

/*1.STRING OPERATIONS*/

```
import java.io.*;

class StringOperation
{
    public static void main(String a[])throws IOException
    {
        String s1,s2;
        int m=0,n=0;

        DataInputStream din=new DataInputStream(System.in);
        System.out.print("\nString Operations");
        System.out.print("\n*****");
        System.out.print("\nEnter a string : ");
        s1=din.readLine();
        System.out.println("Given string is : "+s1);
        System.out.println("Length of the string is : "+s1.length());
        System.out.print("Enter a position : ");
        n=Integer.parseInt(din.readLine());
        System.out.println("Character at position "+n+" is : "+s1.charAt(n));
        System.out.println("Substring from position "+n+" is : "+s1.substring(n));
        System.out.print("Enter a end position : ");
        m=Integer.parseInt(din.readLine());
        System.out.println("Substring from position "+n+" to "+m+" is : "+s1.substring(n,m));
        System.out.println("Uppercase : "+s1.toUpperCase());
        System.out.println("Lowercase : "+s1.toLowerCase());
        System.out.println("Replace 'o' with 'a' : "+s1.replace('o','a'));
        System.out.println("Position of character 'd' : "+s1.indexOf('d'));
        System.out.print("\nEnter second string : ");
        s2=din.readLine();
        System.out.print("\nConcatenation of strings : "+s1.concat(s2));
```

```
System.out.print("\nEqual or not : "+s1.equals(s2));  
System.out.print("\nString Compare : "+s1.compareTo(s2));  
System.out.println("\nString equal or not (case ignore) : "+s1.equalsIgnoreCase(s2));  
}  
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac StringOperation.java

C:\Users\ELCOT\Documents>java StringOperation

```
String Operations
*****
Enter a string : Hello World
Given string is : Hello World
Length of the string is : 11
Enter a position : 4
Character at position 4 is : o
Substring from position 4 is : o World
Enter a end position : 10
Substring from position 4 to 10 is : o Worl
Uppercase : HELLO WORLD
Lowercase : hello world
Replace 'o' with 'a' : Hella World
Position of character 'd' : 10

Enter second string : hello world

Concatenation of strings : Hello Worldhello world
Equal or not : false
String Compare : -32
String equal or not (case ignore) : true
```

/*2.MULTIPLE INHERITANCE USING INTERFACES*/

```
import java.io.*;
import java.util.*;
interface Sports
{
    float s_wt=10;
    public void displaywt();
}
class Student
{
    int rollno;
    String name;
    void getstuddetails(int x,String n)
    {
        rollno=x;
        name=n;
    }
    void putstuddetails()
    {
        System.out.println("\nRoll No : "+rollno);
        System.out.println("\nName of the student : "+name);
    }
}
class Test extends Student
{
    float mark1,mark2;
    void getmarks(float m1,float m2)
    {
        mark1=m1;
        mark2=m2;
```

```

}
void displaymarks()
{
    System.out.println("\nSubject 1 mark : "+mark1);
    System.out.println("\nSubject 2 mark : "+mark2);
    System.out.println("\nTotal marks : "+(mark1+mark2));
}
}

class Result extends Test implements Sports
{
    public void displaywt()
    {
        System.out.println("\nSports weightage : "+s_wt);
    }
    void resdisplay()
    {
        putstuddetails();
        displaymarks();
        displaywt();
    }
}

class MultipleIn
{
    public static void main(String args[]) throws IOException
    {
        System.out.println("\nMULTIPLE INHERITANCE USING INTERFACE");
        System.out.println("*****");
        Result r1=new Result();
        Scanner s1=new Scanner(System.in);
        System.out.print("\nEnter Roll No : ");
    }
}

```

```
int r=s1.nextInt();
System.out.print("\nEnter Name : ");
String n=s1.next();
System.out.print("\nEnter the mark1 and mark2 : ");
float ma1=s1.nextFloat();
float ma2=s1.nextFloat();
r1.getstuddetails(r,n);
r1.getmarks(ma1,ma2);
System.out.println("\nSTUDENT DETAILS USING INTERFACE");
System.out.println("*****");
r1.resdisplay();
}
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac MultipleIn.java

C:\Users\ELCOT\Documents>java MultipleIn

```
MULTIPLE INHERITANCE USING INTERFACE
*****

Enter Roll No : 451

Enter Name : Raga

Enter the mark1 and mark2 : 80 90

STUDENT DETAILS USING INTERFACE
*****

Roll No : 451

Name of the student : Raga

Subject 1 mark : 80.0

Subject 2 mark : 90.0

Total marks : 170.0

Sports weightage : 10.0
```

/*3.EXCEPTION HANDLING-(PAYOUT OF BOUNDS)*/

```
import java.io.*;
import java.util.*;
class PayoutOfBounds extends Exception
{
    PayoutOfBounds(String msg)
    {
        super(msg);
    }
}
class PayException
{
    public static void main(String args[])
    {
        Scanner s = new Scanner(System.in);
        System.out.println("\nEXCEPTION HANDLING (PAYOUT OF BOUNDS EXCEPTION)");
        System.out.println("*****");
        System.out.print("\nEnter name of the employee : ");
        String name = s.next();
        System.out.print("\nEnter Basic Pay : ");
        int bp = s.nextInt();
        try{
            if(bp>10000)
                throw new PayoutOfBounds("Our company basic pay is below 10000");
            else
                System.out.println(name+" basic pay : "+bp);
        }
        catch(PayoutOfBounds e)
        {
            System.out.println("Give basic pay below 10000");
        }
    }
}
```



```
System.out.println(e.getMessage());  
}  
finally  
{  
System.out.println("Done calculation");  
}  
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac PayException.java

C:\Users\ELCOT\Documents>java PayException

```
EXCEPTION HANDLING (PAYOUT OF BOUNDS EXCEPTION)
*****
```

Enter name of the employee : Raga

Enter Basic Pay : 12000

Give basic pay below 10000

Our company basic pay is below 10000

Done calculation

C:\Users\ELCOT\Documents>java PayException

```
EXCEPTION HANDLING (PAYOUT OF BOUNDS EXCEPTION)
*****
```

Enter name of the employee : Reva

Enter Basic Pay : 8501

Reva basic pay : 8501

Done calculation

/*4.MULTITHREADING USING PRIORITIES*/

```
import java.io.*;

class Five extends Thread
{
    public void run()
    {
        for(int i=1;i<=5;i++)
            System.out.println(i+" * 5 = "+(i*5));
        System.out.println("Exit Five");
    }
}

class Seven extends Thread
{
    public void run()
    {
        for(int j=1; j<=5; j++)
            System.out.println(j+" * 7 = "+(j*7));
        System.out.println("Exit Seven");
    }
}

class Thirteen extends Thread
{
    public void run()
    {
        for(int k=1; k<=5; k++)
            System.out.println(k+" * 13 = "+(k*13));
        System.out.println("Exit Thirteen");
    }
}

class Multithread
```

```
{
public static void main(String args[])
{
Five f=new Five();
Seven s=new Seven();
Thirteen t=new Thirteen();
f.setPriority(1);
s.setPriority(2);
t.setPriority(10);
System.out.println("\nMultithreading Using Priorities");
System.out.println("*****\n");
f.start();
s.start();
t.start();
}
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac Multithread.java

C:\Users\ELCOT\Documents>java Multithread

```
Multithreading Using Priorities  
*****
```

```
1 * 13 = 13  
2 * 13 = 26  
3 * 13 = 39  
4 * 13 = 52  
5 * 13 = 65  
Exit Thirteen  
1 * 5 = 5  
2 * 5 = 10  
1 * 7 = 7  
2 * 7 = 14  
3 * 5 = 15  
4 * 5 = 20  
3 * 7 = 21  
5 * 5 = 25  
Exit Five  
4 * 7 = 28  
5 * 7 = 35  
Exit Seven
```

/*5.CREATION OF SHAPES IN WINDOWS*/

```
import java.awt.*;
import java.applet.*;
public class SomeShapes extends Applet
{
    public void paint(Graphics g)
    {
        g.drawString("Examples of some shapes",40,20);
        g.drawLine(40,30,200,30);

        g.setColor(Color.red);
        g.drawString("1.Rectangle",40,50);
        g.drawLine(40,60,200,60);
        g.drawRect(40,70,70,40);
        g.fillRect(140,70,70,40);

        g.setColor(Color.green);
        g.drawString("2.Square",40,130);
        g.drawLine(40,140,200,140);
        g.drawRect(40,150,40,40);
        g.fillRect(140,150,40,40);

        g.setColor(Color.magenta);
        g.drawString("3.Oval",40,210);
        g.drawLine(40,220,200,220);
        g.drawOval(40,230,70,40);
        g.fillOval(140,230,70,40);

        g.setColor(Color.blue);
        g.drawString("4.Circle",40,290);
```

```
g.drawLine(40,300,200,300);
g.drawOval(40,310,40,40);
g.fillOval(140,310,40,40);

g.setColor(Color.black);
g.drawString("5.Triangle",40,370);
g.drawLine(40,380,200,380);

g.drawLine(40,390,40,450);
g.drawLine(40,390,200,390);
g.drawLine(40,450,200,390);

g.setColor(Color.cyan);
g.drawString("6.Arc",40,470);
g.drawLine(40,480,200,480);
g.drawArc(40,490,75,95,0,90);
g.fillArc(140,490,75,95,0,90);
}
}
```

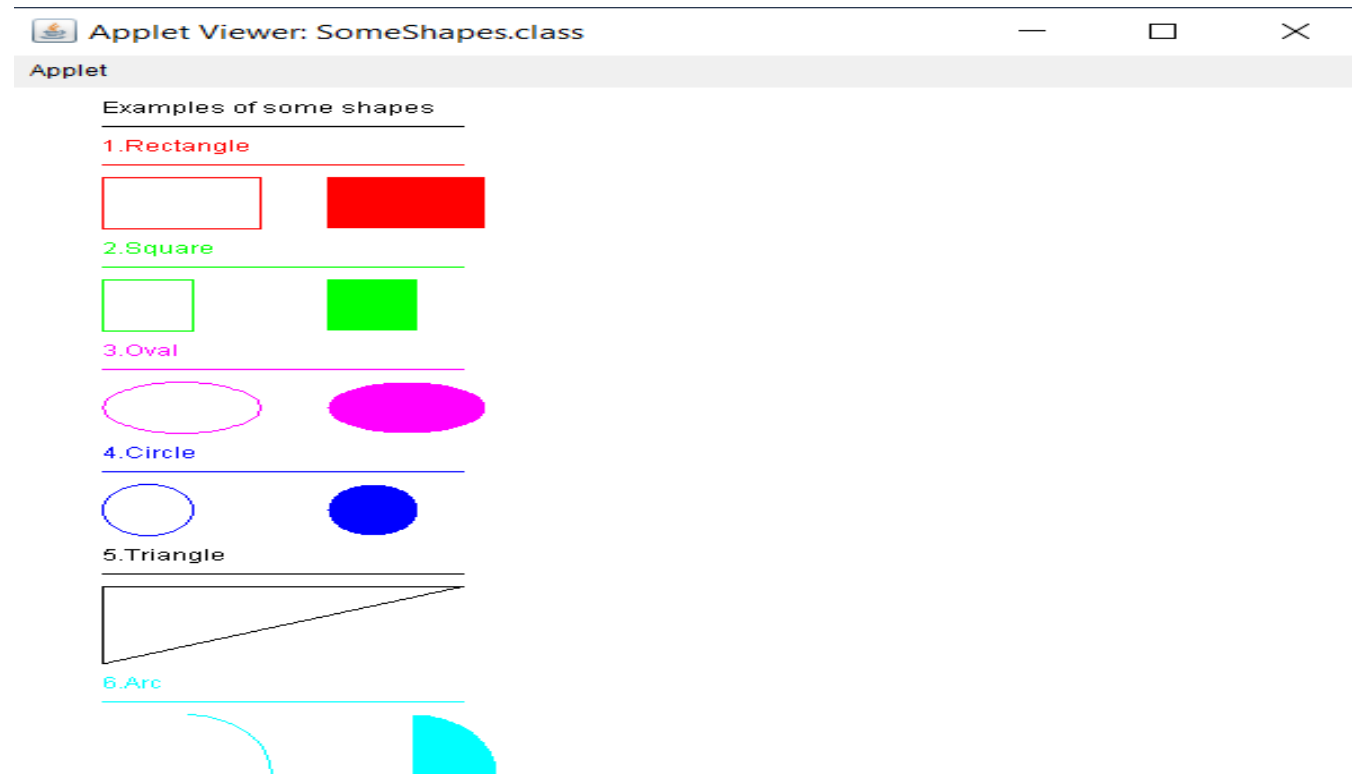
SomeShapes.html

```
<HTML>
<HEAD>
<title>Hello World Applet</title>
</HEAD>
<applet code="SomeShapes.class" width=600 height=600></applet>
</HTML>
```

OUTPUT:

C:\Users\ELCOT\Documents>javac SomeShapes.java

C:\Users\ELCOT\Documents>appletviewer SomeShapes.html



Applet started.

/*6.CREATION OF FRAME WITH TEXTFIELDS AND BUTTON*/

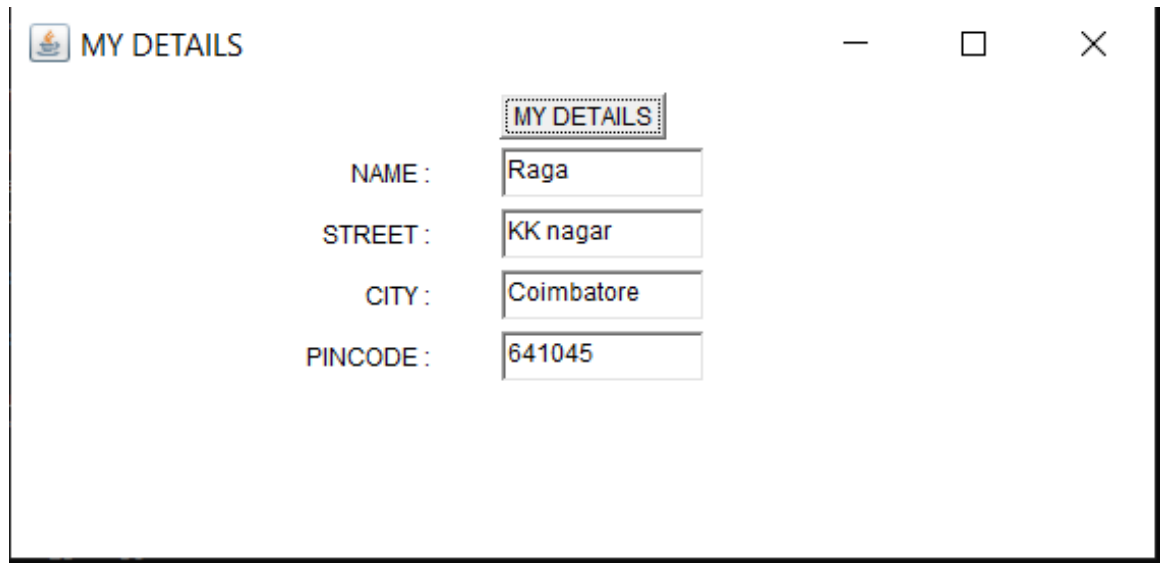
```
import java.awt.*;
import java.applet.*;
public class Mydetails extends Frame
{
    Panel p1=new Panel();
    TextField name,street,city,pin;
    Label n,s,c,p;
    Button b;
    public Mydetails()
    {
        setTitle("MY DETAILS");
        add(n=new Label("NAME : ",Label.RIGHT));
        add(s=new Label("STREET : ",Label.RIGHT));
        add(c=new Label("CITY : ",Label.RIGHT));
        add(p=new Label("PINCODE : ",Label.RIGHT));
        n.reshape(120,70,100,25);
        s.reshape(120,100,100,25);
        c.reshape(120,130,100,25);
        p.reshape(120,160,100,25);
        add(name=new TextField());
        add(street=new TextField());
        add(city=new TextField());
        add(pin=new TextField());
        name.reshape(250,70,100,25);
        street.reshape(250,100,100,25);
        city.reshape(250,130,100,25);
        pin.reshape(250,160,100,25);
        b=new Button("MY DETAILS");
        p1.add(b);
```

```
add(p1);
}
public boolean handleEvent(Event e)
{
    if(e.id==Event.WINDOW_DESTROY)
        System.exit(0);
    return (super.handleEvent(e));
}
public boolean action(Event e,Object arg)
{
    if(arg.equals("MY DETAILS"))
    {
        name.setText("Raga");
        street.setText("KK nagar");
        city.setText("Coimbatore");
        pin.setText("641045");
    }
    repaint();
    return (super.action(e,arg));
}
public static void main(String args[])
{
    Mydetails md=new Mydetails();
    md.resize(580,280);
    md.show();
}
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac Mydetails.java

C:\Users\ELCOT\Documents>java Mydetails



MY DETAILS

NAME : Raga

STREET : KK nagar

CITY : Coimbatore

PINCODE : 641045

/*7.CREATION OF MULTISELECTION LIST BOX*/

```
import java.awt.*;
import java.applet.*;
import java.awt.event.ItemListener;
import java.awt.event.ItemEvent;
public class Multiselect extends Applet implements ItemListener
{
    List mList=null;
    public void init()
    {
        mList=new List(5,true);
        mList.add("One");
        mList.add("Two");
        mList.add("Three");
        mList.add("Four");
        mList.add("Five");
        mList.add("Six");
        mList.add("Seven");
        add(mList);
        mList.addItemListener(this);
    }
    public void paint(Graphics g)
    {
        String items[]=mList.getSelectedItems();
        String msg="";
        for(int i=0;i<items.length;i++)
        {
            msg=items[i]+" " +msg;
        }
        g.drawString("Selected Items : "+msg,70,140);
    }
}
```

```
}  
public void itemStateChanged(ItemEvent ie)  
{  
    repaint();  
}  
}
```

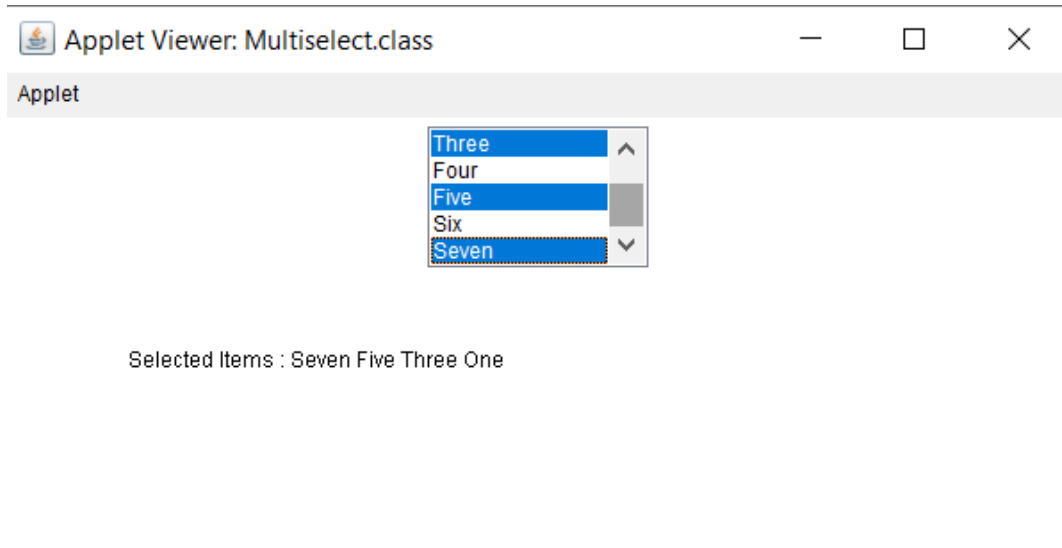
Multiselect.html

```
<html>  
<head>  
<title>"MULTI SELECT"</title>  
</head>  
<body>  
<applet code=Multiselect.class width=600 height=600>  
</applet>  
</body>  
</html>
```

OUTPUT:

C:\Users\ELCOT\Documents>javac Multiselect.java

C:\Users\ELCOT\Documents>appletviewer Multiselect.html



/*8.CREATION OF FRAME WITH TEXTFIELDS AND MULTILINE TEXT AREA*/

```
import java.awt.*;
import java.applet.*;
public class MyTextArea extends Frame
{
    Panel p1=new Panel();
    TextField name,age,qual;
    TextArea addr;
    Label n,a,q,ad;
    Button b;
    public MyTextArea()
    {
        setTitle("MY DETAILS");
        add(n=new Label("NAME : ",Label.RIGHT));
        add(a=new Label("AGE : ",Label.RIGHT));
        add(q=new Label("QUALIFICATION : ",Label.RIGHT));
        add(ad=new Label("ADDRESS : ",Label.RIGHT));
        n.reshape(120,70,100,25);
        a.reshape(120,100,100,25);
        q.reshape(120,130,100,25);
        ad.reshape(120,160,100,25);
        add(name=new TextField());
        add(age=new TextField());
        add(qual=new TextField());
        add(addr=new TextArea());
        name.reshape(250,70,150,25);
        age.reshape(250,100,150,25);
        qual.reshape(250,130,150,25);
        addr.reshape(250,160,250,75);
        b=new Button("MY DETAILS");
```

```
p1.add(b);
add(p1);
}

public boolean handleEvent(Event e)
{
if(e.id==Event.WINDOW_DESTROY)
System.exit(0);
return (super.handleEvent(e));
}

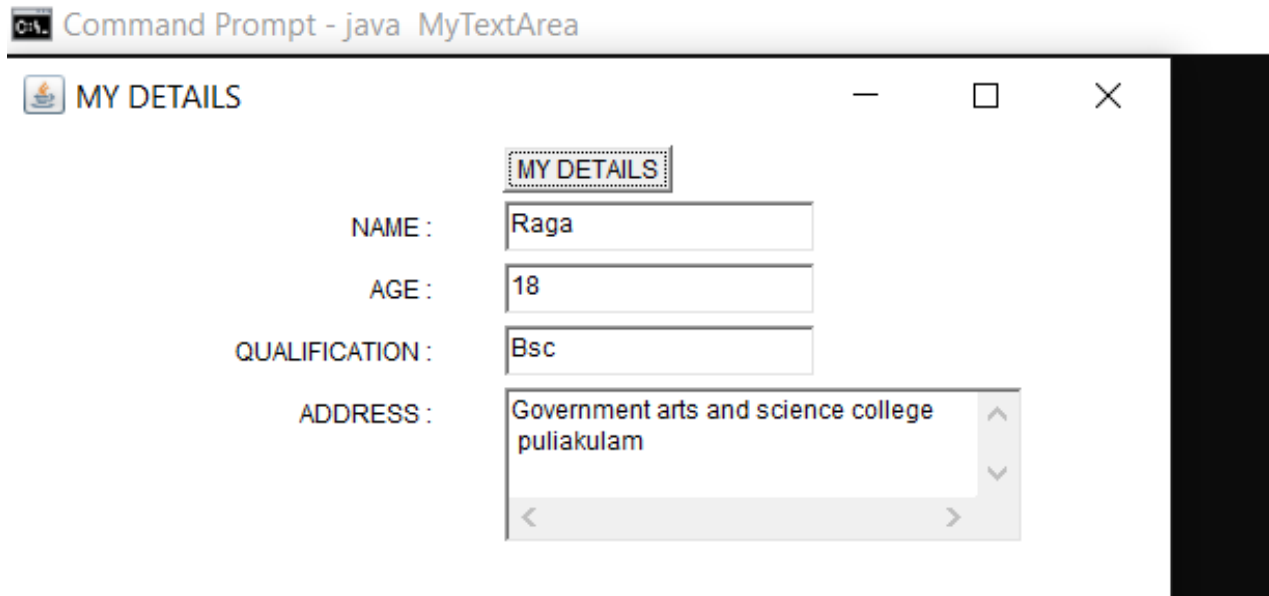
public boolean action(Event e,Object arg)
{
if(arg.equals("MY DETAILS"))
{
name.setText("Raga");
age.setText("18");
qual.setText("Bsc");
addr.setText("Government arts and science college\n puliakulam");
}
repaint();
return (super.action(e,arg));
}

public static void main(String args[])
{
MyTextArea md=new MyTextArea();
md.resize(580,280);
md.show();
}
}
```


OUTPUT:

C:\Users\ELCOT\Documents>javac MyTextArea.java

C:\Users\ELCOT\Documents>java MyTextArea



/*9.CREATION OF MENU BAR AND PULL DOWN MENUS*/

```
import java.awt.*;
import java.applet.*;
public class MyMenu extends Frame
{
    MenuBar mbar;
    Menu filemenu,editmenu,submenu;
    MenuItem m1,m2,m3,m4,m5,m6,m7,m8;
    public MyMenu()
    {
        setTitle("MY MENU");
        setSize(400,400);
        setLayout(new FlowLayout());
        setBackground(Color.magenta);
        setVisible(true);
        setLocationRelativeTo(null);
        mbar=new MenuBar();
        filemenu=new Menu("FILE");
        editmenu=new Menu("EDIT");
        submenu=new Menu("PRINT");
        m1= new MenuItem("NEW");
        m2= new MenuItem("OPEN");
        m3= new MenuItem("SAVE");
        m4= new MenuItem("EXIT");
        m5= new MenuItem("COPY");
        m6= new MenuItem("CUT");
        m7= new MenuItem("PRINT PREVIEW");
        m8= new MenuItem("PRINT SETTINGS");
        filemenu.add(m1);
        filemenu.add(m2);
```

```
filemenu.add(m3);
filemenu.add(m4);
editmenu.add(m5);
editmenu.add(m6);
submenu.add(m7);
submenu.add(m8);
filemenu.add(submenu);
mbar.add(filemenu);
mbar.add(editmenu);
setMenuBar(mbar);
}
public boolean handleEvent(Event e)
{
if(e.id==Event.WINDOW_DESTROY)
System.exit(0);
return (super.handleEvent(e));
}
public static void main(String args[])
{
new MyMenu();
}
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac MyMenu.java

C:\Users\ELCOT\Documents>java MyMenu



/*10.MOUSE EVENTS HANDLING*/

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

public class MouseEvents extends Applet implements MouseListener, MouseMotionListener
{
    String s;

    public MouseEvents()
    {
        addMouseListener(this);
        addMouseMotionListener(this);
    }

    public void mouseClicked(MouseEvent m)
    {
        s="MOUSE CLICKED";
        repaint();
    }

    public void mouseEntered(MouseEvent m)
    {
        s="MOUSE ENTERED";
        repaint();
    }

    public void mouseExited(MouseEvent m)
    {
        s="MOUSE EXITED";
        repaint();
    }

    public void mousePressed(MouseEvent m)
    {
```

```
s="MOUSE DOWN";  
repaint();  
}  
public void mouseReleased(MouseEvent m)  
{  
s="MOUSE UP";  
repaint();  
}  
public void mouseDragged(MouseEvent m)  
{  
s="MOUSE DRAGGED";  
repaint();  
}  
public void mouseMoved(MouseEvent m)  
{  
s="MOUSE MOVED";  
repaint();  
}  
public void paint(Graphics g)  
{  
g.drawString(s,100,100);  
}  
}
```

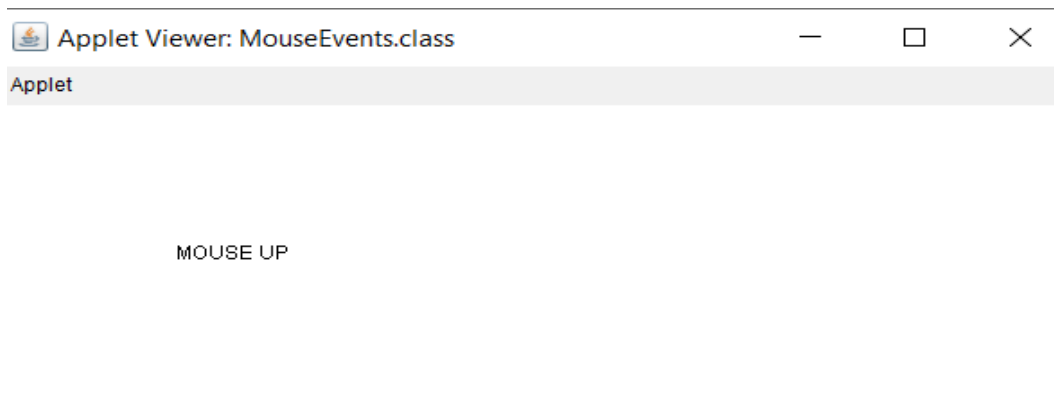
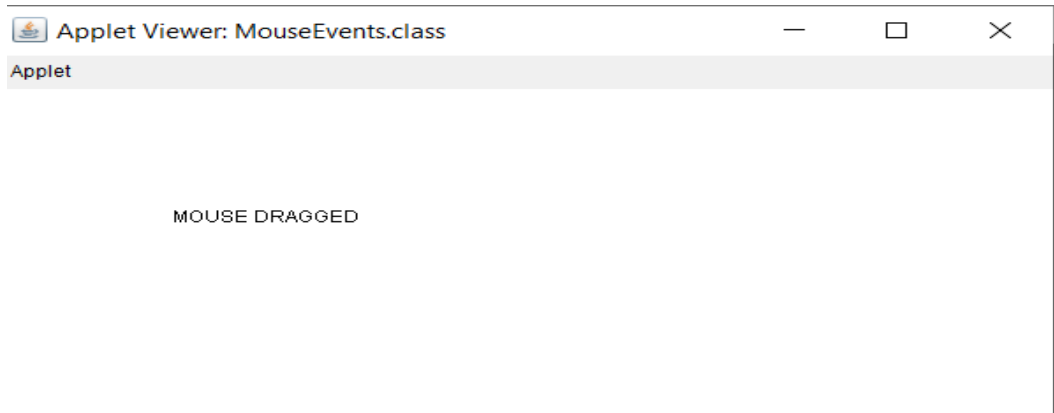
MouseEvents.html

```
<html>  
<applet code=MouseEvents.class width=600 height=600></applet>  
</html>
```

OUTPUT:

C:\Users\ELCOT\Documents>javac MouseEvents.java

C:\Users\ELCOT\Documents>appletviewer MouseEvents.html



/*11.CREATION OF SHAPES AT MOUSE CLICK POSITIONS*/

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

public class ShapesAtMouse extends Frame
{
    String s;
    int x,y,ch;

    public void paint(Graphics g){
        g.setColor(Color.black);
        setTitle("SHAPES AT MOUSE POSITIONS");

        g.drawString("PRESS F1 OR F2 OR F3 or F4",40,80);
        g.drawString("F1-SQUARE",40,130);
        g.drawString("F2-CIRCLE",40,150);
        g.drawString("F3-RECTANGLE",40,170);
        g.drawString("F4-OVAL",40,190);
        setBackground(Color.white);

        if(ch==Event.F1){
            setTitle(s);
            g.fillRect(x,y,60,60);
        }
        if(ch==Event.F2){
            setTitle(s);
            g.fillOval(x,y,60,60);
        }
        if(ch==Event.F3){
            setTitle(s);
            g.fillRect(x,y,80,50);
        }
    }
}
```



```
if(ch==Event.F4){
setTitle(s);
g.fillOval(x,y,80,40);
}
}

public boolean mouseDown(Event e,int mx,int my)
{
x=mx;
y=my;
return true;
}

public boolean keyDown(Event e,int key)
{
if(key==Event.F1){
s="SQUARE";
setTitle(s);
ch=Event.F1;
}

if(key==Event.F2){
s="CIRCLE";
setTitle(s);
ch=Event.F2;
}

if(key==Event.F3){
s="RECTANGLE";
setTitle(s);
ch=Event.F3;
}

if(key==Event.F4){
s="OVAL";
```

```
setTitle(s);
ch=Event.F4;
}
repaint();
return true;
}

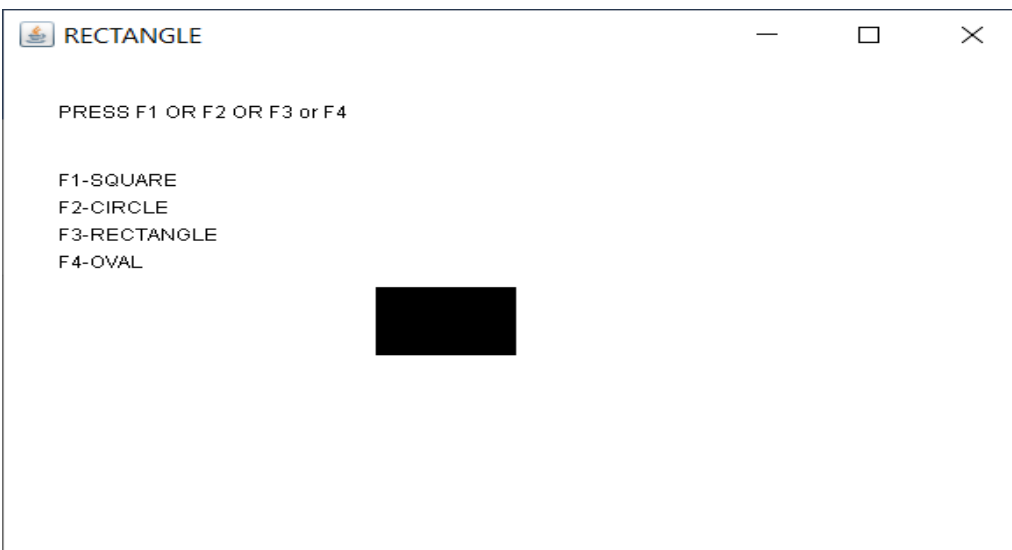
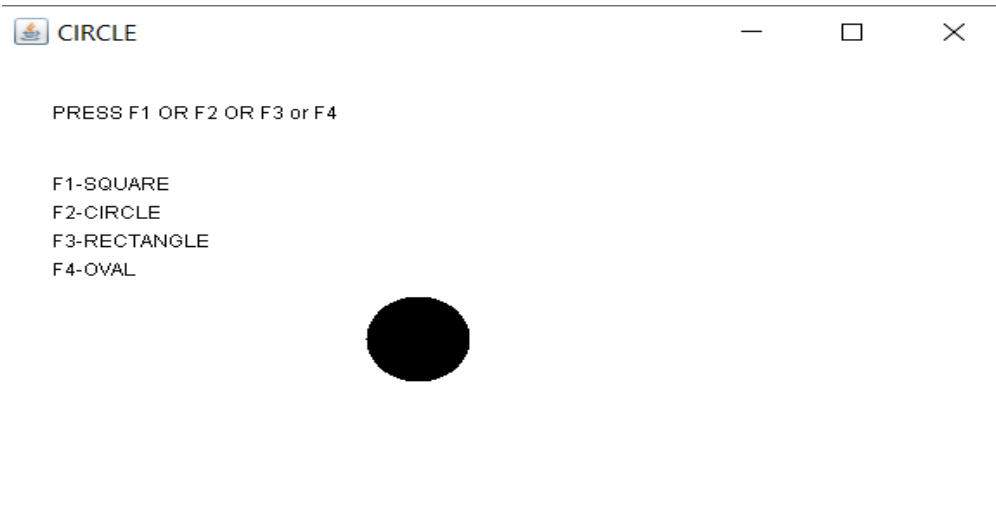
public boolean handleEvent(Event e)
{
if(e.id==Event.WINDOW_DESTROY)
System.exit(0);
return (super.handleEvent(e));
}

public static void main(String args[])
{
ShapesAtMouse s1=new ShapesAtMouse();
s1.resize(600,600);
s1.show();
}
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac ShapesAtMouse.java

C:\Users\ELCOT\Documents>java ShapesAtMouse



/*12.FILE OPERATIONS*/

```
import java.io.*;
import java.util.*;
class Raccessfile
{
public static void main(String args[]) throws IOException
{
try {
    System.out.println("\nFILE OPERATIONS");
    System.out.println("*****");
    Scanner s1=new Scanner(System.in);
    RandomAccessFile rfile = new RandomAccessFile("sample1.txt","rw");
    rfile.seek(rfile.length());
    System.out.println("\nEnter a String for Append to File:");
    rfile.writeBytes(s1.nextLine()+" ");
    rfile.close();
    RandomAccessFile rf = new RandomAccessFile("sample1.txt","rw");

    System.out.println("\nContent of the file is:");
    int c;
    while((c=rf.read())!=-1)
        System.out.print((char)c);
    rf.close();
}
catch(IOException ioe) {
    System.out.println(ioe);
}
}
```

OUTPUT:

C:\Users\ELCOT\Documents>javac Raccessfile.java

C:\Users\ELCOT\Documents>java Raccessfile

```
FILE OPERATIONS
*****

Enter a String for Append to File:
This program append text to file

Content of the file is:
Welcome to java.This program append text to file
```