REENA MEHTA COLLEGE

of Commerce and Management Studies

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Thane – 401101

"Core Java Practical"

CERTIFICATE

The Practical's duly signed in this journal represent the bonafide work by,**Mr. Rahul Rajendra Grover** in SEMESTER - IV of SecondYear inBachelor of Science in Information Technology (BSc IT) Roll No. **13** In the COMPUTER LABORATORY of this College during the session of 2017-18.

Lecturer In-Charge **Head, Department of BSC IT**

Principal

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Practical 1(a)

Aim:- Write a Java program that takes a number as input and prints its multiplication table up to 10.

Program:-

```
import java.util.Scanner;
public class Multiplication
{
public static void main(String []args)
{
Scanner tk = new Scanner(System.in);
int i,n;
System.out.print("Enter a number to print its Table upto 10: ");
n=tk.nextInt();
for(i=1;i<=10;i++)
{
int m=n*i;
System.out.println(n+" x "+i+" = "+m);
}
}
}
```

Output:-

```
>javac Multiplication.java

>java Multiplication
Enter a number to print its Table upto 10: 4
4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32
4 x 9 = 36
4 x 10 = 40

>
```

Practical 1(b)

Aim:- Write a Java program to display the following pattern.

*****

****

***

**

*

Program:-

```
class Pattern1{
public static void main(String []args)
{
for(int i = 5; i > 0; i--)
{
for(int j = 0; j < 5 - i; j++)
{
System.out.print(" ");
}
int star = 0;
while(star != (2*i - 1))
{
System.out.print("*");
star++;
}
System.out.println();
System.out.println();
}
}
}
```

```
>javac Pattern1.java

>java Pattern1
*********

 *******

  *****

   ***

    *

>_
```

Practical 1(c)

Aim:- Write a Java program to print the area and perimeter of a circle.

Program:-

```
import java.util.*;
import java.util.Scanner;
class Area
{
public static void main(String[] args)
{
double radius, area, per, pi=3.14;
Scanner sc = new Scanner(System.in);
System.out.println("Enter radius:");
radius =sc.nextDouble();
area = pi*radius*radius;
System.out.println("Area of Circle is:" +area);
per = 2*pi*radius;
System.out.println("Perimeter of Cirle is:"+per);
}
}
```

```
>javac Area.java

>java Area
Enter radius:
5
Area of Circle is:78.5
Perimeter of Cirle is:31.400000000000002

>_
```

Practical 2(a)

Aim:- Write a Java program to add two binary numbers.

Program:-

```
import java.util.*;
import java.util.Scanner;
class Binary
{
	public static String b1()
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter 1st Binary Number in 0's  and 1's: ");
		String a = sc.next();
		return a;
	}
	public static String b2()
	{
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter 2nd Binary Number in 0's  and 1's: ");
		String a = sc.next();
		return a;
	}
	public static void main(String []args)
	{
		int a,b,add;
		String addB;
		a = Integer.parseInt(b1(),2);
		b = Integer.parseInt(b2(),2);
		add = a + b;
		addB = Integer.toBinaryString(add);
		System.out.print("The addition of numbers are: " +addB);

	}
}
```

```
>javac Binary.java

>java Binary
Enter 1st Binary Number in 0's  and 1's: 00101101
Enter 2nd Binary Number in 0's  and 1's: 11110001
The addition of numbers are: 100011110
>
```

Practical 2(b)

Aim:- Write a Java program to convert a decimal number to binary number and vice versa.

Program:-

```
import java.util.*;
import java.util.Scanner;
class BinToDec
{
	public static void decToBin(int a,String b)
	{
		System.out.print("Convertion of Decimal to Binary is: ");
		b = Integer.toBinaryString(a);
		System.out.print(b);
	}
	public static void binToDec(String a, int b)
	{
		System.out.print("Convertion of Binary to Decimal is: ");
		b = Integer.parseInt(a,2);
		System.out.print(b);
	}
	public static void main(String []args)
	{
		Scanner sc = new Scanner(System.in);
		int a;
		do{
		System.out.println("\nSelect option:\n(1)Decimal to Binary\n(2)Binary to
Decimal\nPress Any other key to Exit");
		a = sc.nextInt();
		switch(a)
		{
			case 1:
				System.out.print("Enter Decimal Number: ");
				int n = sc.nextInt();
				String b="";
				decToBin(n,b);
				break;
			case 2:
				System.out.print("Enter binary Number: ");
				String str = sc.next();
				int c=0;
				binToDec(str,c);
				break;
			default:
				System.out.println("invalid option");
				break;
		}
```

```
            }
            while(a<=3);
        }
}
```

Output:-

```
)javac BinToDec.java

)java BinToDec

Select option:
(1)Decimal to Binary
(2)Binary to Decimal
Press Any other key to Exit
1
Enter Decimal Number: 43
Convertion of Decimal to Binary is: 101011
Select option:
(1)Decimal to Binary
(2)Binary to Decimal
Press Any other key to Exit
2
Enter binary Number: 1001
Convertion of Binary to Decimal is: 9
Select option:
(1)Decimal to Binary
(2)Binary to Decimal
Press Any other key to Exit
```

Practical 2(c)

Aim:- Write a Java program to reverse a string.

Program:-

```
import java.util.*;
import java.util.Scanner;
class Rev
{
	public static void main(String[] args)
	{
		String str1, reverse = "";
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a string to be Reversed");
		str1 = sc.nextLine();
		int length = str1.length();
		for(int i=length-1;i>=0;i--)
			reverse = reverse+str1.charAt(i);
		System.out.println("Reverse of original is:"+reverse);
	}
}
```

Output:-

```
>javac Rev.java

>java Rev
Enter a string to be Reversed
Hello World
Reverse of original is:dlroW olleH

>
```

Practical 3(a)

Aim:- Write a Java program to count the letters, spaces, numbers and other characters of an input string.

Program:-

```
import java.util.*;
import java.util.Scanner;
public class Count_Str{
	public static void count(String x)
	{
		char[] ch = x.toCharArray();
		int letter =0;
		int number = 0;
		int space =0;
		int other =0;
		for(int i=0;i<x.length();i++)
		{
			if(Character.isLetter(ch[i]))
			{
				letter++;
			}
			else if(Character.isDigit(ch[i]))
			{
				number++;
			}
			else if(Character.isSpaceChar(ch[i]))
			{
				space++;
			}
			else
			{
				other++;
			}
	}
			System.out.println("Letters Count"+letter);
			System.out.println("Numbers Count"+number);
			System.out.println("Spaces Count"+space);
			System.out.println("Symbols Count"+other);
	}
	public static void main(String args[])
	{
		String str;
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter String: ");
		str=sc.nextLine();
		count(str);
```

```
        }
}
```

Output:-

```
>javac Count_Str.java

>java Count_Str
Enter String:
Java_ 3rd _Practical
Letters Count15
Numbers Count1
Spaces Count2
Symbols Count2

>
```

Practical 3(b)

Aim:- Implement a Java function that calculates the sum of digits for a given char array consisting of the digits '0' to '9'. The function should return the digit sum as a long value.

Program:-

```
class Sum{
	public static long sumOfDigits(char arr[])
	{
		long sum=0;
		int n;
		int i=0;
		while(i<arr.length)
		{
			n=Character.getNumericValue(arr[i]);
			sum=sum+n;
			i++;
		}
		return sum;

	}
	public static void main(String args[])
	{
		String str="1342519";
		System.out.println("Given Data:  "+str);
		char arr[] = str.toCharArray();
		long a = sumOfDigits(arr);
		System.out.println("Sum of digits : "+a);
	}
}
```

```
>javac Sum.java

>java Sum
Given Data:  1342519
Sum of digits : 25

>
```

Practical 3(c)

Aim:- Find the smallest and largest element from the array.

Program:-

```
import java.util.*;
import java.util.Scanner;
public class Max_Min {
   static void bubbleSort(int[] arr) {
      int n = arr.length;
      int temp = 0;
       for(int i=0; i < n; i++)
            {
          for(int j=1; j < (n-i); j++)
            {
             if(arr[j-1] > arr[j])
            {
                temp = arr[j-1];
                arr[j-1] = arr[j];
                arr[j] = temp;
             }
          }
       }

   }
   public static void main(String[] args) {
            int[] arr = new int[5];
           Scanner sc = new Scanner(System.in);
           for(int i =0;i<5;i++)
           {
                    System.out.print("Enter Element: ");
                    arr[i]=sc.nextInt();
           }
            System.out.println("Array Before Sort");
            for(int i=0; i < arr.length; i++)
           {
               System.out.print(arr[i] + " ");
            }
            System.out.println();
            bubbleSort(arr);
            System.out.println("Array After Sort");
            for(int i=0; i < arr.length; i++)
           {
               System.out.print(arr[i] + " ");
            }
           System.out.println("\nMin: "+arr[0]);
           System.out.println("Max: "+arr[4]);
```

```
    }
}
```

Output:-

```
>javac Max_Min.java

>java Max_Min
Enter Element: 5
Enter Element: 3
Enter Element: 1
Enter Element: 9
Enter Element: 7
Array Before Sort
5 3 1 9 7
Array After Sort
1 3 5 7 9
Min: 1
Max: 9

>
```

Practical 4(a)

Aim:- Designed a class SortData that contains the method asec() and desc().

Program:-

```
import java.util.*;
class SortData
{
Scanner input=new Scanner(System.in);
int num,i;
int arr[];
int temp=0;
public void getdata()
{
System.out.print("Enter the size of array: ");
num=input.nextInt();
arr=new int[num];
System.out.println("Enter the number: ");
for( i=0;i<num;i++)
{
arr[i]=input.nextInt();
}
}
void putdata()
{
System.out.print("\nGiven numbers are: ");
for(i=0;i<num;i++)
{
System.out.print(arr[i]+",");
}
}
void asce()
{
for(i=0;i<num;i++)
{
for(int j=i+1;j<num;j++)
{
if(arr[i]>arr[j])
{
temp=arr[i];
arr[i]=arr[j];
arr[j]=temp;
}
}
}
System.out.print("\nAscending order of number are: ");
for(int i=0;i<num;i++)
```

```
{
System.out.print(arr[i]+",");
}
}
void desc()
{
for(i=0;i<num;i++)
{
for(int j=i+1;j<num;j++)
{
if(arr[i]<arr[j])
{
temp=arr[i];
arr[i]=arr[j];
arr[j]=temp;
}
}
}
System.out.print("\nDescending order of number are: ");
for(int i=0;i<num;i++)
{
System.out.print(arr[i]+",");
}
}
public static void main(String args[])
{
SortData ob=new SortData();
ob.getdata();
ob.putdata();
ob.asce();
ob.desc();
}
}
```

Output:-

```
>javac SortData.java

>java SortData
Enter the size of array: 7
Enter the number:
2
10
5
1
7
3
9

Given numbers are: 2,10,5,1,7,3,9,
Ascending order of number are: 1,2,3,5,7,9,10,
Descending order of number are: 10,9,7,5,3,2,1,
>
```

Practical 4(b)

Aim:- Designed a class that demonstrates the use of constructor and destructor.

Program:-

```
class ConsDest{
	public ConsDest()
	{
		System.out.println("This is a Constructor");
	}
	public void finalize()
	{
		System.out.println("Destructor/Finalizer Executed");
	}
	public void set()
	{
		System.out.println("This is a Set Method");
	}
	public static void main(String args[])
	{
		Runtime.runFinalizersOnExit(true);
		System.out.println("Main Starts here");
		ConsDest obj = new ConsDest();
		obj.set();
		System.out.println("Main Ends Here");
	}
}
```

Output:-

```
>javac ConsDest.java
Note: ConsDest.java uses or overrides a deprecated API.
Note: Recompile with -Xlint:deprecation for details.

>java ConsDest
Main Starts here
This is a Constructor
This is a Set Method
Main Ends Here
Destructor/Finalizer Executed

>
```

Practical 4(c)

Aim:- Write a java program to demonstrate the implementation of abstract class.

Program:-

```
abstract class Shape
{
	abstract void draw();
}
class Rectangle extends Shape
{
	void draw()
	{
		System.out.println("drawing rectangle");
	}
}
class Circle1 extends Shape
{
	void draw()
	{
		System.out.println("drawing circle");
	}
}
class TestAbs{
public static void main(String args[]){
Shape c=new Circle1();
Shape r=new Rectangle();
r.draw();
c.draw();
}
}
```

Output:-

```
>javac TestAbs.java

>java TestAbs
drawing rectangle
drawing circle

>
```

Practical 5(a)

Aim:- Write a java program to implement single level inheritance.

Program:-

```
class Inherit
{
        static int num1=10;
        static int num2=5;
}

class MainInherit extends Inherit
        {
                public static void main(String[] args){
                int num3=2;
                int result=num1+num2+num3;
                System.out.println("Result of child class is "+result);
        }
}
```

Output:-

```
>javac Inherit.java

>java MainInherit
Result of child class is 17

>
```

Practical 5(b)

Aim:- Write a java program to implement method overriding

Program:-

```
class Riding{
  //Overridden method
  public void over()
  {
    System.out.println("Original Method of Base Class");
  }
}
class Derived extends Riding{
  public void over()
  {
    System.out.println("Overriden Method in Derived Class");
  }
  public static void main( String args[]) {
    Derived obj = new Derived();
    obj.over();
  }
}
```

Output:-

```
>javac Riding.java

>java Derived
Overriden Method in Derived Class

>
```

Practical 5(c)

Aim:- Write a java program to implement multiple inheritance.

Program:-

```
interface vehicleone{
        int  speed=90;
        public void distance();
}

interface vehicletwo{
        int distance=100;
        public void speed();
}

class Vehicle implements vehicleone,vehicletwo{
        public void distance(){
                int  distance=speed*100;
                System.out.println("distance travelled is "+distance);
        }
        public void speed(){
                int speed=distance/100;
        }
}

class Multi{
        public static void main(String args[])
        {
                Vehicle obj = new Vehicle();
                System.out.println("Vehicle");
                obj.distance();
                obj.speed();
        }
}
```

Output:-

```
>javac Multi.java

>java Multi
Vehicle
distance travelled is 9000

>_
```

Practical 6(a)

Aim:- Create a package, Add the necessary classes and import the package in java class

Program:-

```
//Pkg_class_A.java file

package PKG;
public class Pkg_class_A{
	public void details(){
		System.out.println("This is Class A from Package");
	}
}
//Pkg_class_B.java file

package PKG;
public class Pkg_class_B{
	public void details(){
		System.out.println("This is Class B from Package");
	}
}
//Class_demo.java

import PKG.Pkg_class_A;
import PKG.Pkg_class_B;
public class Class_demo{
	public static void main(String args[]){
		System.out.println("Main Starts");
		Pkg_class_A a = new Pkg_class_A();
		Pkg_class_B b = new Pkg_class_B();
		a.details();
		b.details();
		System.out.println("Main Starts");
	}
}
```

Output:-

```
>javac -d . Pkg_class_A.java

>javac -d . Pkg_class_B.java

>javac Class_demo.java

>java Class_demo
Main Starts
This is Class A from Package
This is Class B from Package
Main Starts
```

Practical 6(b)

Aim:- Write a java program to add two matrices and print the resultant matrix

Program:-

```
import java.util.Scanner;
class Addmatrix{
	public static void main(String args[])
	{
		int a[][] = new int[3][3];
		int b[][] = new int[3][3];
		int c[][] = new int[3][3];
		int i,j;
		Scanner tk = new Scanner(System.in);
		System.out.println("Enter Elements for 3x3 Matrix A:");
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				a[i][j] = tk.nextInt();
			}
		}
		System.out.println("Enter Elements for 3x3 Matrix B:");
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				b[i][j] = tk.nextInt();
			}
		}
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				c[i][j] = a[i][j]+b[i][j];
			}
		}
		System.out.println("Addition of Matrices is: ");
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				System.out.print(c[i][j]+"\t");
			}
			System.out.println();
		}
```

```
        }
}
```

Output:-

```
>javac Addmatrix.java

>java Addmatrix
Enter Elements for 3x3 Matrix A:
1
2
3
4
5
6
7
8
9
Enter Elements for 3x3 Matrix B:
1
2
3
4
5
6
7
8
9
Addition of Matrices is:
2       4       6
8       10      12
14      16      18

>_
```

Practical 6(c)

Aim:- Write a java program for multiplying two matrices and print the product for the same.

Program:-

```
import java.util.Scanner;
class Mulmatrix{
	public static void main(String args[])
	{
		int a[][] = new int[3][3];
		int b[][] = new int[3][3];
		int c[][] = new int[3][3];
		int i,j,k;
		Scanner tk = new Scanner(System.in);
		System.out.println("Enter Elements for 3x3 Matrix A:");
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				a[i][j] = tk.nextInt();
			}
		}
		System.out.println("\nEnter Elements for 3x3 Matrix B:");
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				b[i][j] = tk.nextInt();
			}
		}
		System.out.println("\nMultiplication of Matrices");
		for(i=0;i<3;i++)
		{
			for(j=0;j<3;j++)
			{
				c[i][j]=0;
				for(k=0;k<3;k++)
				{
					c[i][j]+=a[i][k]*b[k][j];
				}
				System.out.print(c[i][j]+" ");
			}
			System.out.println();
		}
	}
}
```

Output:-

```
>javac Mulmatrix.java

>java Mulmatrix
Enter Elements for 3x3 Matrix A:
1
2
3
4
5
6
7
8
9

Enter Elements for 3x3 Matrix B:
1
2
3
4
5
6
7
8
9

Multiplication of Matrices
30 36 42
66 81 96
102 126 150

>
```

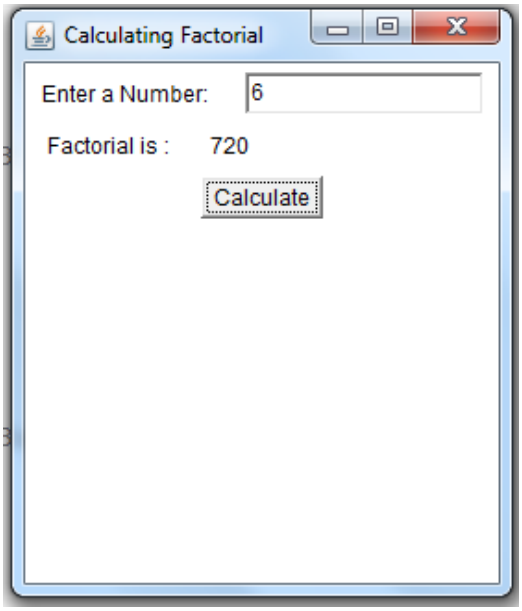
Practical 7(a)

Aim:- Design a AWT program to print the factorial for an input value.

Program:-

```
import java.awt.*;
import java.awt.event.*;
class Fact extends Frame implements ActionListener
{
	TextField tf1,tf2;
	Label lb3;
	public P9a(){
		setLayout(new FlowLayout());
		Label lb1 = new Label("Enter a Number: ");
		Label lb2 = new Label("Factorial is : ");
		tf1 = new TextField(15);
		lb3 = new Label("_____");
		Button btn1 = new Button("Calculate");
		add(lb1);add(tf1);
		add(lb2);add(lb3);
		add(btn1);
		btn1.addActionListener(this);
	}
	public static void main(String args[])
	{
		P9a a = new P9a();
		a.setSize(300,300);
		a.setTitle("Calculating Factorial");
		a.setVisible(true);
	}
	public void actionPerformed(ActionEvent ae)
	{
		int n,f=1,i;
		n=Integer.parseInt(tf1.getText());
		for(i=1;i<=n;i++)
		{
			f=f*i;
		}
		lb3.setText(""+f);
	}
}
```

Output:-


Calculating Factorial
Enter a Number:
6
Factorial is :
720
Calculate

Practical 7(b)

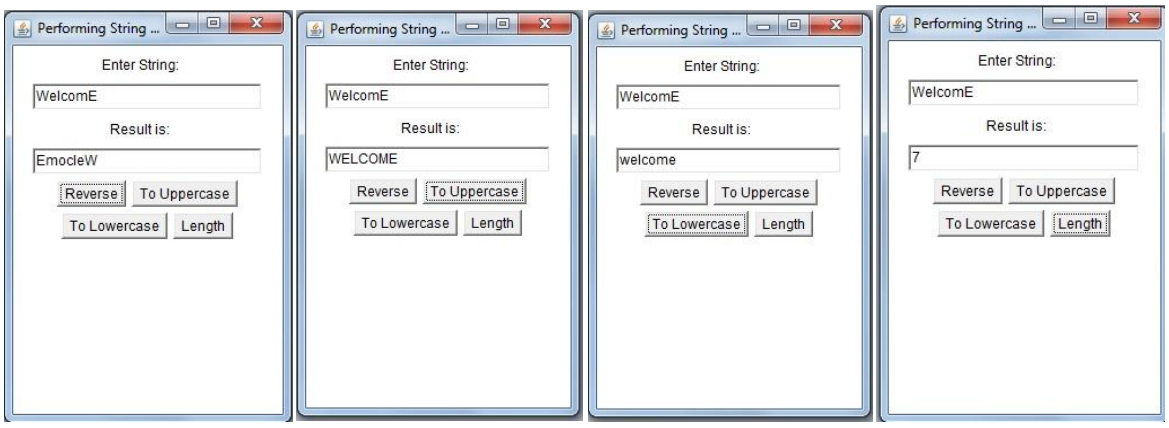
Aim:- Design an AWT program to perform various string operations like reverse string, string concatenation etc.

Program:-

```
import java.awt.*;
import java.awt.event.*;

class StringGUI extends Frame{
	TextField tf1,tf2;
	public StringGUI(){
		setLayout(new FlowLayout());
		Label lb1 = new Label("Enter String: ");
		Label lb2 = new Label("Result is: ");
		tf1 = new TextField(25);
		tf2 = new TextField(25);
		Button btn1 = new Button("Reverse");
		Button btn2 = new Button("To Uppercase");
		Button btn3 = new Button("To Lowercase");
		Button btn4 = new Button("Length");
		add(lb1);add(tf1);
		add(lb2);add(tf2);
		add(btn1);add(btn2);add(btn3);add(btn4);
		btn1.addActionListener(new Inner1());
		btn2.addActionListener(new Inner2());
		btn3.addActionListener(new Inner3());
		btn4.addActionListener(new Inner4());
	}
	class Inner1 implements ActionListener
	{
		public void actionPerformed(ActionEvent ae)
		{
			StringBuffer sb = new StringBuffer(tf1.getText());
			tf2.setText(sb.reverse().toString());
		}
	}
	class Inner2 implements ActionListener
	{
		public void actionPerformed(ActionEvent ae)
		{
			String s = tf1.getText();
			tf2.setText(s.toUpperCase());
		}
	}
	class Inner3 implements ActionListener
```

```
	{
		public void actionPerformed(ActionEvent ae)
		{
			String s = tf1.getText();
			tf2.setText(s.toLowerCase());
		}
	}
	class Inner4 implements ActionListener
	{
		public void actionPerformed(ActionEvent ae)
		{
			String s = tf1.getText();
			tf2.setText(""+s.length());
		}
	}
	public static void main(String args[])
	{
		StringGUI fr = new StringGUI();
		fr.setSize(300,300);
		fr.setTitle("Performing String Operations");
		fr.setVisible(true);
	}
}
```

Output:-



Practical 10(b)

Aim:- Design a calculator based on AWT application

Program:-

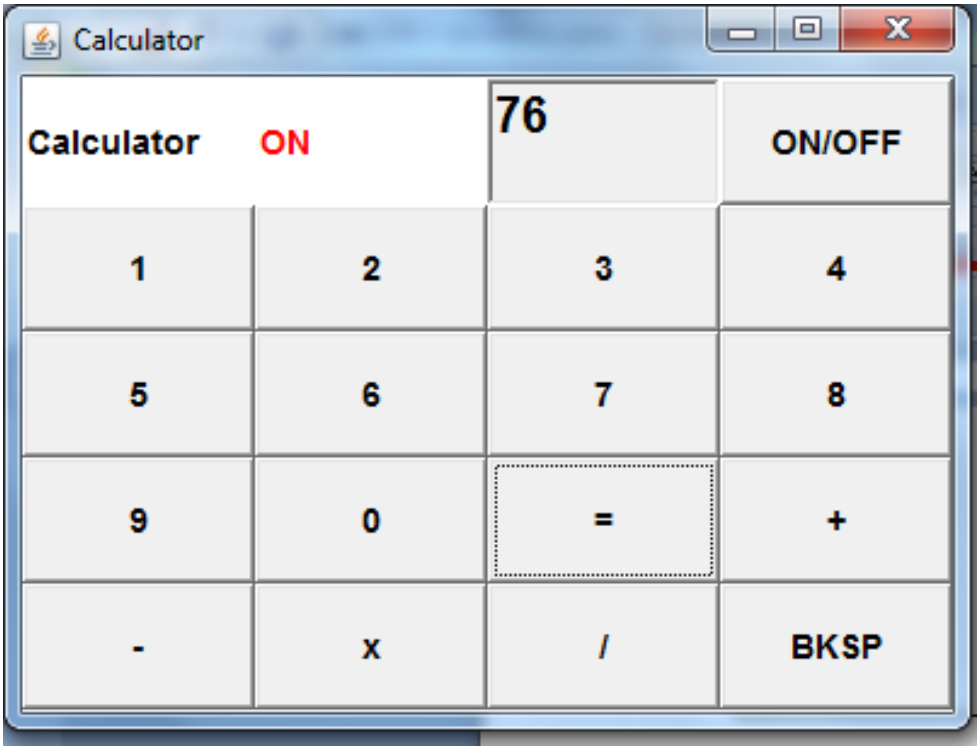
```
import java.awt.event.*;
import java.awt.*;

class Calculator extends Frame implements ActionListener
{
	TextField tf;
	int st=1,op=0;
	Label lb,lbb,lbc;
	int opr;
	double val1,val2;
	public Calculator()
	{
		setLayout(new GridLayout(5,3));
		setFont(new Font("Arial",Font.BOLD,14));

		tf = new TextField(30);
		tf.setEditable(false);
		tf.setFont(new Font("Comic Sans MS",Font.BOLD,20));
		lb = new Label("ON");
		lb.setForeground(Color.red);
		lbb =new Label("");
		lbc = new Label("Calculator");

		Button btn1 = new Button("1");
		Button btn2 = new Button("2");
		Button btn3 = new Button("3");
		Button btn4 = new Button("4");
		Button btn5 = new Button("5");
		Button btn6 = new Button("6");
		Button btn7 = new Button("7");
		Button btn8 = new Button("8");
		Button btn9 = new Button("9");
		Button btn10 = new Button("0");
		Button btn11 = new Button("=");
		Button btn12 = new Button("+");
		Button btn13 = new Button("-");
		Button btn14 = new Button("x");
		Button btn15 = new Button("/");
		Button btn17 = new Button("BKSP");
		Button btn18 = new Button("ON/OFF");
```

```
                add(lbc);;add(lb);
                add(tf);add(btn18);
                add(btn1);
                add(btn2);add(btn3);add(btn4);add(btn5);add(btn6);add(btn7);add(btn8);
                add(btn9);add(btn10);add(btn11);add(btn12);add(btn13);add(btn14);add(btn15);
                add(btn17);


        btn1.addActionListener(this);btn2.addActionListener(this);btn3.addActionListener(this);btn4.ad
dActionListener(this);

        btn5.addActionListener(this);btn6.addActionListener(this);btn7.addActionListener(this);btn8.ad
dActionListener(this);

        btn9.addActionListener(this);btn10.addActionListener(this);btn11.addActionListener(this);btn12
.addActionListener(this);

        btn13.addActionListener(this);btn14.addActionListener(this);btn15.addActionListener(this);
                btn17.addActionListener(this);btn18.addActionListener(this);
        }
        public void actionPerformed(ActionEvent ae)
        {
                String s = ae.getActionCommand();

                if(s.equals("ON/OFF"))
                {
                        if(op%2==1)
                        {
                                st=1;
                                op++;
                                tf.setEnabled(true);
                                lb.setText("ON");
                        }
                        else if(op%2==0)
                        {
                                st=2;
                                op++;
                                tf.setEnabled(false);
                                lb.setText("OFF");
                        }
                }
                if(st==1)
                {

        if(s.equals("1")||s.equals("2")||s.equals("3")||s.equals("4")||s.equals("5")||s.equals("6")||
                        s.equals("7")||s.equals("8")||s.equals("9"))
                        {
```

```
                Button bt = (Button)ae.getSource();
                tf.setText(tf.getText()+""+bt.getLabel());
        }
        if(s.equals("+"))
        {
                val1=Double.parseDouble(tf.getText());
                opr=1;
                tf.setText("");
        }
        if(s.equals("-"))
        {
                val1=Double.parseDouble(tf.getText());
                opr=2;
                tf.setText("");
        }
        if(s.equals("x"))
        {
                val1=Double.parseDouble(tf.getText());
                opr=3;
                tf.setText("");
        }
        if(s.equals("/"))
        {
                val1=Double.parseDouble(tf.getText());
                opr=4;
                tf.setText("");
        }
        if(s.equals("="))
        {
                val2=Double.parseDouble(tf.getText());
                String t;
                switch(opr)
                {
                case 1:
                {
                        t=""+(val1+val2);
                        if(t.endsWith(".0"))
                        {
                                t=""+t.substring(0,t.length()-2);
                        }
                        tf.setText(t);
                        break;
                }
                case 2:
                {
                        t=""+(val1-val2);
                        if(t.endsWith(".0"))
```

```
                                        {
                                                t=""+t.substring(0,t.length()-2);
                                        }
                                        tf.setText(t);
                                        break;
                                }
                                case 3:
                                {
                                        t=""+(val1*val2);
                                        if(t.endsWith(".0"))
                                        {
                                                t=""+t.substring(0,t.length()-2);
                                        }
                                        tf.setText(t);
                                        break;
                                }
                                case 4:
                                {
                                        t=""+(val1/val2);
                                        if(t.endsWith(".0"))
                                        {
                                                t=""+t.substring(0,t.length()-2);
                                        }
                                        tf.setText(t);
                                        break;
                                }
                                }
                        }
                        if(s.equals("CLR"))
                        {
                                tf.setText("");
                        }
                        if(s.equals("BKSP"))
                        {
                                String t = tf.getText();
                                tf.setText(t.substring(0,t.length()-1));
                        }
                }
        }
        public static void main(String args[])
        {
                Calculator fr = new Calculator();
                fr.setSize(400,300);
                fr.setVisible(true);
                fr.setTitle("Calculator");
        }
}
```

Output:-



Practical 10(c)

Aim:- Design an AWT application to generate result marks sheet.

Program:-

```
//Student.java File
import java.awt.*;
import java.awt.event.*;
class Student extends Frame implements ActionListener
{
	TextField tf1,tf2,tf3,tf4,tf5,tf6;
	public Student()
	{
		setLayout(null);
		tf1 = new TextField();
		tf2 = new TextField();
		tf3 = new TextField();
		tf4 = new TextField();
		tf5 = new TextField();
		tf6 = new TextField();

		Label l1 = new Label("Student Name: ");
		Label l2 = new Label("Marks in Java:");
		Label l3 = new Label("Marks in CGA: ");
		Label l4 = new Label("Marks in ES: ");
		Label l5 = new Label("Marks in SE: ");
		Label l6 = new Label("Marks in Maths: ");

		Button bt = new Button("Generate MarkSheet");

		add(l1);add(l2);add(l3);add(l4);add(l5);add(l6);
		add(tf1);add(tf2);add(tf3);add(tf4);add(tf5);add(tf6);
		add(bt);

		tf1.setBounds(150,50,200,30);
		tf2.setBounds(150,100,200,30);
		tf3.setBounds(150,150,200,30);
		tf4.setBounds(150,200,200,30);
		tf5.setBounds(150,250,200,30);
		tf6.setBounds(150,300,200,30);

		l1.setBounds(10,50,140,30);
		l2.setBounds(10,100,140,30);
		l3.setBounds(10,150,140,30);
		l4.setBounds(10,200,140,30);
		l5.setBounds(10,250,140,30);
```

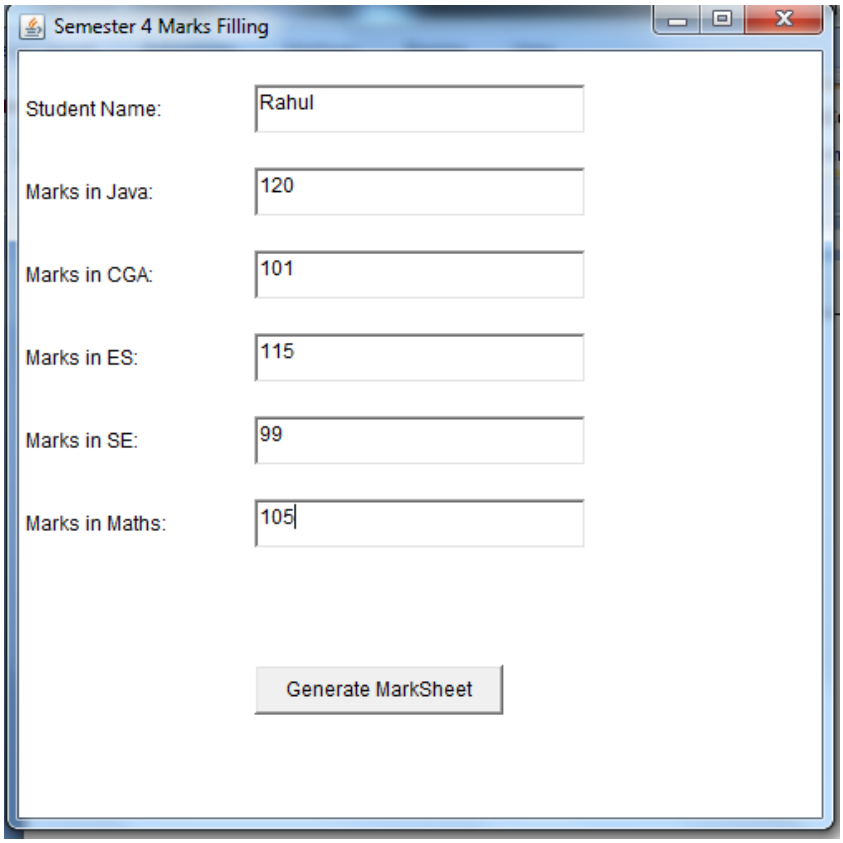
```
                l6.setBounds(10,300,140,30);

                bt.setBounds(150,400,150,30);
                bt.addActionListener(this);
        }
        public void actionPerformed(ActionEvent ae)
        {
                String s1 =tf1.getText();
                String s2 =tf2.getText();
                String s3 =tf3.getText();
                String s4 =tf4.getText();
                String s5 =tf5.getText();
                String s6 =tf6.getText();

                Marksheet fr = new Marksheet(s1,s2,s3,s4,s5,s6);
                fr.setSize(900,900);
                fr.setTitle("Marksheet of "+s1);
                fr.setVisible(true);
        }
        public static void main(String args[])
        {
                Student s = new Student();
                s.setSize(500,500);
                s.setTitle("Semester 4 Marks Filling");
                s.setVisible(true);
        }
}


//Marksheet.java File
import java.awt.*;
import java.awt.event.*;
class Marksheet extends Frame
{
        public Marksheet(String s1,String s2,String s3,String s4,String s5,String s6)
        {
                setLayout(null);
                int tot;
                double avg;
                int a=Integer.parseInt(s2);
                int b=Integer.parseInt(s3);
                int c=Integer.parseInt(s4);
                int d=Integer.parseInt(s5);
                int e=Integer.parseInt(s6);

                tot = a+b+c+d+e;
                avg = tot/5;
```

```
Label l1 = new Label("Student Name: ");
Label l2 = new Label("Marks in Java:");
Label l3 = new Label("Marks in CGA: ");
Label l4 = new Label("Marks in ES: ");
Label l5 = new Label("Marks in SE: ");
Label l6 = new Label("Marks in Maths: ");
Label l7 = new Label("Total Marks: ");
Label l8 = new Label("Average: ");
Label l9 = new Label("Result: ");

Label l10 = new Label(s1);
Label l11 = new Label(s2);
Label l12 = new Label(s3);
Label l13 = new Label(s4);
Label l14 = new Label(s5);
Label l15 = new Label(s6);
Label l16 = new Label(""+tot);
Label l17 = new Label(""+avg);
Label l18 = new Label();


add(l1);add(l2);add(l3);add(l4);add(l5);add(l6);
add(l7);add(l8);add(l9);add(l10);add(l11);add(l12);
add(l13);add(l14);add(l15);add(l16);add(l17);add(l18);

l10.setBounds(150,50,200,30);
l11.setBounds(150,100,200,30);
l12.setBounds(150,150,200,30);
l13.setBounds(150,200,200,30);
l14.setBounds(150,250,200,30);
l15.setBounds(150,300,200,30);
l16.setBounds(150,350,200,30);
l17.setBounds(150,400,200,30);
l18.setBounds(150,450,200,30);

l1.setBounds(10,50,140,30);
l2.setBounds(10,100,140,30);
l3.setBounds(10,150,140,30);
l4.setBounds(10,200,140,30);
l5.setBounds(10,250,140,30);
l6.setBounds(10,300,140,30);
l7.setBounds(10,350,140,30);
l8.setBounds(10,400,140,30);
l9.setBounds(10,450,140,30);

if(a<60||b<60||c<60||d<60||e<60)
```

```
                {
                        l18.setText("Failed With ATKT");
                }
                else
                {
                        l18.setText("Passed!");
                }
        }

}
```

Output:-

Entering Details:



Generated Marksheet: