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Std: SyBSCIT

Div: A

Roll no.: 09

Subject: Java Practicals

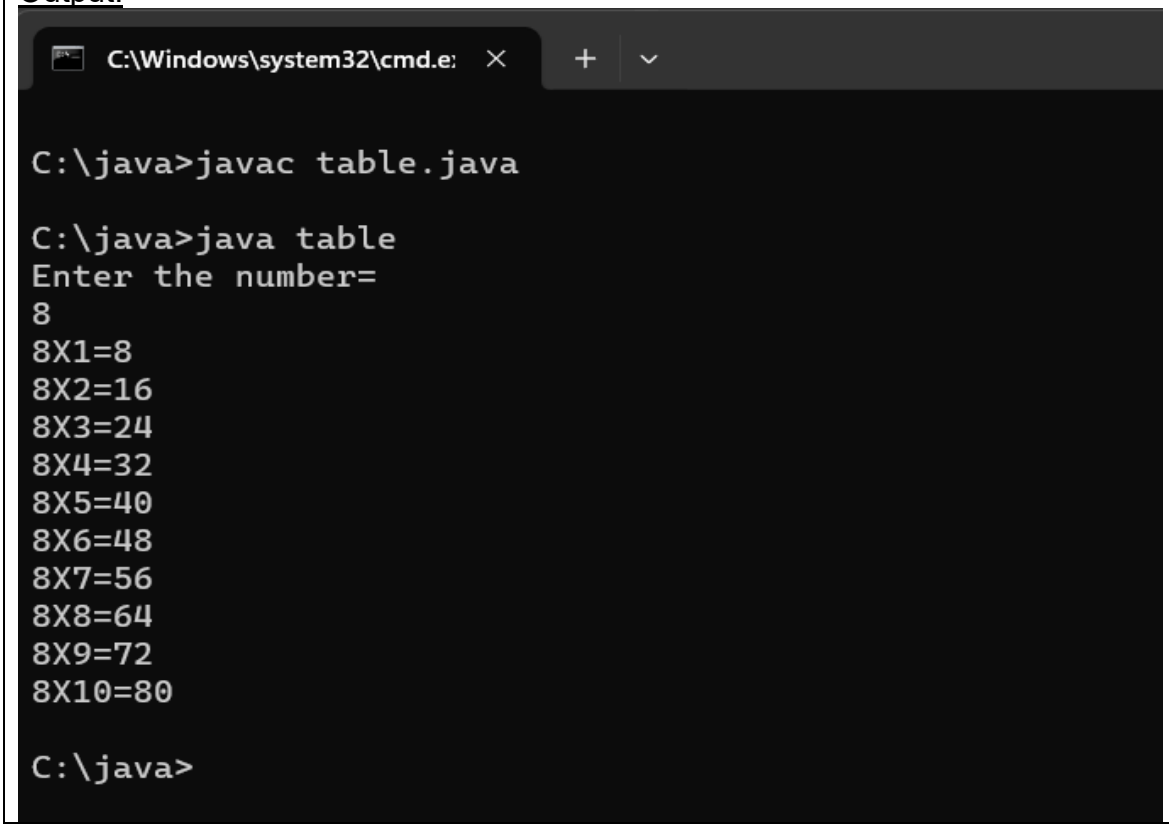
1.Write a Java program that takes a number as input and prints its multiplication table up to 10.

Ans:

Code:

```
import java.util.Scanner;

class table
{
	public static void main(String args[])
	{
		Scanner scr=new Scanner(System.in);
		int n;

		System.out.println("Enter the number=");
		n=scr.nextInt();

		for(int i=1;i<=10;i++)
		{
			System.out.println(n+"X"+i+"="+(i*n));
		}
	}
}
```

Output:



2.Write a Java program to display the following pattern.

*****

****

***

**

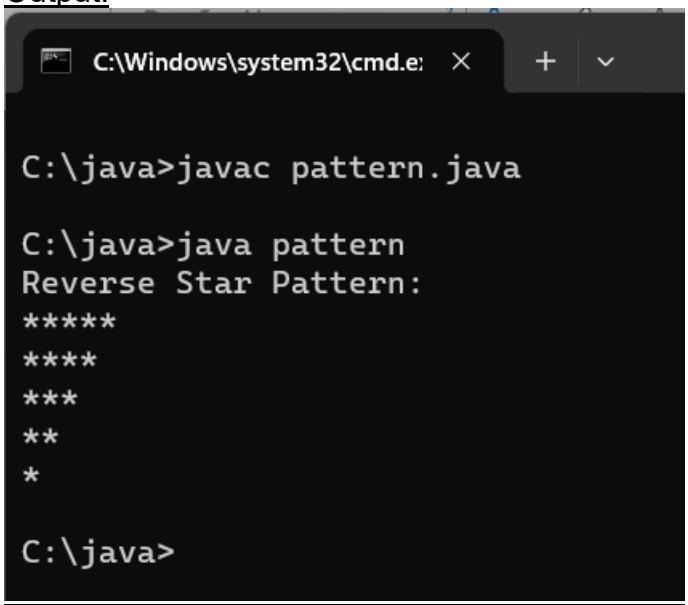
*

Ans:

Code:

```
import java.util.Scanner;

class pattern
{
	public static void main(String args[])
	{
		System.out.println("Reverse Star Pattern:");
		for(int i=5;i>=1;i--)
		{
			for(int j=0;j<i;j++)
			{
				System.out.print("*");
			}
			System.out.println();
		}
	}
}
```

Output:



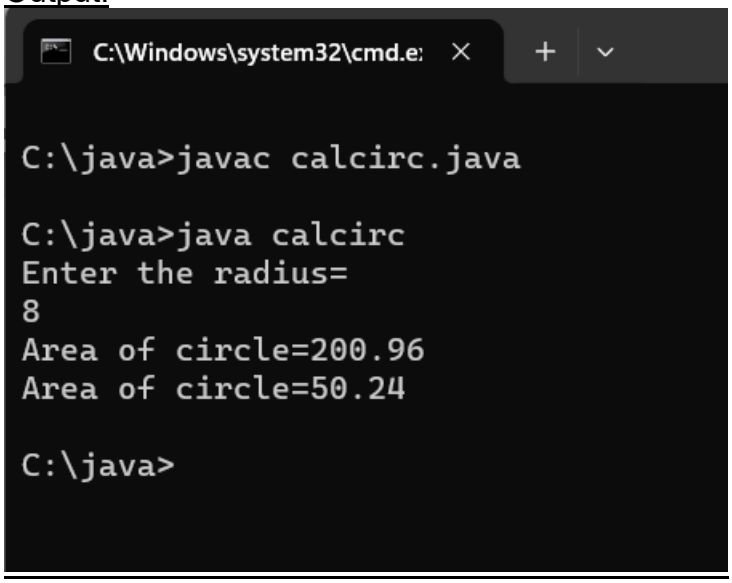
3. Write a Java program to print the area and perimeter of a circle

Ans:

Code:

```
import java.util.Scanner;

class calcirc
{
	public static void main(String args[])
	{
		Scanner scr=new Scanner(System.in);
		System.out.println("Enter the radius=");
		int r=scr.nextInt();
		System.out.println("Area of circle="+(3.14*r*r));
		System.out.println("Area of circle="+(2*3.14*r));
	}
}
```

Output:



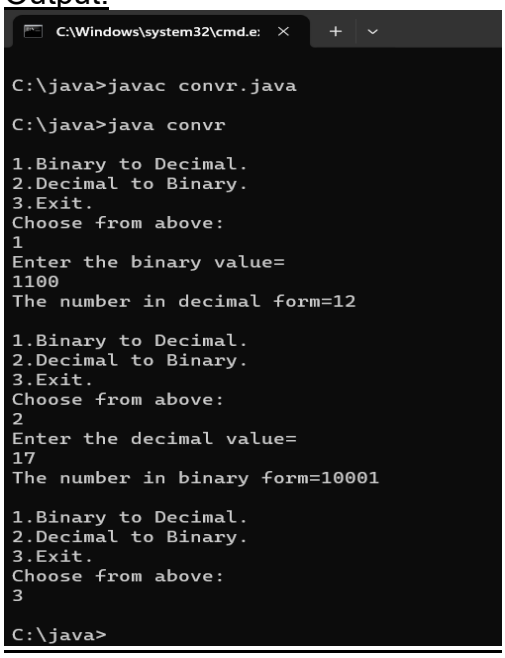
4.Write a Java program to convert a decimal number to binary and vice versa.

Ans:

```
import java.util.Scanner;
class convr
{
	public static void main(String args[])
	{
		Scanner scr=new Scanner(System.in);
		int i=1;
		while(i!=0)
		{
```

```
                        System.out.println();
                        System.out.println("1.Binary to Decimal.");
                        System.out.println("2.Decimal to Binary.");
                        System.out.println("3.Exit.");
                        System.out.println("Choose from above:");
                        int ch=scr.nextInt();
                        if(ch==1)
                        {
                                System.out.println("Enter the binary value=");
                                String bv=scr.next();
                                int dec=Integer.parseInt(bv,2);
                                System.out.println("The number in decimal form="+dec);
                        }
                        else if(ch==2)
                        {
                                System.out.println("Enter the decimal value=");
                                int dec=scr.nextInt();
                                String bv=Integer.toBinaryString(dec);
                                System.out.println("The number in binary form="+bv);
                        }
                        else if(ch==3)
                        {
                                System.exit(0);
                        }
                        else
                        {
                                System.out.println("Enter the valid choice.");
                        }
                }
        }
}
```

Output:



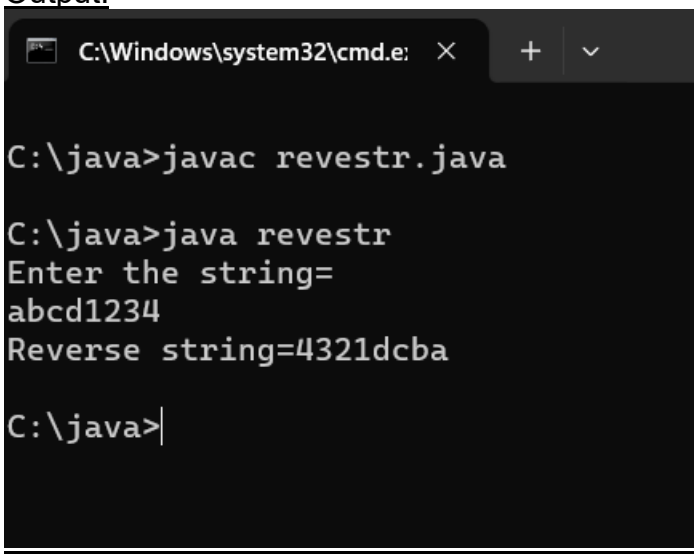
5.Write a Java program to reverse a string

Ans:

Code:

```
import java.lang.*;
import java.io.*;
import java.util.*;

class revestr
{
	public static void main(String args[])
	{
		Scanner scr=new Scanner(System.in);
		System.out.println("Enter the string=");
		String ch=scr.nextLine();

		StringBuffer sb=new StringBuffer(ch);

		sb.reverse();
		System.out.println("Reverse string="+sb);
	}
}
```

Output:



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

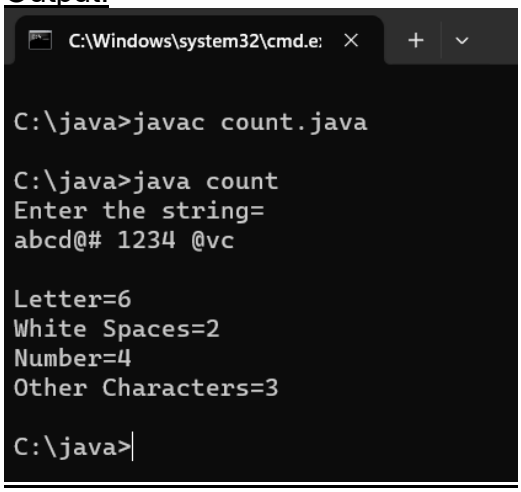
Ans:

Code:

```
import java.util.*;

class count
{
```

```
        public static void main(String args[])
        {
                Scanner scr=new Scanner(System.in);
                System.out.println("Enter the string=");
                String ip=scr.nextLine();
                int l=0,s=0,n=0,o=0;

                for(int i=0;i<ip.length();i++)
                {
                        char ch=ip.charAt(i);
                        if(Character.isLetter(ch))
                        {
                                l++;
                        }
                        else if(Character.isWhitespace(ch))
                        {
                                s++;
                        }
                        else if(Character.isDigit(ch))
                        {
                                n++;
                        }
                        else
                        {
                                o++;
                        }
                }
                System.out.println();
                System.out.println("Letter="+l);
                System.out.println("White Spaces="+s);
                System.out.println("Number="+n);
                System.out.println("Other Characters="+o);
        }
}
```

Output:



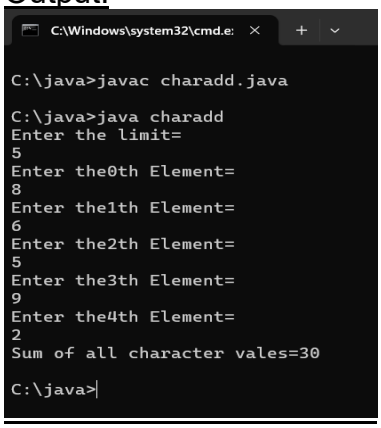
7.Implement a Java function that calculates the sum of digits for a given char array consisting of the digits '0' to '9'. The function should return the digit sum as a long value

Ans:

Code:

```
import java.util.Scanner;
class carcal
{
	public static long calc()
	{
		Scanner scr=new Scanner(System.in);
		long x=0L;
		long sum=0L;
		int ip;
		System.out.println("Enter the limit=");
		ip=scr.nextInt();
		char c[]=new char[ip];
		for(int i=0;i<c.length;i++)
		{
			System.out.println("Enter the"+i+"th Element= ");
			c[i]=scr.next().charAt(0);
		}
		for(int j=c.length-1;j>=0;j--)
		{
			x=c[j]-'0';
			sum=sum+x;
		}
		return sum;
	}
}
class charadd
{
	public static void main(String args[]){
		long s=carcal.calc();
		System.out.println("Sum of all character vales="+s);
	}
}
```

Output:



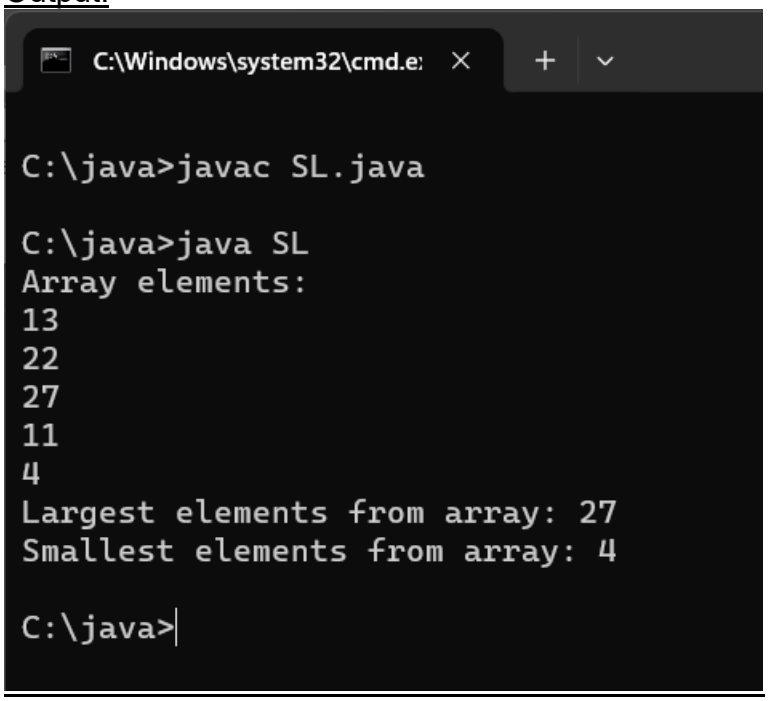
8.Find the smallest and largest element from the array.

Ans:

Code:

```
class SL{
  public static void main(String args[]){

     int num[]={13,22,27,11,4};
     int s=num[0];
     int l=num[0];
     System.out.println("Array elements: ");
     for(int i=0;i<=num.length-1;i++)
     {
          System.out.println(""+num[i]);
     }
     for(int i=1;i<=num.length-1;i++)
     {
       if(num[i]>l)
         l=num[i];
       else if(num[i]<s)
         s=num[i];
     }
     System.out.println("Largest elements from array: "+l);
     System.out.println("Smallest elements from array: "+s);
 }
}
```

Output:



9.Design a class SortData that contains the method asec and desc in an array

Ans:

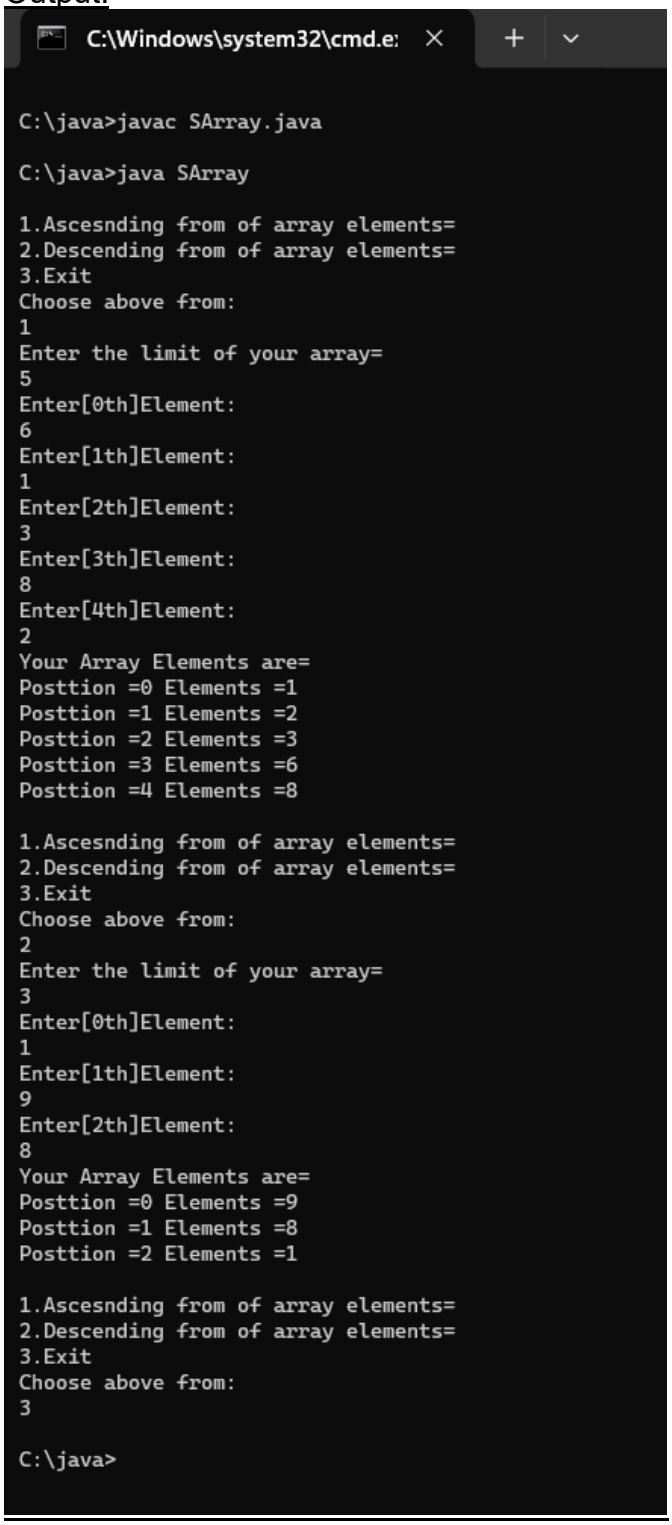
Code:

```
import java.util.Scanner;
class sort
{
	public void asc()
	{
		int ip,temp;
		Scanner scr=new Scanner(System.in);
		System.out.println("Enter the limit of your array=");
		ip=scr.nextInt();
		int a[]=new int[ip];
		for(int i=0;i<a.length;i++)
		{
			System.out.println("Enter["+i+"th"+"]Element:");
			a[i]=scr.nextInt();
		}
		for(int i=0;i<a.length;i++)
		{
			for(int j=0;j<a.length;j++)
			{
				if(a[i]<a[j])
				{
					temp=a[i];
					a[i]=a[j];
					a[j]=temp;
				}
			}
		}
		System.out.println("Your Array Elements are=");
		for(int i=0;i<a.length;i++)
		{
			System.out.println("Posttion ="+i+" Elements ="+a[i]);
		}

	}
	public void desc()
	{
		int ip,temp;
		Scanner scr=new Scanner(System.in);
		System.out.println("Enter the limit of your array=");
		ip=scr.nextInt();
		int a[]=new int[ip];
		for(int i=0;i<a.length;i++)
		{
			System.out.println("Enter["+i+"th"+"]Element:");
			a[i]=scr.nextInt();
		}
```

```
                for(int i=0;i<a.length;i++)
                {
                        for(int j=0;j<a.length;j++)
                        {
                                if(a[i]>a[j])
                                {
                                        temp=a[i];
                                        a[i]=a[j];
                                        a[j]=temp;
                                }
                        }
                }
                System.out.println("Your Array Elements are=");
                for(int i=0;i<a.length;i++)
                {
                        System.out.println("Posttion ="+i+" Elements ="+a[i]);
                }

        }

}
class SArray extends sort
{
        public static void main(String args[])
        {

                int c,i=1;
                Scanner scr=new Scanner(System.in);
                sort obj=new sort();
                while(i!=0)
                {
                        System.out.println();
                        System.out.println("1.Ascesnding from of array elements=");
                        System.out.println("2.Descending from of array elements=");
                        System.out.println("3.Exit");
                        System.out.println("Choose above from:");
                        c=scr.nextInt();
                        if(c==1)
                        {
                                obj.asc();
                        }
                        else if(c==2)
                        {
                                obj.desc();
                        }
                        else if(c==3)
                        {
                                System.exit(0);
                        }
                        else
```

```
                    {
                            System.out.println("Invalid Choice");
                    }

                }
        }
}
```

Output:



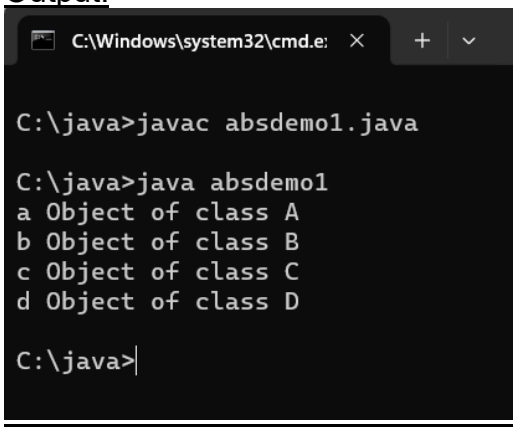
10. Write a java program to demonstrate the implementation of abstract class.

Ans:

Code:

```
abstract class A
{
	abstract void d();
	abstract void c();
	abstract void b();
	public void a()
	{
		System.out.println("a Object of class A");
	}
}
abstract class B extends A
{
	public void b()
	{
		System.out.println("b Object of class B");
	}
}
abstract class C extends B
{
	public void c()
	{
		System.out.println("c Object of class C");
	}
}
class D extends C
{
	public void d()
	{
		System.out.println("d Object of class D");
	}
}
class absdemo1
{
	public static void main(String args[])
	{
		D obj=new D();
		obj.a();
		obj.b();
		obj.c();
		obj.d();
	}

}
```

Output:



11. Write a java program to implement single level inheritance.

Ans:

Code:

```
class A
{
	public void disp()
	{
		System.out.println("Class A is invoked");
	}
}
class B extends A
{
	public void disp1()
	{
		System.out.println("Class b is invoked");
	}
}

class Sli
{
	public static void main(String args[])
	{
		B obj=new B();
		obj.disp();
		obj.disp1();
	}
}
```

Output:

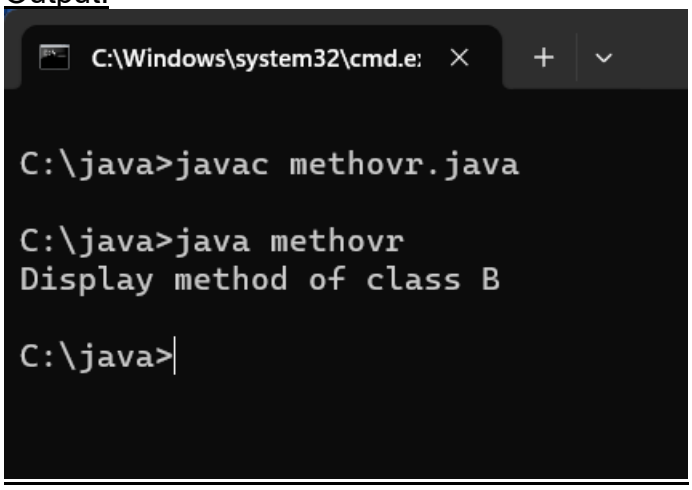
12. Write a java program to implement method overriding.

Ans:

Code:

```
class A
{
	public void disp()
	{
		System.out.println("Display method of class A");
	}

}

class B extends A
{
	public void disp()
	{
		System.out.println("Display method of class B");
	}
}

class methovr
{
	public static void main(String args[])
	{
		B obj=new B();
		obj.disp();
	}
}
```

Output:



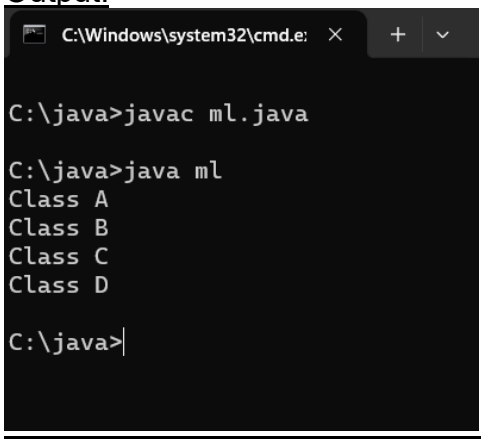
13.Write a java program to implement multiple inheritance.

Ans:

Code:

```
interface A
{
	public void disp();
}
interface D
{
	public void disp3();
}
class B implements A
{
	public void disp1()
	{
		System.out.println("Class B");
	}
	public void disp()
	{
		System.out.println("Class A");
	}

}
class C extends B implements D
{
	public void disp2()
	{
		System.out.println("Class C");
	}
	public void disp3()
	{
		System.out.println("Class D");
	}
}
class ml
{
	public static void main(String args[])
	{
		C obj=new C();
		obj.disp();
		obj.disp1();
		obj.disp2();
		obj.disp3();

	}
}
```

Output:



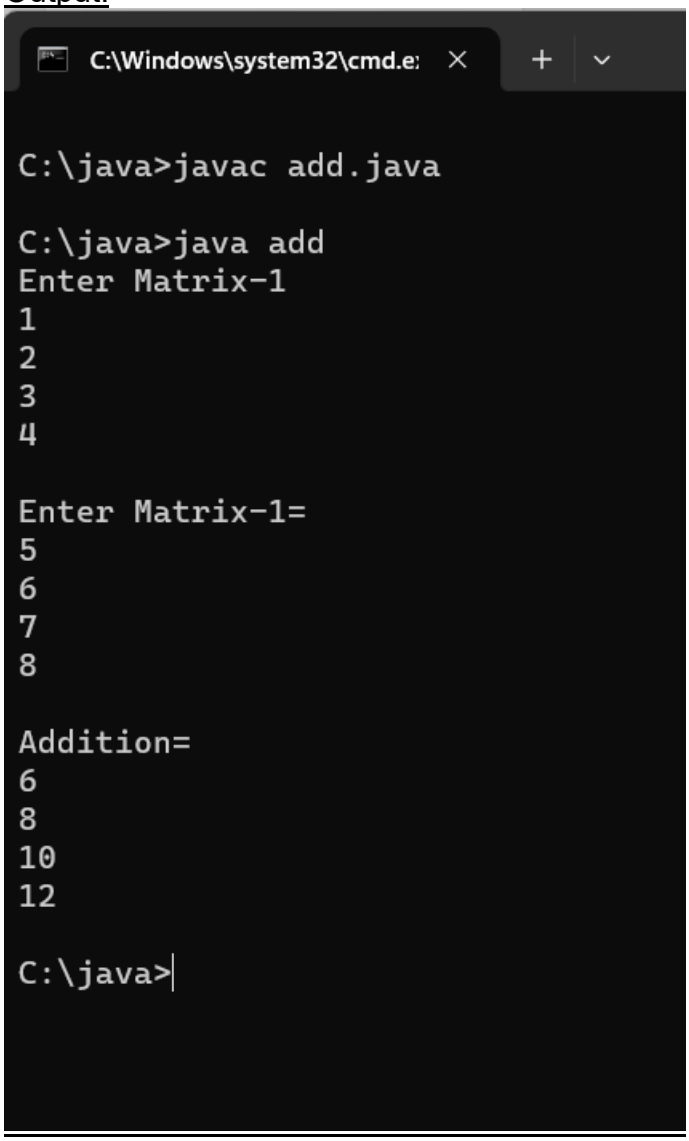
14.Write a program to add two matrices and print the resultant matrix.

Ans:

Code:

```
import java.util.Scanner;
class add
{
	public static void main(String args[])
	{
		Scanner scr=new Scanner(System.in);
		int a[][]=new int[2][2];
		int b[][]=new int[2][2];
		int c[][]=new int[2][2];

		System.out.println("Enter Matrix-1");
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				a[i][j]=scr.nextInt();
			}
		}
		System.out.println();
		System.out.println("Enter Matrix-1=");
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				b[i][j]=scr.nextInt();
			}
		}
		System.out.println();
		System.out.println("Addition=");
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				System.out.println(c[i][j]=a[i][j]+b[i][j]);
			}
		}

	}
}
```

Output:


C:\Windows\system32\cmd.e:
C:\java>javac add.java
C:\java>java add
Enter Matrix-1
1
2
3
4
Enter Matrix-1=
5
6
7
8
Addition=
6
8
10
12
C:\java>

15.Write a java program for multiplying two matrices and print the product for the same.

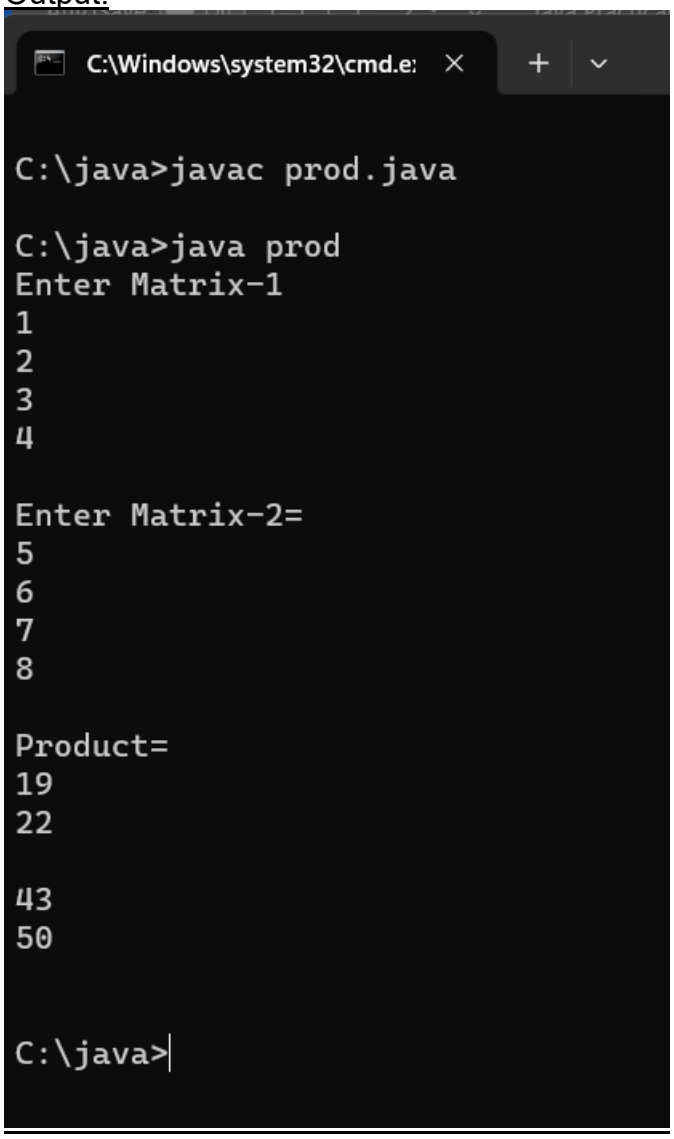
Ans:

Code:

```
import java.util.Scanner;

class prod
{
	public static void main(String args[])
	{
		Scanner scr=new Scanner(System.in);
		int a[][]=new int[2][2];
		int b[][]=new int[2][2];
		int c[][]=new int[2][2];

		System.out.println("Enter Matrix-1");
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				a[i][j]=scr.nextInt();
			}
		}
		System.out.println();
		System.out.println("Enter Matrix-2=");
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				b[i][j]=scr.nextInt();
			}
		}

		System.out.println();
		System.out.println("Product=");
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				for(int k=0;k<2;k++)
				{
					c[i][j]=c[i][j]+a[i][k]*b[k][j];
				}
			}
		}
		for(int i=0;i<2;i++)
		{
			for(int j=0;j<2;j++)
			{
				System.out.println(c[i][j]+" ");
```

```
                    }
                    System.out.println();
                }

        }
}
```

Output:



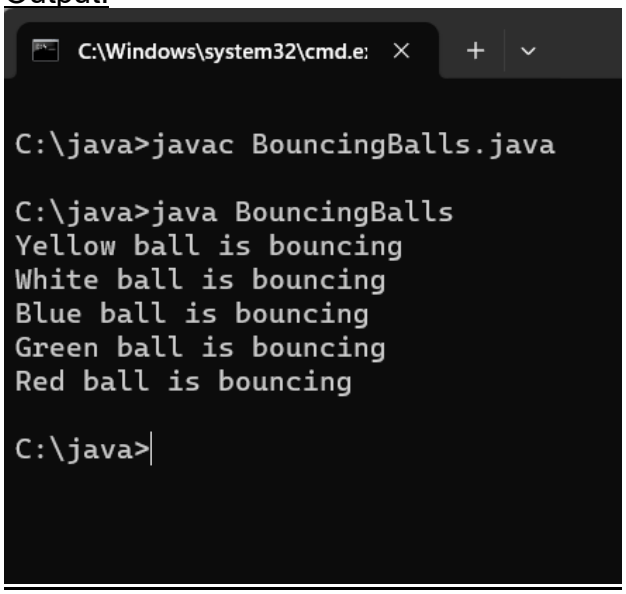
16. Write a java application to demonstrate 5 bouncing balls of different colors using threads.

Ans:

Code:

```
import java.util.*;

public class BouncingBalls
{
	public static void main(String args[]) throws Exception
	{
		Thread t1=new Thread(new Runnable()
		{
			public void run()
			{
				String[]
m1={"Red","Green","Blue","Yellow","White","Black"};
				for(int i=0;i<5;i++)
				{
					int ri = (int)(Math. random() * m1. length);
//randomindex
					String re = m1[ri]; //random elements

					System.out.println(re+" ball is bouncing");
				}
			}
		},"Thread_1");
		t1.start();

	}
}
```

Output:



17.Create a Swing application to demonstrate use of TextArea using scrollpane to show contest of text file in textarea selected using file chooser.

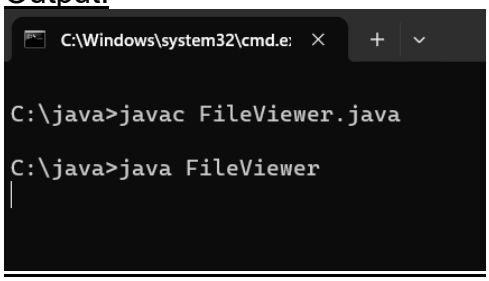
Ans:

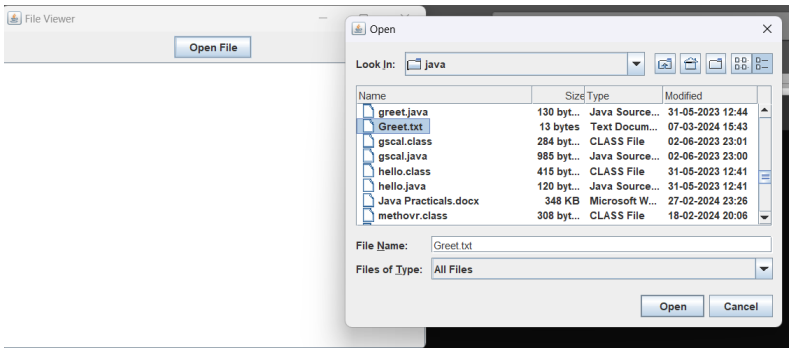
Code:

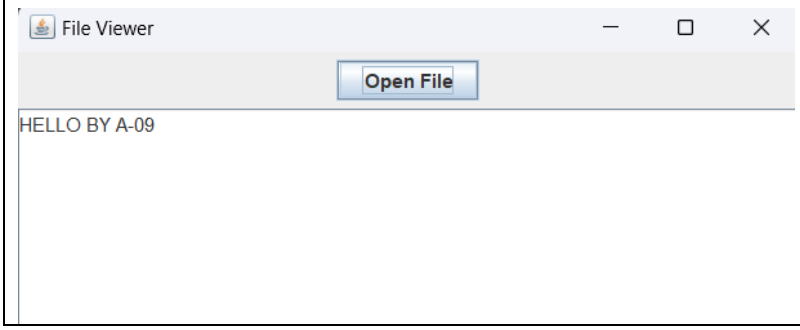
```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.io.*;

public class FileViewer extends JFrame {
	private JTextArea textArea;
	private JFileChooser fileChooser;

	public FileViewer() {
		setTitle("File Viewer");
		setSize(500, 400);
		setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

		textArea = new JTextArea();
		JScrollPane scrollPane = new JScrollPane(textArea);

		JButton openButton = new JButton("Open File");
		openButton.addActionListener(new ActionListener() {
			public void actionPerformed(ActionEvent e) {
				openFile();
			}
		});

		JPanel buttonPanel = new JPanel();
		buttonPanel.add(openButton);

		add(buttonPanel, BorderLayout.NORTH);
		add(scrollPane, BorderLayout.CENTER);
	}

	private void openFile() {
		fileChooser = new JFileChooser();
		int returnValue = fileChooser.showOpenDialog(this);
		if (returnValue == JFileChooser.APPROVE_OPTION) {
			File selectedFile = fileChooser.getSelectedFile();
			try {
				BufferedReader reader = new BufferedReader(new
FileReader(selectedFile));
				StringBuilder content = new StringBuilder();
				String line;
				while ((line = reader.readLine()) != null) {
					content.append(line).append("\n");
				}
				textArea.setText(content.toString());
```

```
                    reader.close();
                } catch (IOException ex) {
                    ex.printStackTrace();
                    JOptionPane.showMessageDialog(this, "Error reading file", "Error", JOptionPane.ERROR_MESSAGE);
                }
            }
        }

        public static void main(String[] args) {
            SwingUtilities.invokeLater(new Runnable() {
                public void run() {
                    new FileViewer().setVisible(true);
                }
            });
        }
}
```

Output:







18. Write programs for the following layouts:

a. Grid Layout.

b. Border Layout.

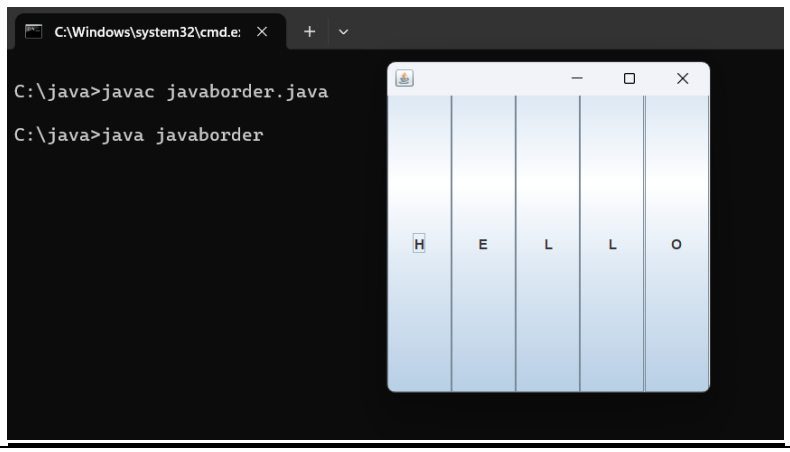
Ans:

(A)Grid Layout

Code:

```
import java.awt.*;
import javax.swing.*;

public class javaborder
{
	JFrame frame;
	javaborder()
	{
		frame = new JFrame();
		JButton btn1 = new JButton("H");
		JButton btn2= new JButton("E");
		JButton btn3 = new JButton("L");
		JButton btn4 = new JButton("L");
		JButton btn5 = new JButton("O");
		frame.add(btn1);
		frame.add(btn2);
		frame.add(btn3);
		frame.add(btn4);
		frame.add(btn5);

		frame.setLayout(new GridLayout());
		frame.setSize(300, 300);
		frame.setVisible(true);
	}
	public static void main(String[] args)
	{
		new javaborder();
	}
}
```

Output:

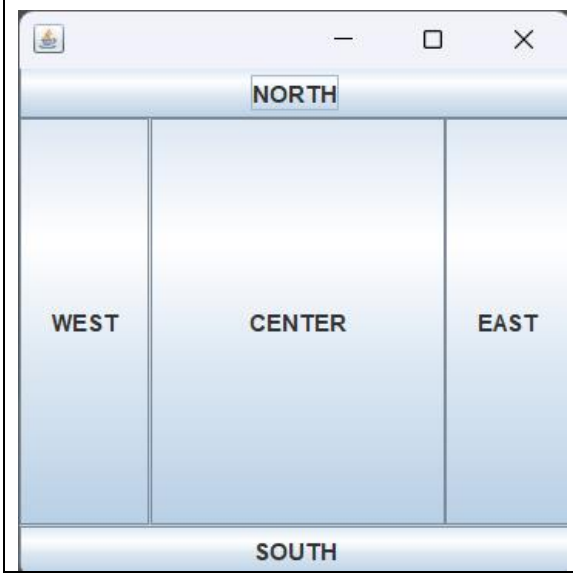


(B)Border Layout

Code:

```
import java.awt.*;
import javax.swing.*;

public class javaborder
{
	JFrame frame;
	javaborder()
	{
		frame = new JFrame();
		JButton northButton = new JButton("NORTH");
		JButton southButton = new JButton("SOUTH");
		JButton eastButton = new JButton("EAST");
		JButton westButton = new JButton("WEST");
		JButton centerButton = new JButton("CENTER");
		frame.add(northButton, BorderLayout.NORTH);
		frame.add(southButton, BorderLayout.SOUTH);
		frame.add(eastButton, BorderLayout.EAST);
		frame.add(westButton, BorderLayout.WEST);
		frame.add(centerButton, BorderLayout.CENTER);
		frame.setSize(300, 300);
		frame.setVisible(true);
	}
	public static void main(String[] args)
	{
		new javaborder();
	}
}
```

Output:



19. Write programs to demonstrate the following events:

a. ActionEvent

b. MouseEvent

c. KeyEvent

Ans:

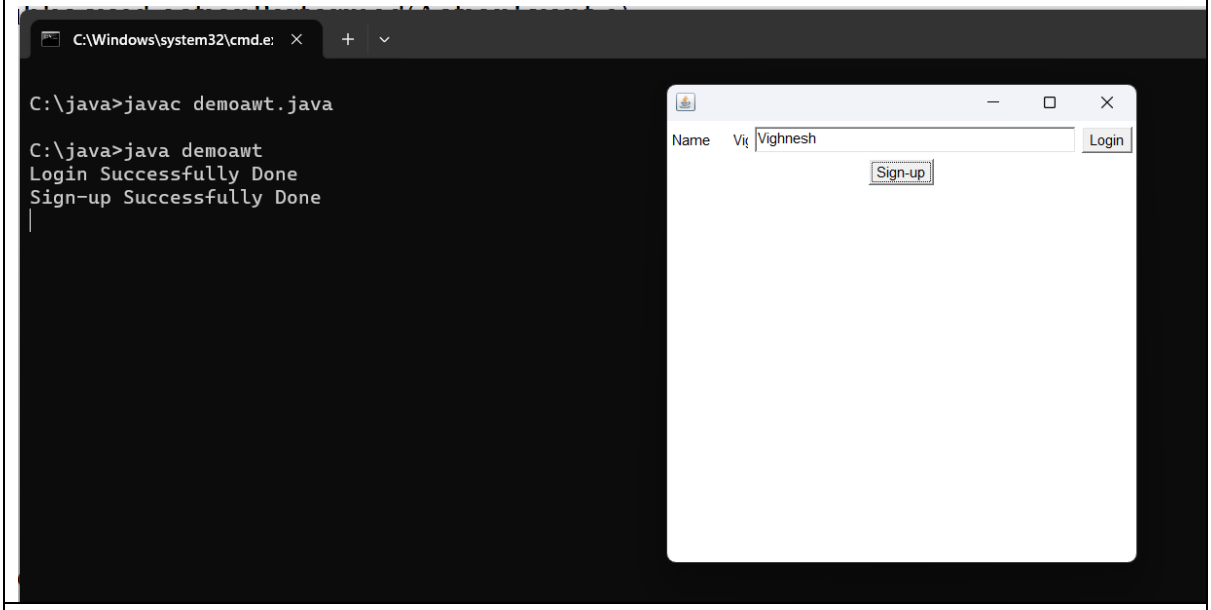
(A) Action Event

Code:

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

class A extends Frame implements ActionListener
{
        TextField tf1;
        Label l1;
        Label l2;
        Button b1;
        Button b2;
        public A()
        {
                l1=new Label("Name");
            add(l1);
                l2=new Label();
            add(l2);

                tf1=new TextField(30);
            add(tf1);
                b1=new Button("Login");
                add(b1);
                b1.addActionListener(this);
                b2=new Button("Sign-up");
                add(b2);
                b2.addActionListener(this);
                setSize(400,400);
                setLayout(new FlowLayout());
                setVisible(true);
        }
        public void actionPerformed(ActionEvent e)
        {
                if(e.getSource()==b1)
                {
                        l2.setText(tf1.getText());
                        System.out.println("Login Successfully Done");
                }
                else if(e.getSource()==b2)
                {
                        System.out.println("Sign-up Successfully Done");
```

```
                }
                else
                {
                        System.out.println("Invalid Choice");
                }
        }
}
class demoawt
{
        public static void main(String args[])
        {
                new A();

        }
}
```

Output:



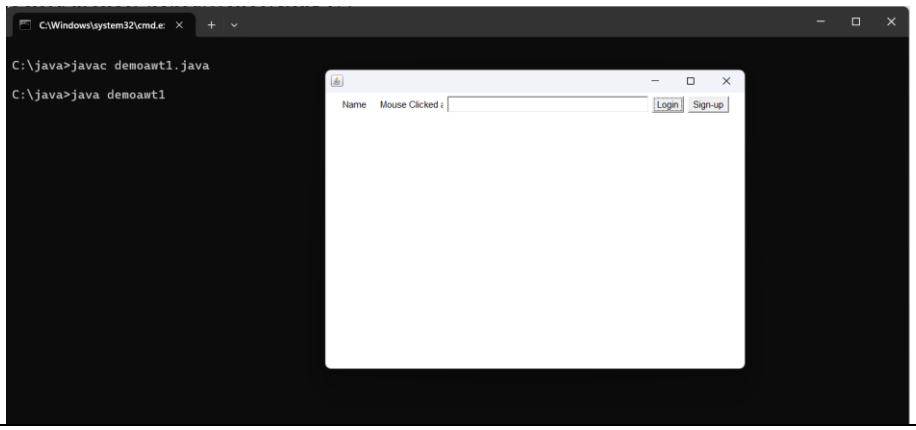
(B) Mouse Event

Code:

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

class demoawt1 extends Frame implements MouseListener {
    TextField tf1;
    Label l1;
    Label l2;
    Button b1;
    Button b2;

    public demoawt1() {
        l1 = new Label("Name");
        add(l1);
```

```
        l2 = new Label("Move the mouse");
        add(l2);
        l2.addMouseListener(this);
        tf1 = new TextField(30);
        add(tf1);
        b1 = new Button("Login");
        add(b1);
        b2 = new Button("Sign-up");
        add(b2);
        setSize(400, 400);
        setLayout(new FlowLayout());
        setVisible(true);
    }

    public void mouseClicked(MouseEvent e) {
        l2.setText("Mouse Clicked at (" + e.getX() + ", " + e.getY() + ")");
    }

    public void mousePressed(MouseEvent e) {
        l2.setText("Mouse Pressed at (" + e.getX() + ", " + e.getY() + ")");
    }

    public void mouseReleased(MouseEvent e) {
        l2.setText("Mouse Released at (" + e.getX() + ", " + e.getY() + ")");
    }

    public void mouseEntered(MouseEvent e) {
        l2.setText("Mouse Entered at (" + e.getX() + ", " + e.getY() + ")");
    }

    public void mouseExited(MouseEvent e) {
        l2.setText("Mouse Exited");
    }

    public static void main(String args[]) {
        new demoawt1();
    }
}
```

Output:

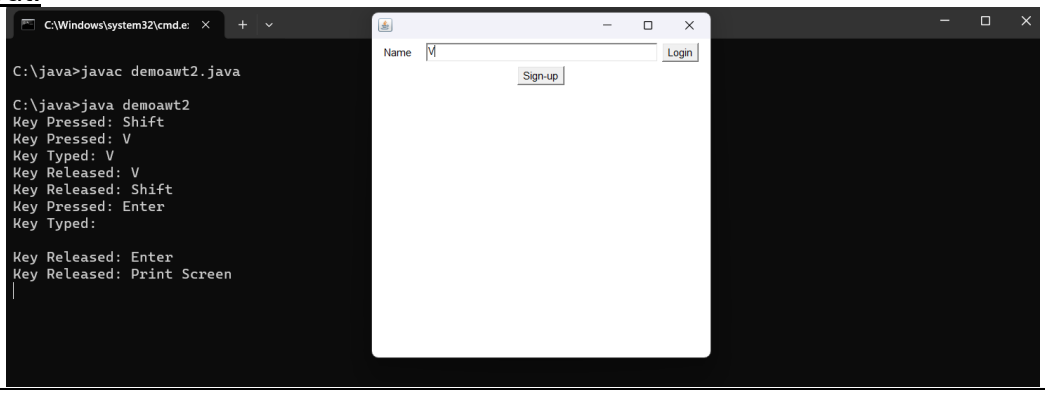


(C) Key Event

Code:

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

class demoawt2 extends Frame implements KeyListener {
   TextField tf1;
   Label l1;
   Button b1;
   Button b2;

   public demoawt2() {
      l1 = new Label("Name");
      add(l1);

      tf1 = new TextField(30);
      add(tf1);
          tf1.addKeyListener(this);
      b1 = new Button("Login");
      add(b1);
      b2 = new Button("Sign-up");
      add(b2);
      setSize(400, 400);
      setLayout(new FlowLayout());
      setVisible(true);
   }

   public void keyTyped(KeyEvent e) {
      char keyChar = e.getKeyChar();
      System.out.println("Key Typed: " + keyChar);
   }

   public void keyPressed(KeyEvent e) {
      int keyCode = e.getKeyCode();
      System.out.println("Key Pressed: " + KeyEvent.getKeyText(keyCode));
   }

   public void keyReleased(KeyEvent e) {
      int keyCode = e.getKeyCode();
      System.out.println("Key Released: " + KeyEvent.getKeyText(keyCode));
   }

   public static void main(String args[]) {
      new demoawt2();
   }
}
```

Output:



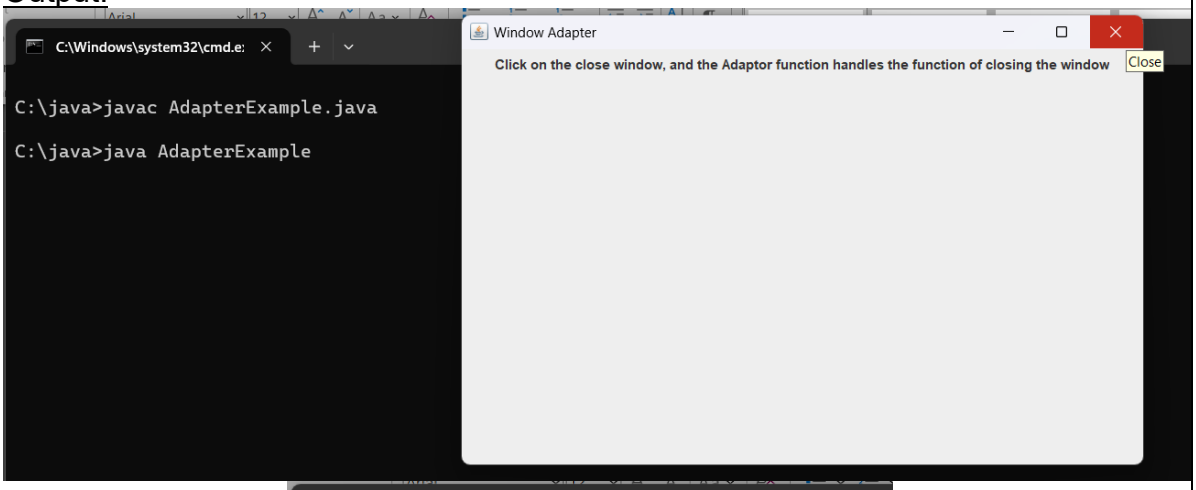
20.Demonstrate the use of Adapter Class in Event Handling

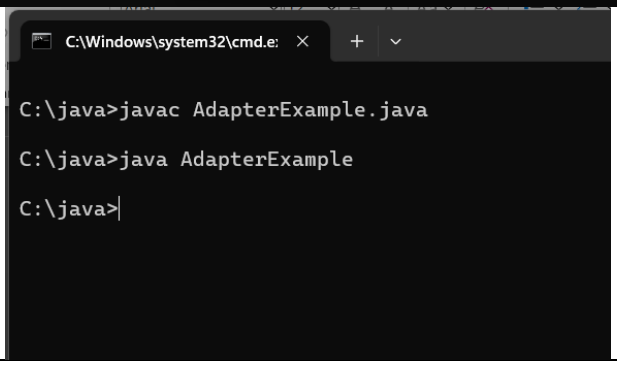
Ans:

Code:

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
public class AdapterExample
{
	private JFrame f;
	private JLabel lb1;
	AdapterExample()
	{
		f = new JFrame("Window Adapter");
		lb1=new JLabel("Click on the close window, and the Adaptor function handles the function of
closing the window");
		f.addWindowListener(new WindowAdapter()
		{
			public void windowClosing(WindowEvent e)
			{
				f.dispose();
			}
		});
		f.add(lb1);
		f.setSize(400, 400);
		f.setLayout(new FlowLayout());
		f.setVisible(true);
	}
	public static void main(String[] args)
	{
		new AdapterExample();
	}
}
```

Output:





21.Demonstrate the use of Anonymous Inner Class in Event Handling

Ans:

Code:

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

public class AnrClassDemo
{
	public static void main(String[] args)
	{
	Button button = new Button("Click Me!");
	button.addActionListener(new ActionListener() {
		@Override
			public void actionPerformed(ActionEvent e)
			{
			System.out.println("You clicked the button!");
			}
	});

	Frame frame = new Frame();
	frame.add(button);
	frame.setSize(300, 300);
	frame.setVisible(true);
	}
}
```

Output: