Practical: 3

Q-1 Write a method with following method header.

public static int gcd(int num1, int num2)

Write a program that prompts the user to enter two integers and

compute the gcd of two integers.

import java.util.Scanner;  
  
public class Practical\_3\_1 {  
 public static void main(String[] args) {  
 System.out.println("DIXIT SOLANKI 200410107103");  
 System.out.println("Hello GCD");  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Enter no.1 : ");  
 int n1 = sc.nextInt();  
 System.out.println("===================================");  
 System.out.print("Enter no.2 : ");  
 int n2 = sc.nextInt();  
 System.out.println("GCD for "+n1+" and "+n2+" is : "+gcd(n1,n2) );  
  
 }  
 static int gcd(int num1,int num2){  
 while(num1!=num2){  
 if(num1 > num2){  
 num1= num1 - num2;  
 }  
 else {  
 num2 = num2 - num1;  
 }  
 }  
 return num1;  
 }  
}

Output:

Graphical user interface, text

Description automatically generated

Q-2 Write a test program that prompts the user to enter ten numbers,

invoke a method to reverse the numbers, display the numbers.

import java.util.Scanner;  
  
public class Practical\_3\_2 {  
 public static void main(String[] args) {  
  
 int[] a = new int[10];  
 Scanner sc = new Scanner(System.*in*);  
 for (int i = 0; i < a.length; i++){  
 System.*out*.print("Enter the a["+i+"] : ");  
 a[i] = sc.nextInt();  
 }  
 for (int i = 0; i < a.length; i++){  
 System.*out*.println(a[i]);  
 }  
 System.*out*.println("========================");  
 System.*out*.println("The reversed one.....");  
 System.*out*.println("========================");  
 a = *reverse*(a);  
 for (int i = 0; i < a.length; i++){  
 System.*out*.println(a[i]);  
 }  
  
 }  
 static int[] reverse(int[] b){  
 for (int i = 0; i <b.length/2; i++){  
 int temp = b[i];  
 b[i] = b[b.length - i- 1];  
 b[b.length - i- 1] = temp;  
 }  
 System.*out*.println("DIXIT SOLANKI 200410107103");  
 return b;  
 }  
}

Output:

Text

Description automatically generated

Q-3 Write a program that generate 6\*6 two-dimensional matrix, filled

with 0’s and 1’s , display the matrix, check every raw and column

have an odd number’s of 1’s.

public class Practical\_3\_3 {  
 public static void main(String[] args) {  
 System.out.println("DIXIT SOLANKI 200410107103");  
 System.out.println("Practical\_3\_3");  
 int[][] a = new int[6][6];  
 for (int i =0; i<a.length;i++){  
 for (int j=0;j<a[i].length;j++){  
 a[i][j] = (int)(0 + Math.random() \* 2);  
 }  
 }  
 System.out.println("==========================");  
 for (int i =0; i<a.length;i++){  
 int count = 0;  
 for (int j=0;j<a[i].length;j++){  
 if (a[i][j]==1) count++;  
 System.out.print(" "+a[i][j]+" ");  
 }  
 if(count%2==0) System.out.print(".............There are even 1's");  
 else if (count%2!=0)System.out.print(".............There are odd 1's");  
 else System.out.println("..............1's ain't here");  
 System.out.println();  
 }  
 System.out.println("=========================================================");  
 int index = 0;  
 int count2 = 0;  
 while (index < a.length){  
 for (int k =0;k<a.length;k++){  
 System.out.println(a[k][index]);  
 System.out.print("");  
 if(a[k][index]==0){  
 count2++;  
 }  
  
 }  
  
 System.out.println("|");  
 System.out.println("|");  
 System.out.println("|");  
 System.out.println("|");  
  
  
 if(count2%2==0) System.out.print("Even 1's");  
 else if (count2%2!=0) System.out.print("Odd 1's");  
 else System.out.print("Zero 1's");  
  
 count2 = 0;  
 index++;  
  
 }  
  
 }  
}

Output:

Text

Description automatically generated

Text

Description automatically generated

Practical: 4

Q-1 Write a program that creates a Random object with seed 1000 and

displays the first 100 random integers between 1 and 49 using the

NextInt (49) method.

import java.util.Random;

class Practical\_4\_1

{

System.out.println("DIXIT SOLANKI 200410107103");

public static void main(String[] args)

{

Random random = new Random(1000);

for (int i = 0; i < 100; i++)

{

System.out.format("%5d",random.nextInt(49));

if((i+1)%20==0)

{

System.out.println();

}

}

}

}

Output:

A screenshot of a computer

Description automatically generated with medium confidence

Q-2 Write a program for calculator to accept an expression as a string

in which the operands and operator are separated by zero or more

spaces.

For ex: 3+4 and 3 + 4 are acceptable expressions.

import java.util.Scanner;  
  
public class Practical\_4\_2 {  
 public static void main(String[] args) {  
 System.out.println("DIXIT SOLANKI 200410107103");  
 System.out.println("Practical\_4\_2");  
 Scanner sc = new Scanner(System.in);  
 System.out.print("Enter the expression : ");  
 String exp = sc.nextLine();  
 if (exp.contains("+")) {  
 String[] temp = exp.split("\\+");  
 temp[0] = temp[0].trim();  
 temp[1] = temp[1].trim();  
 int op1 = Integer.parseInt(temp[0]);  
 int op2 = Integer.parseInt(temp[1]);  
 int result = op1 + op2;  
 System.out.println("Result : " + result);  
 } else if (exp.contains("-")) {  
 String[] temp = exp.split("\\-");  
 temp[0] = temp[0].trim();  
 temp[1] = temp[1].trim();  
 int op1 = Integer.parseInt(temp[0]);  
 int op2 = Integer.parseInt(temp[1]);  
 int result = op1 - op2;  
 System.out.println("Result : " + result);  
  
  
 } else if (exp.contains("\*")) {  
 String[] temp = exp.split("\\\*");  
 temp[0] = temp[0].trim();  
 temp[1] = temp[1].trim();  
 int op1 = Integer.parseInt(temp[0]);  
 int op2 = Integer.parseInt(temp[1]);  
 int result = op1 \* op2;  
 System.out.println("Result : " + result);  
  
 }  
 else if (exp.contains("/")) {  
 String[] temp = exp.split("\\/");  
 temp[0] = temp[0].trim();  
 temp[1] = temp[1].trim();  
 int op1 = Integer.parseInt(temp[0]);  
 int op2 = Integer.parseInt(temp[1]);  
 int result = op1 / op2;  
 System.out.println("Result : " + result);  
  
 }else System.out.println("Something went wrong");  
 }  
  
}

Output:

Text

Description automatically generated

Q-3 Write a program that creates an Array List and adds a Loan object ,

a Date object , a string, and a Circle object to the list, and use a

loop to display all elements in the list by invoking the object’s to

String() method.

import java.util.ArrayList;  
import java.util.Date;  
import java.util.Iterator;  
import java.util.Scanner;  
  
public class Practical\_4\_3 {  
 public static void main(String[] args) {  
System.out.println("DIXIT SOLANKI 200410107103");  
 System.out.println("Practical 4:3");  
 ArrayList<Object> arr\_list = new ArrayList<>();  
 loan lo = new loan(12.3212);  
 arr\_list.add(lo);  
 Date da = new Date();  
 arr\_list.add(da);  
 Cir c = new Cir(2323.3223);  
 arr\_list.add(c);  
 Scanner sc = new Scanner(System.in);  
 String str = sc.nextLine();  
  
 arr\_list.add(new String(str));  
 Iterator ii = arr\_list.iterator();  
 while (ii.hasNext()){  
 System.out.println(ii.next());  
 }  
 }  
}  
  
class loan {  
 double amg;  
 loan(double d){  
 this.amg = d;  
 System.out.println("Amount is : "+this.amg);  
 }  
 public String toString(){  
 return "The amount is "+this.amg;  
 }  
  
}  
  
class Cir{  
 double rad;  
 Cir(){  
 rad = 32.23;  
 }  
 Cir(double r ){  
 this.rad=r;  
 }  
 public String toString(){  
 return "The area is "+(Math.PI\*this.rad\*this.rad);  
 }

}

Output:

Text

Description automatically generated