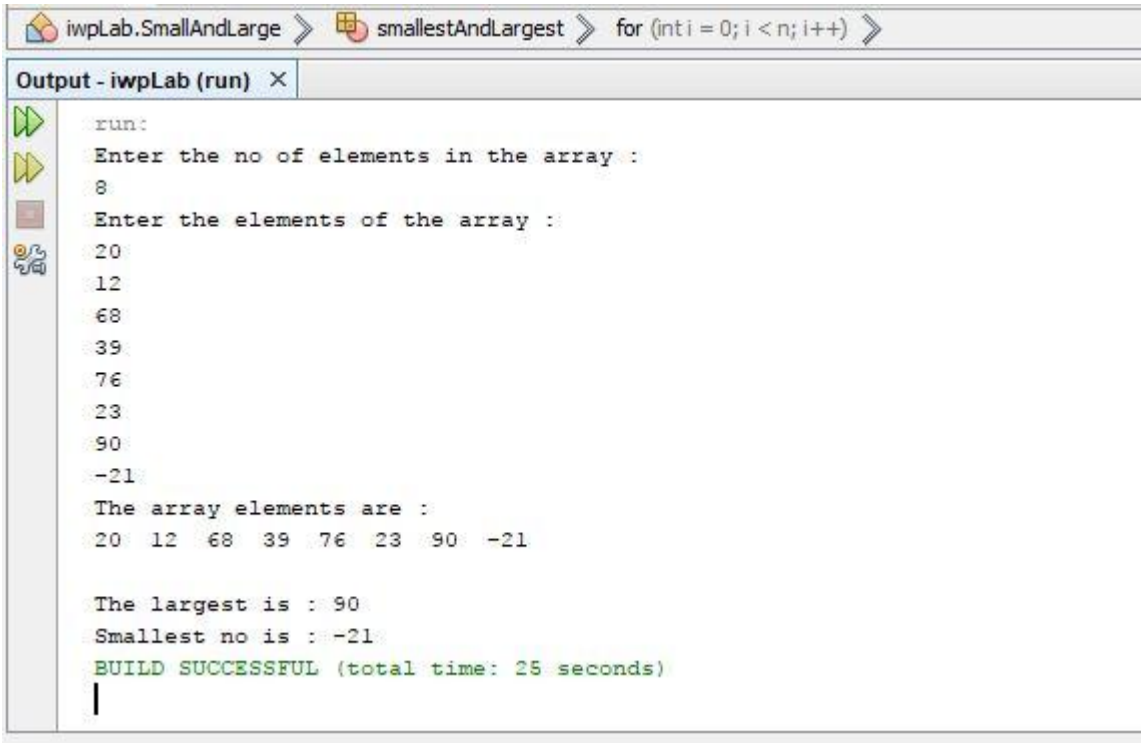
QUESTION 1

Find the smallest and largest in an array

CODE

```
package iwpLab;
import java.io.*;
public class SmallAndLarge {
   void smallestAndLargest() throws IOException   {
      int numArray[];  numArray = new int[20];
      int smallest = 9999; int large = -9999;  int num;
      BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
      System.out.println("Enter the no of elements in the array : ");
      int n = Integer.parseInt(br.readLine());
      System.out.println("Enter the elements of the array : ");
      for(int i = 0; i < n; i++) {
         num = Integer.parseInt(br.readLine());   numArray[i] = num;
         if (num > large)
            large = num;
         if(num < smallest)
            smallest = num;
      }
      System.out.println("The array elements are : ");
      for(int i = 0; i < n; i++)
         System.out.print(numArray[i] + "  ");
      System.out.println("\n");
      System.out.println("The largest is : " + large);
      System.out.println("Smallest no is : " + smallest);
   }
   public static void main(String[] args) throws Exception {
      SmallAndLarge obj = new SmallAndLarge();
      obj.smallestAndLargest();
   }
}
```

OUTPUT



QUESTION 2

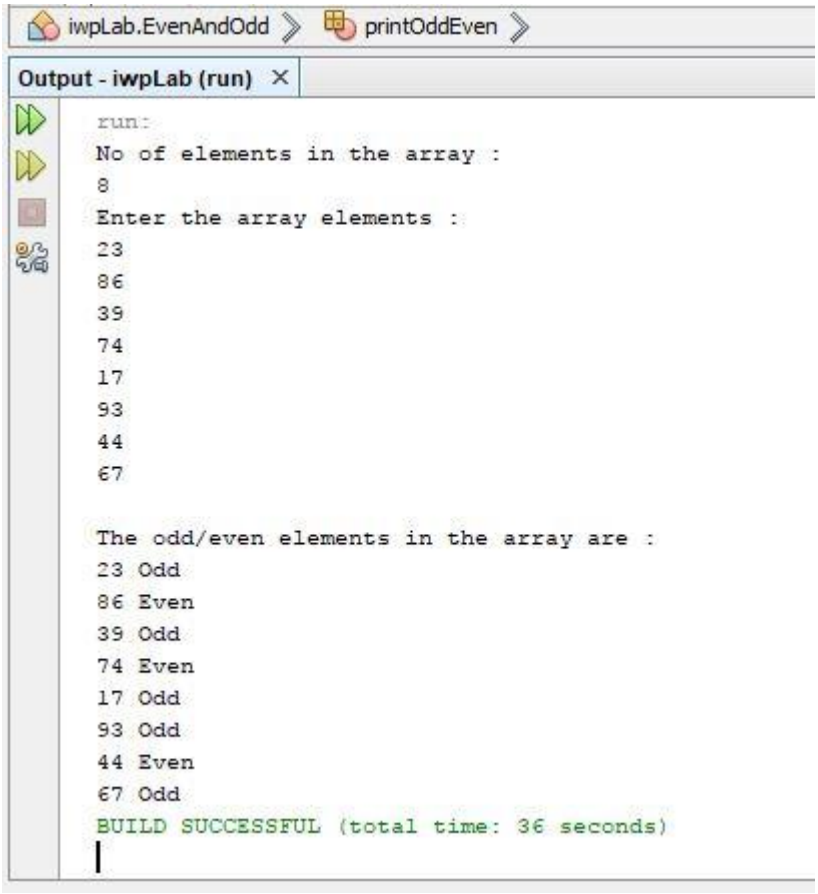
Find and print the numbers from an array whether it is an odd /even.

CODE

```
package iwpLab;

import java.io.*;

public class EvenAndOdd {

   void printOddEven() throws IOException {

      System.out.println("No of elements in the array : ");

      InputStreamReader r = new InputStreamReader(System.in);

      BufferedReader br=new BufferedReader(r);

      int n = Integer.parseInt(br.readLine());

      int[] numArray;  numArray = new int[n];

      int element;

      System.out.println("Enter the array elements : ");

      for(int i = 0; i < n; i++) {

         element = Integer.parseInt(br.readLine());

         numArray[i] = element;

      }
```

```
        System.out.println("\nThe odd/even elements in the array are :");
        for(int i=0;i<n;i++) {
            if((numArray[i] % 2) == 0)
                System.out.println(numArray[i] + " Even");
            else
                System.out.println(numArray[i] + " Odd");
        }
    }
    public static void main(String[] args) throws IOException {
        EvenAndOdd obj = new EvenAndOdd();
        obj.printOddEven();
    }
}
```

OUTPUT



QUESTION 3

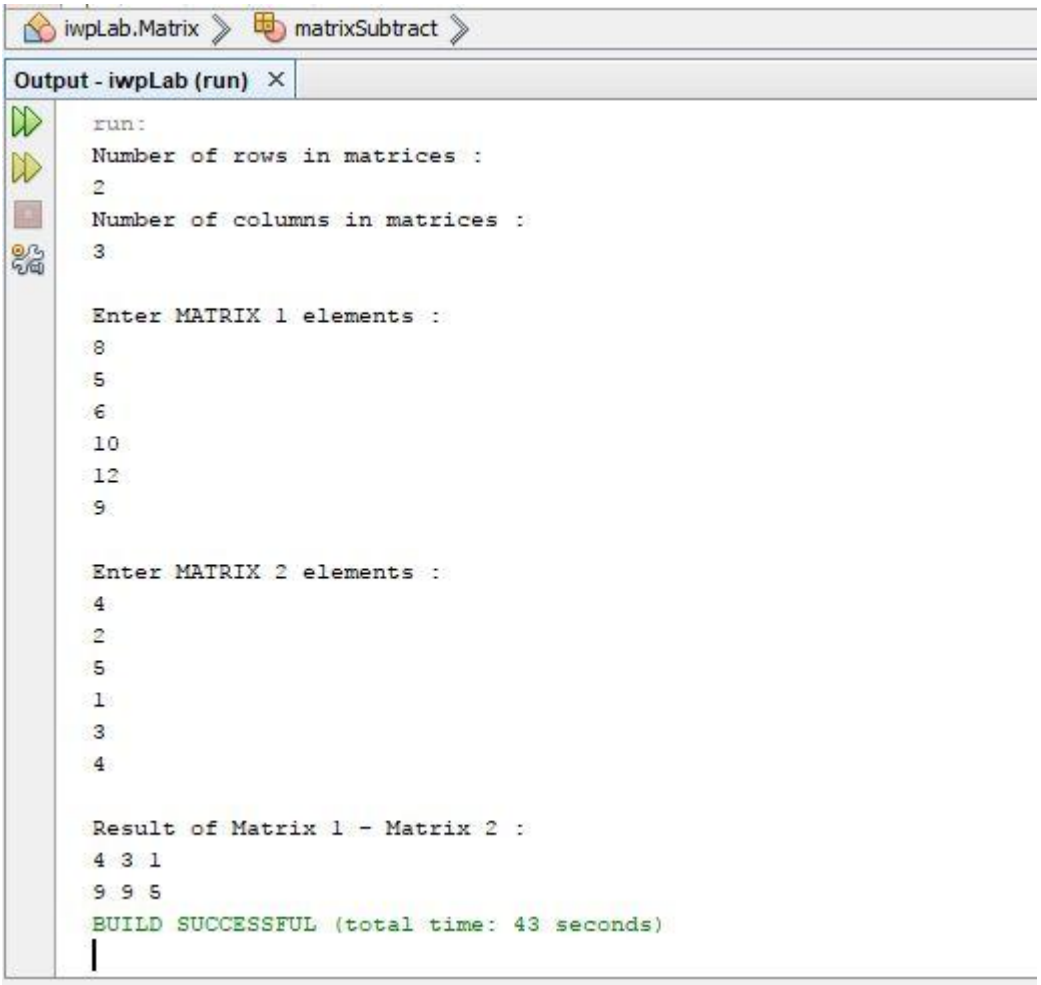
Find the simple subtraction of two matrices.

CODE

```
package iwpLab;
import java.io.*;
public class Matrix {
   void matrixSubtract() throws IOException {
      InputStreamReader r=new InputStreamReader(System.in);
      BufferedReader br = new BufferedReader(r);
      int rows;  int columns;
      System.out.println("Number of rows in matrices : ");
      rows = Integer.parseInt(br.readLine());
      System.out.println("Number of columns in matrices : ");
      columns = Integer.parseInt(br.readLine());
      int[][] numArray1;  numArray1 = new int[rows][columns];
      int[][] numArray2;  numArray2 = new int[rows][columns];
      int element;  int i, j;
      System.out.println("\nEnter MATRIX 1 elements : ");
      for(i = 0;i < rows; i++) {
         for(j = 0;j < columns; j++) {
            element = Integer.parseInt(br.readLine());
            numArray1[i][j] = element;
         }
      }
      System.out.println("\nEnter MATRIX 2 elements : ");
      for(i = 0;i < rows; i++) {
         for(j = 0;j < columns; j++) {
            element = Integer.parseInt(br.readLine());
            numArray2[i][j] = element;
         }
      }
      System.out.println("\nResult of Matrix 1 - Matrix 2 : ");
      for(i = 0; i < rows; i++) {
```

```
        for(j = 0;j < columns; j++) {
            System.out.print(numArray1[i][j]-numArray2[i][j]+" ");
        }
        System.out.print("\n");
      }
   }
   public static void main(String[] args) throws IOException {
      Matrix obj = new Matrix();
      obj.matrixSubtract();
   }
}
```

OUTPUT



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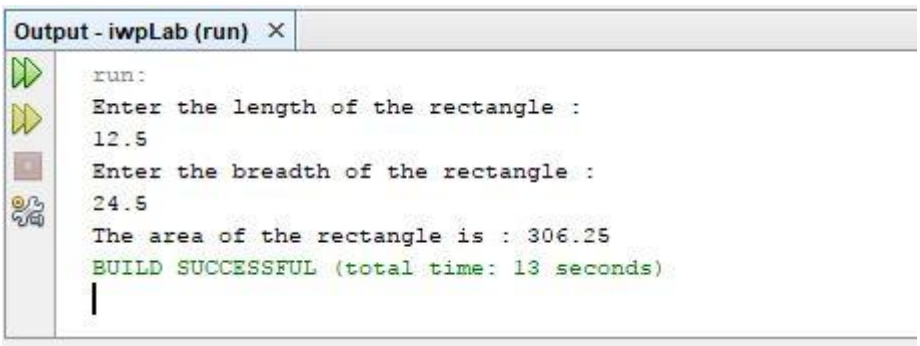
QUESTION 4

Calculate area of a rectangle class with member variables and member functions using Java. Get the inputs from the user at run time.

CODE

```
package iwpLab;

import java.io.*;

public class RectangleArea {

   void findArea() throws IOException

   {

      double length;

      double breadth;

      double area;

      BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

      System.out.println("Enter the length of the rectangle : ");

      length = Double.parseDouble(br.readLine());

      System.out.println("Enter the breadth of the rectangle : ");

      breadth = Double.parseDouble(br.readLine());

      area = length*breadth;

      System.out.println("The area of the rectangle is : " + area);

   }

   public static void main(String[] args) throws Exception {

      RectangleArea obj = new RectangleArea();

      obj.findArea();

   }

}
```

OUTPUT



QUESTION 5

Using inheritance, calculate the netpay using Java. The base class called 'addon' has a member data as 'bonus'. Create a class 'employee' that inherits 'addon' along with the following fields: Name, Id, salary and Total pay as member function.

CODE

Base class : "AddOn"

```
package iwpLab;
import java.io.*;
import java.io.IOException;
public class AddOn {
   double bonus;
   void setBonus() throws IOException {
      BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
      System.out.println("Enter the bonus for the employee : ");
      bonus = Double.parseDouble(br.readLine());
   }
   public static void main(String[] args) throws Exception {
      AddOn obj = new AddOn();
      obj.setBonus();
   }
}
```

Derived class : "Employee"

```
package iwpLab;
import java.io.*;
public class Employee extends AddOn{
   public void displayEmpInfo() throws IOException {
      String name;
      int id;
      double salary;
      double totalSalary;
      BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
      System.out.println("Enter employee name, id and salary : ");
```

```
        name = br.readLine();
        id = Integer.parseInt(br.readLine());
        salary = Double.parseDouble(br.readLine());
        totalSalary = salary + bonus;
        System.out.println("\nThe employee details are : ");
        System.out.println("Employee name is : " + name);
        System.out.println("Employee id is : " + id);
        System.out.println("Employee salary is : " + salary);
        System.out.println("Bonus given is : " + bonus);
        System.out.println("The total salary is : " + totalSalary);
    }
    public static void main(String[] args) throws Exception {
        Employee obj = new Employee();
        obj.setBonus();
        obj.displayEmpInfo();
    }
}
```

OUTPUT