

Assignment 1) Write a program that demonstrate program structure of java with use of arithmetical and logical implementation.

```
public class Assignment1
{
    public static void main(String[] args)
    {
        // initializing variables
        int num1 = 20, num2 = 10, sum = 0,diff = 0,multi=0;
        float div=0;

        System.out.println("num1 = " + num1);
        System.out.println("num2 = " + num2);

        sum = num1 + num2;
        System.out.println("The sum = " + sum);

        diff = num1 - num2;
        System.out.println("The diff = " + diff);

        multi = num1 * num2;
        System.out.println("The multi = " + multi);

        div = num1 / num2;
        System.out.println("The div = " + div);

        if ((num1==20) && (num2==10))// You can also use || operator
        {
            System.out.println("Both True");
        }
        else
            System.out.println("Both Not True");
    }
}
```

OUTPUT:-

num1 = 20 num2 = 10 The sum = 30 The diff = 10 The multi = 200 The div = 2.0 Both True

Assignment 2) Write a program that demonstrate string operations using String and StringBuffer class.

```
package assignment2;

import java.io.*;

public class Assignment2
{
    public static void main(String[] args)
    {
        try
        {
            DataInputStream d= new DataInputStream(System.in);

            System.out.println("\n enter the 1st String ");

            String s=d.readLine();

            //String Functions

            int y=s.length();

            System.out.println("\n length of string is "+y);

            String z=s.toUpperCase();

            System.out.println("\n string in upper case "+z);

            String l=s.toLowerCase();

            System.out.println("\n string in lower case "+l);

            char m=s.charAt(3);

            System.out.println("\n char at 3rd index is "+m);

            String o=s.replace('a','b');

            System.out.println("\n replaced string is "+o);

            String n=s.substring(2,5);

            System.out.println("\n sub string from 2 to 5 index is "+n);

            System.out.println("\n enter the character to find index");

            String s2=d.readLine();

            int a=s.indexOf(s2);

            System.out.println("\n index of char is "+a);
```

```

System.out.println("\n enter the character to find last index");

String s3=d.readLine();

int b=s.lastIndexOf(s3);

System.out.println("\n last index of char is "+b);

System.out.println("\n enter the 2nd String ");

String s1=d.readLine();

String p=s.concat(s1);

System.out.println("\n concated string is "+p);

boolean b1=s.equals(s1);

if(b1==true)

{

System.out.println("\n strings are equal ");

}

else

{

System.out.println("\n strings are not equal ");

}

//StringBuffer Functions

StringBuffer sf = new StringBuffer("Coding Atharva");

System.out.println("\n String = "+sf); // Will Print the string

System.out.println("\n Length = "+sf.length() ); // total numbers of characters

System.out.println("\n Length = "+sf.capacity() ); // total allocated capacity

sf.setLength(6); // Sets the length and destroy the remaining characters

System.out.println("\n After setting length String = "+sf);

sf.setCharAt(0,'K'); // It will change character at specified position

System.out.println("\n SetCharAt String = "+sf);

sf.setCharAt(0,'C');

int a1 = 7;

sf.append(a1); // It concatenates the other data type value

System.out.println("\n Appended String = "+sf);

```

```

        sf.insert(6," Atharva");// used to insert one string or char or object

        System.out.println("\n Inserted String = "+sf);

        sf.reverse();

        System.out.println("\n Reverse String = "+sf);
    }

    catch(Exception e)

    {

        System.out.println(""+e);

    }

}

}

```

OUTPUT:-

enter the 1st String

manojkumar

length of string is 10

string in upper case MANOJKUMAR

string in lower case manojkumar

char at 3rd index is o

replaced string is mbnojkumbr

sub string from 2 to 5 index is noj

enter the character to find index

a

index of char is 1

enter the character to find last index

a

last index of char is 8

enter the 2nd String

sonawane

concated string is manojkumarsonawane

strings are not equal

String = Coding Atharva

Length = 14

Length = 30

After setting length String = Coding

SetCharAt String = Koding

Appended String = Coding7

Inserted String = Coding Atharva7

Reverse String = 7avrahtA gnidoC

Assignment 3) Write a program that demonstrate inner class and static fields.

```
package assignment3;

class Outer
{
    int outer_x = 100;

    void test()
    {
        Inner inner = new Inner(); inner.display();
    }

    static int count=0;//will get memory only once and retain its value

    Outer()
    {
        count++;//incrementing the value of static variable

        System.out.println(count);
    }
}

class Inner
{
    void display()
    {
        System.out.println("display: outer_x = " + outer_x);
    }
}

public class Assignment3
{
    public static void main(String[] args)
    {
        Outer outer = new Outer();

        outer.test();

        //creating objects
    }
}
```

```
Outer o1=new Outer();
```

```
Outer o2=new Outer();
```

```
Outer o3=new Outer();
```

```
}
```

```
}
```

OUTPUT:-

1

display: outer_x = 100

2

3

4

Assignment 4) Write a program that demonstrate inheritance, polymorphism.

```
package assignment4;

class Animal
{
    public void move()
    {
        System.out.println("Animals can move");
    }
}

class Dog extends Animal
{
    //Method Overriding
    public void move()
    {
        System.out.println("Dogs can walk and run");
    }

    //Method Overloading
    void add(int a,int b)
    {
        int s=a+b;
        System.out.println("Sum="+s);
    }

    void add(int a,int b,int c)
    {
        int s=a+b+c;
        System.out.println("Sum="+s);
    }
}

public class Assignment4
{

```



```
public static void main(String[] args)

{

    Animal a =new Animal();

    Animal b =new Dog();

    a.move();

    b.move();


    Dog d=new Dog();

    d.add(10,20);

    d.add(10,20,30);

}

}
```

OUTPUT:-

Animals can move

Dogs can walk and run

Sum=30

Sum=60

Assignment 5) Write a program that demonstrate 2D shapes on frames.

Steps:-

1. Right Click on your project- New-JFrame
2. Drag JPanel on JFrame
3. Drag JButtons on JPanel
4. Right Click on JButtons-Edit Text
5. Right Click on JButtons-Events-select event/methods you want and write appropriate code.
6. Code

```
package assignment5;
import java.awt.*;
import java.awt.geom.*;
public class NewJFrame extends javax.swing.JFrame {
    public NewJFrame() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();
        jButton4 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jButton1.setText("Rectangle");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton1ActionPerformed(evt);
            }
        });

        jButton2.setText("Ellipse");
        jButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton2ActionPerformed(evt);
            }
        });

        jButton4.setText("Line");
        jButton4.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton4ActionPerformed(evt);
            }
        });
    }
}
```

```

        javax.swing.GroupLayout jPanel1Layout = new
javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(18, 18, 18)
        .addComponent(jButton1)
        .addGap(18, 18, 18)
        .addComponent(jButton2)
        .addGap(18, 18, 18)
        .addComponent(jButton4)
        .addGap(92, 92, Short.MAX_VALUE))
    );
        jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(27, 27, 27)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
BASELINE)
    .addComponent(jButton1)
    .addComponent(jButton2)
    .addComponent(jButton4)
    .addGap(228, 228, Short.MAX_VALUE))
    );

        javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(59, 59, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(59, 59, Short.MAX_VALUE)

```

```

        .addContainerGap()
    );

    pack();
} // </editor-fold>
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    Graphics g1=jPanel1.getGraphics();
    Graphics2D g2 = (Graphics2D)g1;
    g2.setPaint(Color.ORANGE);
    double leftx=100;
    double topy=100;
    double width=100;
    double height=200; //For Square width and height should be same
    Rectangle2D rect = new
Rectangle2D.Double(leftx,topy,leftx+width,topy+height);
    g2.fill(rect);

}
private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    Graphics g1=jPanel1.getGraphics();
    Graphics2D g2 = (Graphics2D)g1;
    g2.setPaint(Color.CYAN);
    double leftx=300;
    double topy=100;
    double width=30;
    double height=40; //For Circle width and height should be same
    Ellipse2D ellipse = new Ellipse2D.Double(leftx,topy,width,height);
    g2.fill(ellipse);

}
private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    Graphics g1=jPanel1.getGraphics();
    Graphics2D g2 = (Graphics2D)g1;
    g2.setPaint(Color.MAGENTA);
    double startx=50;
    double starty=60;
    double endx=600;
    double endy=600;
    Line2D line = new Line2D.Double(startx,starty,endx,endy);
    g2.draw(line);

}
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code
(optional) ">

```

```
/* If Nimbus (introduced in Java SE 6) is not available, stay with the default look
and feel.
```

```
 * For details see
```

```
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
```

```
 */
```

```
try {
```

```
    for (javax.swing.UIManager.LookAndFeelInfo info :
```

```
        javax.swing.UIManager.getInstalledLookAndFeels()) {
```

```
            if ("Nimbus".equals(info.getName())) {
```

```
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
```

```
                break;
```

```
            }
```

```
        }
```

```
    } catch (ClassNotFoundException ex) {
```

```
        java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
        Level.SEVERE, null, ex);
```

```
    } catch (InstantiationException ex) {
```

```
        java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
        Level.SEVERE, null, ex);
```

```
    } catch (IllegalAccessException ex) {
```

```
        java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
        Level.SEVERE, null, ex);
```

```
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {
```

```
        java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
        Level.SEVERE, null, ex);
```

```
    }
```

```
//</editor-fold>
```

```
/* Create and display the form */
```

```
java.awt.EventQueue.invokeLater(new Runnable() {
```

```
    public void run() {
```

```
        new NewJFrame().setVisible(true);
```

```
    }
```

```
});
```

```
}
```

```
// Variables declaration - do not modify
```

```
private javax.swing.JButton jButton1;
```

```
private javax.swing.JButton jButton2;
```

```
private javax.swing.JButton jButton4;
```

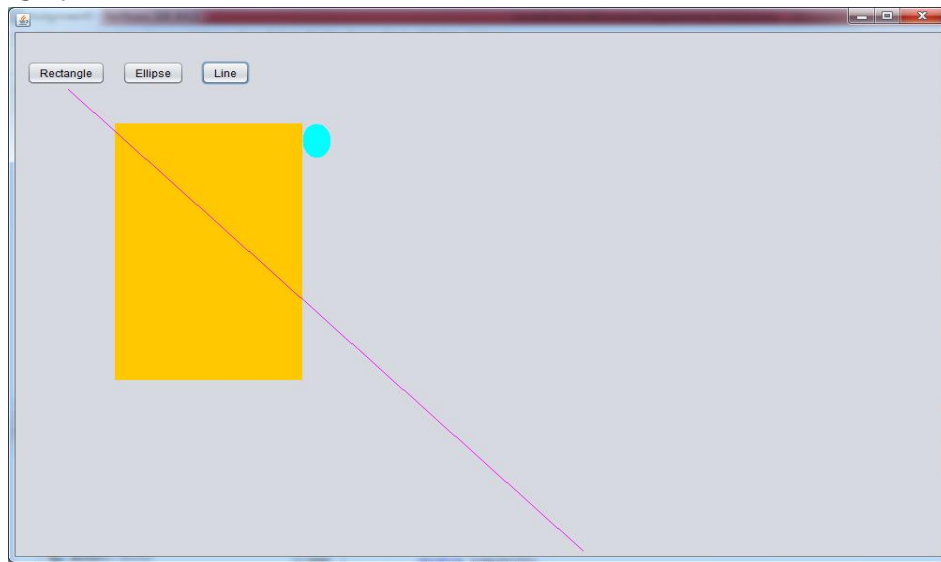
```
private javax.swing.JPanel jPanel1;
```

```
// End of variables declaration
```

```
}
```

7. Right Click in Code-Run File

OUTPUT:-



Assignment 6) Write a program that demonstrate color and fonts.

Steps:-

1. Right Click on your project- New-JFrame
2. Drag JPanel on JFrame
3. Drag JButton on JPanel
4. Right Click on JButton-Edit Text
5. Right Click on JButton-Events-select event/methods you want and write appropriate code.
6. Code

```
import java.awt.*;
import java.awt.geom.*;
import java.util.*;
public class NewJFrame extends javax.swing.JFrame {
    public NewJFrame() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
        jButton1 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jButton1.setText("Click");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton1ActionPerformed(evt);
            }
        });

        javax.swing.GroupLayout jPanel1Layout = new
        javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(

            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addGap(213, 213, 213)
                    .addComponent(jButton1)
                    .addGap(667, Short.MAX_VALUE))
        );
        jPanel1Layout.setVerticalGroup(

            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addGap(213, 213, 213)
                    .addComponent(jButton1)
                    .addGap(667, Short.MAX_VALUE))
        );
    }
}
```

```

        .addComponent(jButton1)
        .addGap(0, 578, Short.MAX_VALUE))
    );

    javax.swing.GroupLayout layout = new
    javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(20, 20, 20)
            .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
    javax.swing.GroupLayout.DEFAULT_SIZE,
    javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(55, Short.MAX_VALUE))
        );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(22, 22, 22)
            .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
    javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addContainerGap())
        );

    pack();
} // </editor-fold>

```

```

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    GraphicsEnvironment
    ge=GraphicsEnvironment.getLocalGraphicsEnvironment();
    String s[]=ge.getAvailableFontFamilyNames();
    Graphics g1=jPanel1.getGraphics();
    Random rd = new Random();

    int y=50;
    int sz=20;
    for(int i=0;i<s.length;i++)
    {
        Font f=new Font(s[i],Font.BOLD,sz);//Font.ITALIC
        g1.setFont(f);

        int r=rd.nextInt(255);
        int g=rd.nextInt(255);
        int b=rd.nextInt(255);
        Color c=new Color(r,g,b);
        g1.setColor(c);
    }
}

```



```

        g1.drawString("Hello World",50,y);
        y=y+20;
        sz=sz+1;
    }
}

public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    <!--editor-fold defaultstate="collapsed" desc=" Look and feel setting code
(optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look
and feel.
    * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
java.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    }
}
</editor-fold>

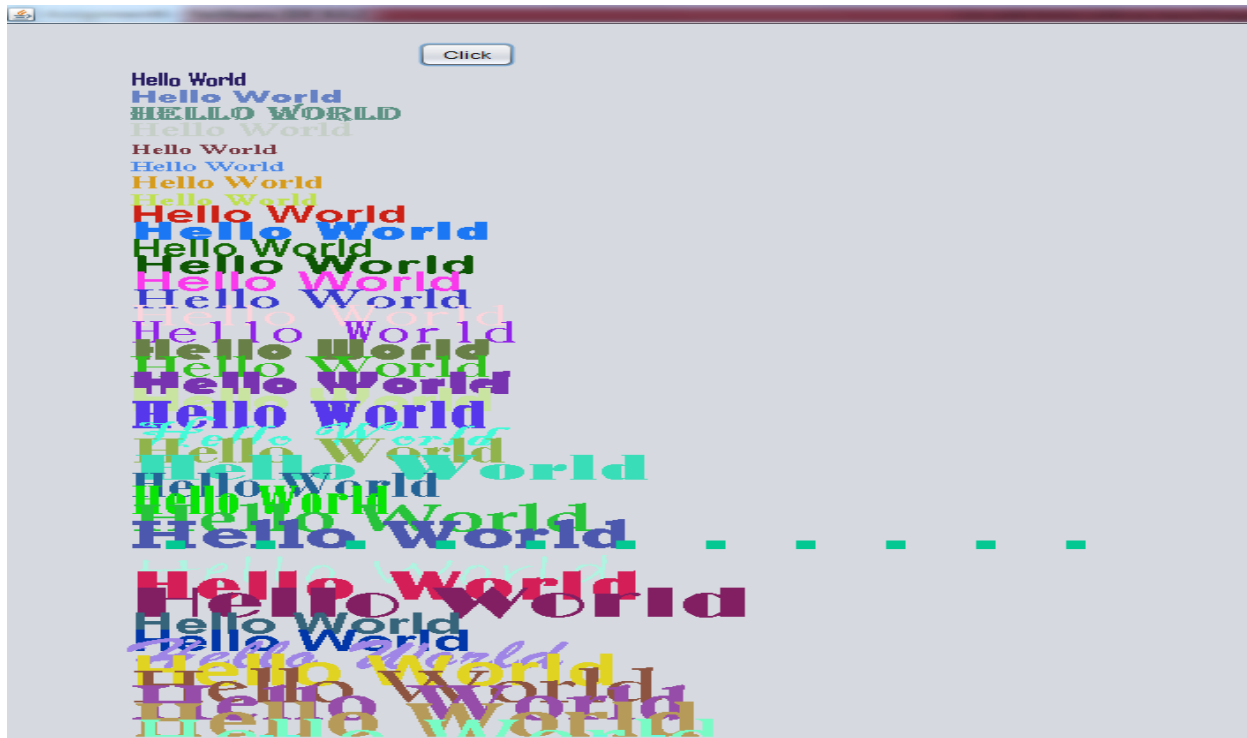
    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new NewJFrame().setVisible(true);
        }
    });
}

```

```
}  
// Variables declaration - do not modify  
private javax.swing.JButton jButton1;  
private javax.swing.JPanel jPanel1;  
// End of variables declaration  
}
```

7. Right Click in Code-Run File

OUTPUT:-



Assignment 7) Write a program to illustrate use of various swing components.

Steps:-

1. Right Click on your project- New-JFrame
2. Drag JPanel on JFrame
3. Drag various components
4. Right Click on components-Edit Text
5. Drag **ButtonGroup** component and set **buttonGroup** property of radiobuttons.
6. Right Click on JComboBox, jList1 and set **model** property.
7. Write Code on Button ActionPerformed

```
package assignment7;

public class NewJFrame extends javax.swing.JFrame {
    public NewJFrame() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        buttonGroup1 = new javax.swing.ButtonGroup();
        jPanel1 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
        jLabel2 = new javax.swing.JLabel();
        jScrollPane1 = new javax.swing.JScrollPane();
        jTextArea1 = new javax.swing.JTextArea();
        jLabel3 = new javax.swing.JLabel();
        jCheckBox1 = new javax.swing.JCheckBox();
        jCheckBox2 = new javax.swing.JCheckBox();
        jCheckBox3 = new javax.swing.JCheckBox();
        jButton1 = new javax.swing.JButton();
        jLabel4 = new javax.swing.JLabel();
        jRadioButton1 = new javax.swing.JRadioButton();
        jRadioButton2 = new javax.swing.JRadioButton();
        jLabel5 = new javax.swing.JLabel();
        JComboBox1 = new javax.swing.JComboBox();
        jLabel6 = new javax.swing.JLabel();
        jScrollPane2 = new javax.swing.JScrollPane();
        jList1 = new javax.swing.JList();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setText("Enter Rno");

        jLabel2.setText("Enter Name");

        jTextArea1.setColumns(20);
```

```

jTextArea1.setRows(5);
jScrollPane1.setViewportView(jTextArea1);

jLabel3.setText("Favorite Color");

jCheckBox1.setText("Red");

jCheckBox2.setText("Green");

jCheckBox3.setText("Blue");

jButton1.setText("Click");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

jLabel4.setText("Class");

buttonGroup1.add(jRadioButton1);
jRadioButton1.setText("MCA-1");

buttonGroup1.add(jRadioButton2);
jRadioButton2.setText("MCA-2");

jLabel5.setText("Laptop");

jComboBox1.setModel(new javax.swing.DefaultComboBoxModel(new String[]
{ "HP", "Dell", "Lenovo" }));

jLabel6.setText("Subject");

jList1.setModel(new javax.swing.AbstractListModel() {
    String[] strings = { "C", "C++", "Java" };
    public int getSize() { return strings.length; }
    public Object getElementAt(int i) { return strings[i]; }
});
jScrollPane2.setViewportView(jList1);

javax.swing.GroupLayout jPanel1Layout = new
javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(35, 35, 35)

```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup())

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
TRAILING, false)
        .addComponent(jLabel6,
javax.swing.GroupLayout.Alignment.LEADING,
javax.swing.GroupLayout.DEFAULT_SIZE, 62, Short.MAX_VALUE)
        .addComponent(jLabel5,
javax.swing.GroupLayout.Alignment.LEADING,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        .addGap(44, 44, 44)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
        .addComponent(jComboBox1,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jScrollPane2,
javax.swing.GroupLayout.PREFERRED_SIZE, 68,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jButton1,
javax.swing.GroupLayout.PREFERRED_SIZE, 92,
javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addGroup(jPanel1Layout.createSequentialGroup())

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
        .addComponent(jLabel1,
javax.swing.GroupLayout.PREFERRED_SIZE, 68,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel2,
javax.swing.GroupLayout.PREFERRED_SIZE, 68,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel3,
javax.swing.GroupLayout.PREFERRED_SIZE, 96,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel4,
javax.swing.GroupLayout.PREFERRED_SIZE, 50,
javax.swing.GroupLayout.PREFERRED_SIZE))

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup())

```

```
.addGap(25, 25, 25)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.  
LEADING)
```

```
        .addComponent(jCheckBox1)  
        .addComponent(jCheckBox2)  
        .addComponent(jCheckBox3)  
        .addComponent(jScrollPane1,  
javax.swing.GroupLayout.PREFERRED_SIZE, 146,  
javax.swing.GroupLayout.PREFERRED_SIZE)  
        .addComponent(jTextField1,  
javax.swing.GroupLayout.PREFERRED_SIZE, 89,  
javax.swing.GroupLayout.PREFERRED_SIZE)))  
    .addGroup(jPanel1Layout.createSequentialGroup())  
    .addGap(13, 13, 13)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.  
LEADING)
```

```
        .addComponent(jRadioButton1)  
        .addComponent(jRadioButton2))))))  
    .addContainerGap(691, Short.MAX_VALUE))  
);  
jPanel1Layout.setVerticalGroup(
```

```
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
    .addGroup(jPanel1Layout.createSequentialGroup())  
    .addGap(55, 55, 55)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.  
BASELINE)
```

```
    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE,  
29, javax.swing.GroupLayout.PREFERRED_SIZE)  
    .addComponent(jTextField1,  
javax.swing.GroupLayout.PREFERRED_SIZE, 29,  
javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.  
LEADING)
```

```
    .addComponent(jScrollPane1,  
javax.swing.GroupLayout.PREFERRED_SIZE, 62,  
javax.swing.GroupLayout.PREFERRED_SIZE)  
    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE,  
25, javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.  
LEADING)
```

```

        .addGroup(jPanel1Layout.createSequentialGroup())
        .addGap(12, 12, 12)
        .addComponent(jLabel3,
javax.swing.GroupLayout.PREFERRED_SIZE, 35,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGroup(jPanel1Layout.createSequentialGroup())
        .addGap(18, 18, 18)
        .addComponent(jCheckBox1)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(jCheckBox2)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(jCheckBox3)))

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup())
        .addGap(21, 21, 21)
        .addComponent(jRadioButton1)

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jRadioButton2)
        .addGap(23, 23, 23))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jLabel4,
javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(36, 36, 36)))

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
TRAILING)
        .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE,
26, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jComboBox1,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(18, 18, 18)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
        .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE,
24, javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addComponent(jScrollPane2,
javax.swing.GroupLayout.PREFERRED_SIZE, 75,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(31, 31, 31)
        .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE,
37, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addContainerGap(64, Short.MAX_VALUE))
    );

    javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(0, 0, Short.MAX_VALUE))
            );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING,
                    layout.createSequentialGroup()
                        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
                        .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addContainerGap())
                    )
            );

    pack();
} // </editor-fold>

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    System.out.println("Rno= "+jTextField1.getText());
    System.out.println("Name= "+jTextArea1.getText());
    String color=" ";
    if (jCheckBox1.isSelected())
        color=color+" "+jCheckBox1.getText();
    if (jCheckBox2.isSelected())
        color=color+" "+jCheckBox2.getText();
    if (jCheckBox3.isSelected())
        color=color+" "+jCheckBox3.getText();

    System.out.println("Favorite Colors= "+color);
}

```



```

String cl=" ";
if (jRadioButton1.isSelected())
cl=cl+" "+jRadioButton1.getText();
else
cl=cl+" "+jRadioButton2.getText();

System.out.println("Class= "+cl);

System.out.println("Laptop= "+jComboBox1.getSelectedItem().toString());

System.out.println("Subjects= ");
Object o[]=jList1.getSelectedValues();
for(int i=0;i<o.length;i++)
{
    System.out.println(o[i].toString());
}

}

public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code
(optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look
and feel.
    * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
g.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
g.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
g.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

```

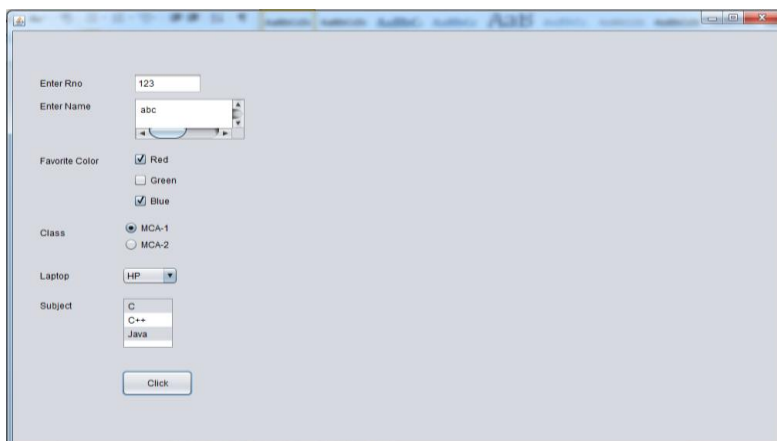
```

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
g.Level.SEVERE, null, ex);
    }
    //</editor-fold>
    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new NewJFrame().setVisible(true);
        }
    });
}
// Variables declaration - do not modify
private javax.swing.ButtonGroup buttonGroup1;
private javax.swing.JButton jButton1;
private javax.swing.JCheckBox jCheckBox1;
private javax.swing.JCheckBox jCheckBox2;
private javax.swing.JCheckBox jCheckBox3;
private javax.swing.JComboBox jComboBox1;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JList jList1;
private javax.swing.JPanel jPanel1;
private javax.swing.JRadioButton jRadioButton1;
private javax.swing.JRadioButton jRadioButton2;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JScrollPane jScrollPane2;
private javax.swing.JTextArea jTextArea1;
private javax.swing.JTextField jTextField1;
// End of variables declaration
}

```

8. Right Click in Code-Run File

OUTPUT:-



Assignment 8) Write a program that demonstrate use of dialog box and menus.

Steps:-

1. Right Click on your project- New-JFrame
2. Drag JPanel on JFrame
3. Drag **JMenuBar**--Edit Text
4. Right Click on JMenuBar-select **Add From Palette-MenuItem/Separator**.
5. Right Click on MenuItem-select event/methods you want.
6. Drag **Popup Menu** on JPanel and add MenuItem, event/methods in it similarly.
7. Right Click on your JPanel, set **componentPopupMenu** property to your popup menu.
8. For User DialogBox- Drag **JDialog** on JPanel, Right Click on your JDialog-**setLayout**, Right Click on your JDialog-**Add From Palette-Swing Controls**.
9. Write Following Code

```
package assignment8;
import javax.swing.*;
import java.io.*;
import java.awt.*;

public class NewJFrame extends javax.swing.JFrame {
    public NewJFrame() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPopupMenu1 = new javax.swing.JPopupMenu();
        Red = new javax.swing.JMenuItem();
        Green = new javax.swing.JMenuItem();
        Blue = new javax.swing.JMenuItem();
        jDialog1 = new javax.swing.JDialog();
        jTextField1 = new javax.swing.JTextField();
        Click = new javax.swing.JButton();
        jPanel1 = new javax.swing.JPanel();
        jMenuBar1 = new javax.swing.JMenuBar();
        jMenu1 = new javax.swing.JMenu();
        jMenuItem1 = new javax.swing.JMenuItem();
        jSeparator1 = new javax.swing.JPopupMenu.Separator();
        jMenuItem2 = new javax.swing.JMenuItem();
        jSeparator2 = new javax.swing.JPopupMenu.Separator();
        jCheckBoxMenuItem1 = new javax.swing.JCheckBoxMenuItem();
        jSeparator3 = new javax.swing.JPopupMenu.Separator();
        jRadioButtonMenuItem1 = new javax.swing.JRadioButtonMenuItem();
        jSeparator5 = new javax.swing.JPopupMenu.Separator();
        jMenuItem6 = new javax.swing.JMenuItem();
        jSeparator4 = new javax.swing.JPopupMenu.Separator();
```

```

jMenuItem4 = new javax.swing.JMenuItem();
jMenu2 = new javax.swing.JMenu();
jMenuItem3 = new javax.swing.JMenuItem();
Red.setText("Red");
Red.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        RedActionPerformed(evt);
    }
});
jPopupMenu1.add(Red);

Green.setText("Green");
Green.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        GreenActionPerformed(evt);
    }
});
jPopupMenu1.add(Green);
Blue.setText("Blue");
Blue.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        BlueActionPerformed(evt);
    }
});
jPopupMenu1.add(Blue);
jDialog1.getContentPane().setLayout(new java.awt.FlowLayout());
jTextField1.setText("jTextField1");
jDialog1.getContentPane().add(jTextField1);
Click.setText("Click");
jDialog1.getContentPane().add(Click);
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
jPanel1.setComponentPopupMenu(jPopupMenu1);
javax.swing.GroupLayout jPanel1Layout = new
javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGap(0, 958, Short.MAX_VALUE)
);
jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGap(0, 581, Short.MAX_VALUE)
);

jMenu1.setText("File");
jMenu1.addActionListener(new java.awt.event.ActionListener() {

```

```

        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jMenuItem1ActionPerformed(evt);
        }
    });

```

```

jMenuItem1.setAccelerator(javax.swing.KeyStroke.getKeyStroke(java.awt.event.KeyEvent.VK_A, java.awt.event.InputEvent.CTRL_MASK));
jMenuItem1.setText("InputDialogBox");
jMenuItem1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jMenuItem1ActionPerformed(evt);
    }
});
jMenu1.add(jMenuItem1);
jMenu1.add(jSeparator1);

```

```

jMenuItem2.setAccelerator(javax.swing.KeyStroke.getKeyStroke(java.awt.event.KeyEvent.VK_B, java.awt.event.InputEvent.CTRL_MASK));
jMenuItem2.setText("MessageDialogBox");
jMenuItem2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jMenuItem2ActionPerformed(evt);
    }
});
jMenu1.add(jMenuItem2);
jMenu1.add(jSeparator2);

```

```

jCheckBoxMenuItem1.setAccelerator(javax.swing.KeyStroke.getKeyStroke(java.awt.event.KeyEvent.VK_C, java.awt.event.InputEvent.ALT_MASK));
jCheckBoxMenuItem1.setSelected(true);
jCheckBoxMenuItem1.setText("ConfirmDialogBox");
jCheckBoxMenuItem1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jCheckBoxMenuItem1ActionPerformed(evt);
    }
});
jMenu1.add(jCheckBoxMenuItem1);
jMenu1.add(jSeparator3);

```

```

jRadioButtonMenuItem1.setAccelerator(javax.swing.KeyStroke.getKeyStroke(java.awt.event.KeyEvent.VK_D, java.awt.event.InputEvent.SHIFT_MASK));
jRadioButtonMenuItem1.setSelected(true);
jRadioButtonMenuItem1.setText("OptionDialogBox");

```



```

);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(35, 35, 35)
            .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
        );

    pack();
} // </editor-fold>

private void jMenuItem1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    String n=JOptionPane.showInputDialog("Enter Name");
    System.out.println("Name="+n);
}

private void jMenuItem3ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    jDialog1.setTitle("This is my DialogBox");
    jDialog1.setSize(222,222);
    jDialog1.show();
}

private void jMenuItem2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    JOptionPane.showMessageDialog(null,"Success");
}

private void jCheckBoxMenuItem1ActionPerformed(java.awt.event.ActionEvent
evt) {
    // TODO add your handling code here:
    int i=JOptionPane.showConfirmDialog(null, "Are you Sure?");
    System.out.println(i);
}

private void jRadioButtonMenuItem1ActionPerformed(java.awt.event.ActionEvent
evt) {
    // TODO add your handling code here:
    String[] options = {"first", "second", "third"};
    int x = JOptionPane.showOptionDialog(null, "Select Option",
        "OptionDialogBox",JOptionPane.DEFAULT_OPTION,
JOptionPane.INFORMATION_MESSAGE, null, options, options[0]);
    System.out.println("Your Option is "+x);
}

private void RedActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:

```

```

        jPanel1.setBackground(Color.red);
    }
    private void GreenActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        jPanel1.setBackground(Color.green);
    }
    private void BlueActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        jPanel1.setBackground(Color.blue);
    }
    private void jMenuItemActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:

    }
    private void jMenuItem6ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        JFileChooser fc=new JFileChooser();
        int i=fc.showOpenDialog(this);
        if(i==JFileChooser.APPROVE_OPTION)
        {
            File f=fc.getSelectedFile();
            String filepath=f.getPath();
            System.out.println("You Selected "+filepath);
        }
    }
    private void jMenuItem4ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        Color c=JColorChooser.showDialog(this,"Select a color",Color.ORANGE);
        jPanel1.setBackground(c);

    }
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        <editor-fold defaultstate="collapsed" desc=" Look and feel setting code
(optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look
and feel.
        * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
        */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        }
    }

```



```

    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
Level.SEVERE, null, ex);
    }
//</editor-fold>

/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new NewJFrame().setVisible(true);
    }
});
}

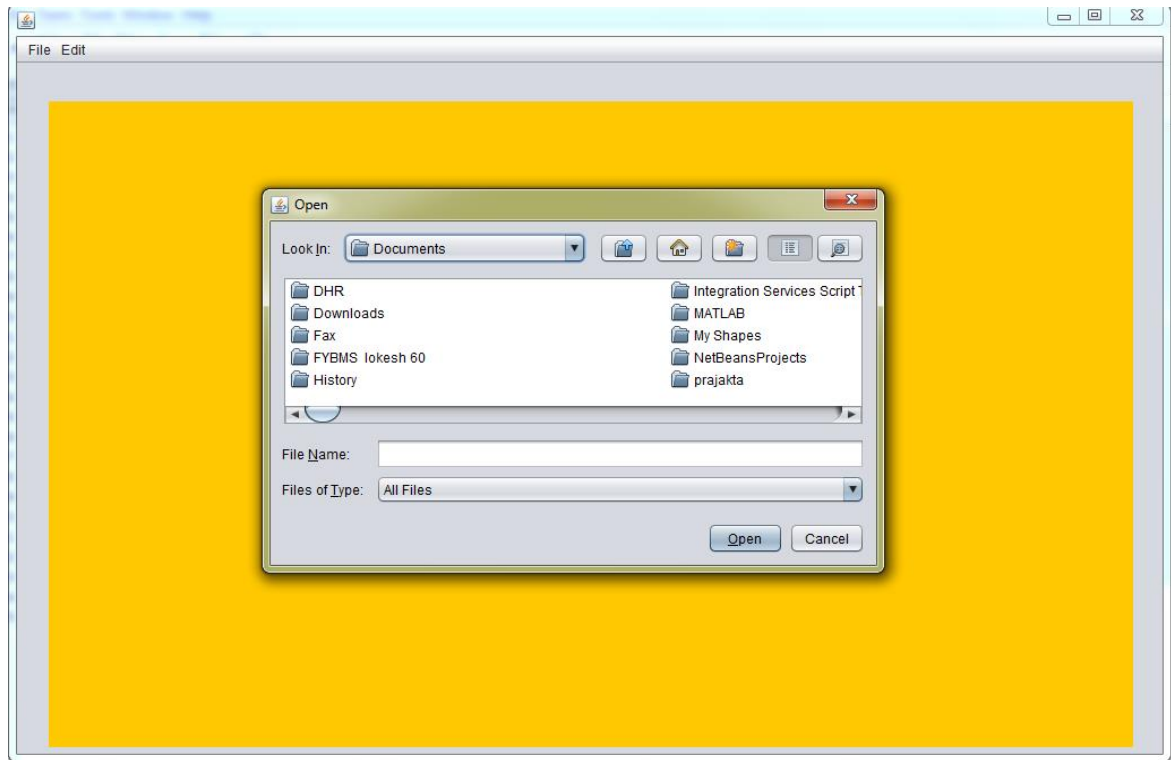
// Variables declaration - do not modify
private javax.swing.JMenuItem Blue;
private javax.swing.JButton Click;
private javax.swing.JMenuItem Green;
private javax.swing.JMenuItem Red;
private javax.swing.JCheckBoxMenuItem jCheckBoxMenuItem1;
private javax.swing.JDialog jDialog1;
private javax.swing.JMenu jMenu1;
private javax.swing.JMenu jMenu2;
private javax.swing.JMenuBar jMenuBar1;
private javax.swing.JMenuItem jMenuItem1;
private javax.swing.JMenuItem jMenuItem2;
private javax.swing.JMenuItem jMenuItem3;
private javax.swing.JMenuItem jMenuItem4;
private javax.swing.JMenuItem jMenuItem6;
private javax.swing.JPanel jPanel1;
private javax.swing.JPopupMenu jPopupMenu1;
private javax.swing.JRadioButtonMenuItem jRadioButtonMenuItem1;
private javax.swing.JPopupMenu.Separator jSeparator1;
private javax.swing.JPopupMenu.Separator jSeparator2;
private javax.swing.JPopupMenu.Separator jSeparator3;
private javax.swing.JPopupMenu.Separator jSeparator4;

```

```
private javax.swing.JPopupMenu.Separator jSeparator5;  
private javax.swing.JTextField jTextField1;  
// End of variables declaration  
}
```

10. Right Click in Code-Run File

OUTPUT:-



Assignment 9) Write a program that demonstrate event handling for various types of events.

Steps:-

1. Right Click on your project- New-JFrame
2. Drag JPanel on JFrame
3. Drag JButton, JTextField on JPanel
4. Right Click on JButton, JTextField-Edit Text
5. Right Click on JButton, JTextField, JPanel-Events-select event/methods you want and write appropriate code.
6. Code

```
package assignment9;
import java.awt.Color;
public class NewJFrame extends javax.swing.JFrame {
    public NewJFrame() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
        jButton2 = new javax.swing.JButton();
        jTextField1 = new javax.swing.JTextField();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jPanel1.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseClicked(java.awt.event.MouseEvent evt) {
                jPanel1MouseClicked(evt);
            }
        });

        jButton2.setText("Mouse");
        jButton2.addMouseListener(new java.awt.event.MouseAdapter() {
            public void mouseEntered(java.awt.event.MouseEvent evt) {
                jButton2MouseEntered(evt);
            }
            public void mouseExited(java.awt.event.MouseEvent evt) {
                jButton2MouseExited(evt);
            }
        });

        jTextField1.addKeyListener(new java.awt.event.KeyAdapter() {
            public void keyTyped(java.awt.event.KeyEvent evt) {
                jTextField1KeyTyped(evt);
            }
        });
    }
}
```

```

        javax.swing.GroupLayout jPanel1Layout = new
javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(53, 53, 53)
                .addComponent(jButton2, javax.swing.GroupLayout.PREFERRED_SIZE,
112, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(81, 81, 81)
                .addComponent(jTextField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 95,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(635, Short.MAX_VALUE))
            );
        jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGap(24, 24, 24)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
BASELINE)
            .addComponent(jButton2,
javax.swing.GroupLayout.PREFERRED_SIZE, 33,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jTextField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 33,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(541, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(19, 19, 19)
                    .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(19, 19, 19))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

```

```

        .addGroup(layout.createSequentialGroup()
            .addContainerGap()
            .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(28, Short.MAX_VALUE))
    );

    pack();
} // </editor-fold>

```

```

private void jButton2MouseEntered(java.awt.event.MouseEvent evt) {
    // TODO add your handling code here:
    jPanel1.setBackground(Color.red);
}
private void jButton2MouseExited(java.awt.event.MouseEvent evt) {
    // TODO add your handling code here:
    jPanel1.setBackground(Color.GREEN);
}
private void jTextField1KeyTyped(java.awt.event.KeyEvent evt) {
    // TODO add your handling code here:
    char a=evt.getKeyChar();
        if(a=='r' || a=='R')
        {
            jPanel1.setBackground(Color.red);
        }
        else if(a=='g' || a=='G')
        {
            jPanel1.setBackground(Color.GREEN);
        }
        else
        {
            jPanel1.setBackground(Color.BLACK);
        }
    }
int count=0;
private void jPanel1MouseClicked(java.awt.event.MouseEvent evt) {
    // TODO add your handling code here:
    count++;
    if(count==1)
        jPanel1.setBackground(Color.RED);
    else if(count==2)
        jPanel1.setBackground(Color.GREEN);
    else if(count==3)
        jPanel1.setBackground(Color.BLUE);
    else

```

```

        count=0;
    }
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code
(optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look
and feel.
        * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
        */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.
Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
Level.SEVERE, null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new NewJFrame().setVisible(true);
            }
        });
    }

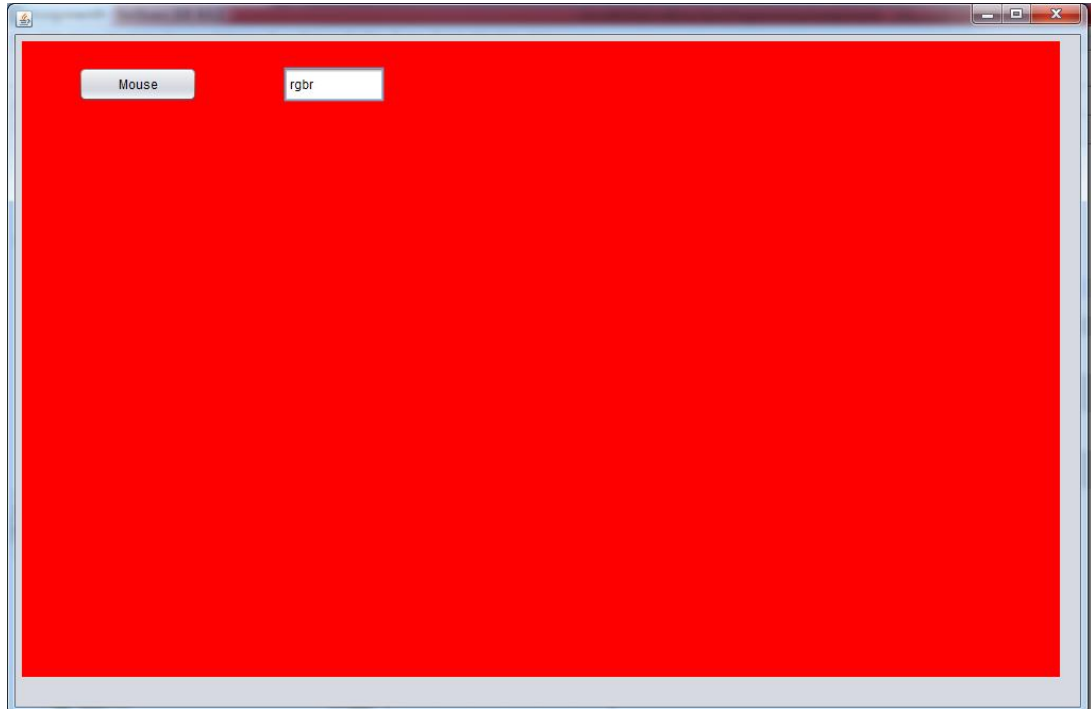
    // Variables declaration - do not modify
    private javax.swing.JButton jButton2;

```

```
private javax.swing.JPanel jPanel1;  
private javax.swing.JTextField jTextField1;  
// End of variables declaration  
}
```

7. Right Click in Code-Run File

OUTPUT:-



Assignment 10) Write a program to illustrate multithreading.

```
package assignment10;

class TestSleepMethod1 extends Thread
{
    public void run()
    {
        for(int i=1;i<=5;i++)
        {
            try
            {
                System.out.println(i);
                Thread.sleep(500);
            }
            catch(InterruptedException e)
            {
                System.out.println(e);
            }
        }
    }
}

public class Assignment10
{
    public static void main(String[] args)
    {
        TestSleepMethod1 t1=new TestSleepMethod1();
        TestSleepMethod1 t2=new TestSleepMethod1();
        TestSleepMethod1 t3=new TestSleepMethod1();
        t1.start();
        t2.start();
        t3.start();
    }
}
```


}

}

OUTPUT:-

1

1

1

2

2

2

3

3

3

4

4

4

5

5

5

Assignment 11) Write a program to illustrate exception handling.

```
package assignment11;
public class Assignment11
{
    public static void main(String[] args)
    {
        try
        {
            int i=2/0;
            int a[]=new int[5];
            a[10]=30;
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
            System.out.println("ArrayIndexOutOfBoundsException");
        }
        catch(ArithmeticException e)
        {
            System.out.println("ArithmeticException");
        }
        catch(Exception e)
        {
            System.out.println("Exception");
        }
        finally
        {
            System.out.println("Finally");
        }
    }
}
```

OUTPUT:-

ArithmeticException

Finally

Assignment 12) Write a program to demonstrate use of File class.

```
package assignment12;

import java.io.*;

public class Assignment12
{
    public static void main(String[] args)
    {
        FileInputStream sourceStream = null; //FileReader for char by char
        FileOutputStream targetStream = null; //FileWriter for char by char

        try
        {
            sourceStream= new FileInputStream("sorcefile.txt");
            targetStream= new FileOutputStream("targetfile.txt");

            // Reading source file and writing
            // content to target file byte by byte

            int temp;

            while ((temp = sourceStream.read())!= -1)
            {
                targetStream.write(temp);
            }

            sourceStream.close();
            targetStream.close();

        }

        catch(Exception e)
        {
            System.out.println("Exception");
        }

        //File class

        File f = new File("sorcefile.txt");
```

```

System.out.println("The name of the file is: " + f.getName());

System.out.println("The absolute path of the file is: " + f.getAbsolutePath());

System.out.println("Is file writeable?: " + f.canWrite());

System.out.println("Is file readable " + f.canRead());

System.out.println("The size of the file in bytes is: " + f.length());

System.out.println("File Exist "+f.exists());

System.out.println("Is File or Directory "+f.isFile());

System.out.println("Is File or Directory "+f.isDirectory());

System.out.println("Is Hidden "+f.isHidden());

System.out.println("Last Modified Time: " + f.lastModified());

}

}

```

OUTPUT:

The name of the file is: sorcefile.txt

The absolute path of the file is: F:\M.S.Sonawane\2021-22\Java\Assignment12\sorcefile.txt

Is file writeable?: true

Is file readable true

The size of the file in bytes is: 46

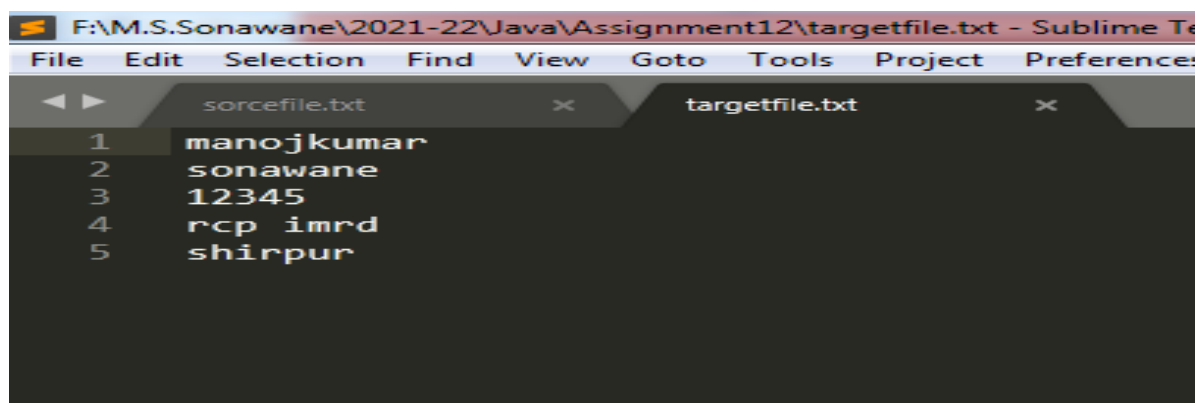
File Exist true

Is File or Directory true

Is File or Directory false

Is Hidden false

Last Modified Time: 1642157554913



Assignment 13) Write a program that demonstrate JDBC on application.

Steps:-

1. Right Click on your project- New-JFrame
2. Drag JPanel on JFrame
3. Drag 2 JLabels, 2 JTextFields, 4 JButtons on JPanel
4. Right Click on all-Edit Text
5. Create Database
6. Create DSN and connect it to Database.
7. Connect DSN to your application in NetBeans.
8. Right Click on 4 JButtons-Events-select event/methods you want and write appropriate code.
9. Code

```
package assignment13;
import java.sql.*;
public class NewJFrame extends javax.swing.JFrame {
    public NewJFrame() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPanel1 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
        jLabel2 = new javax.swing.JLabel();
        jTextField2 = new javax.swing.JTextField();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();
        jButton3 = new javax.swing.JButton();
        jButton4 = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setText("RNo");

        jLabel2.setText("Name");

        jButton1.setText("Insert");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton1ActionPerformed(evt);
            }
        });
    }
}
```

```

jButton2.setText("Update");
jButton2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton2ActionPerformed(evt);
    }
});

jButton3.setText("Delete");
jButton3.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton3ActionPerformed(evt);
    }
});

jButton4.setText("Select");
jButton4.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton4ActionPerformed(evt);
    }
});

javax.swing.GroupLayout jPanel1Layout = new
javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(83, 83, 83)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING, false)
    .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE,
72, Short.MAX_VALUE)
    .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE,
53, javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(83, 83, 83)
        .addComponent(jButton2,
javax.swing.GroupLayout.PREFERRED_SIZE, 83,
javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
    .addComponent(jButton3,
javax.swing.GroupLayout.PREFERRED_SIZE, 81,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
    .addComponent(jButton4,
javax.swing.GroupLayout.PREFERRED_SIZE, 89,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addComponent(jTextField2,
javax.swing.GroupLayout.PREFERRED_SIZE, 106,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 74,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addContainerGap(569, Short.MAX_VALUE))
);
jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(56, 56, 56)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
BASELINE)
    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE,
23, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 23,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(33, 33, 33)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
BASELINE)
    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE,
26, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextField2,
javax.swing.GroupLayout.PREFERRED_SIZE, 26,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(62, 62, 62)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
LEADING, false)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.
BASELINE)

```

```

        .addComponent(jButton2,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
        .addComponent(jButton3,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
        .addComponent(jButton4,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        .addComponent(jButton1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        .addContainerGap(362, Short.MAX_VALUE))
    );

    javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addContainerGap())
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(42, Short.MAX_VALUE))
    );

    pack();
} // </editor-fold>

```

```

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try
    {
        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        Connection c=DriverManager.getConnection("jdbc:odbc:dsn1"," "," ");
        Statement st=c.createStatement();
        String s1=jTextField1.getText();
        int i=Integer.parseInt(s1);
        String s2=jTextField2.getText();
    }
    catch (Exception e) {
        JOptionPane.showMessageDialog(this, e.getMessage());
    }
}

```



```

        int count=st.executeUpdate("insert into student values('"+i+"','"+s2+"')");
        System.out.println("Record Inserted "+count);
    }
    catch(Exception e)
    {
        System.out.println("Insert Exp "+e);
    }
}

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try
    {
        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        Connection c=DriverManager.getConnection("jdbc:odbc:dsn1","", "");
        Statement st=c.createStatement();
        String s1=jTextField1.getText();
        int i=Integer.parseInt(s1);
        String s2=jTextField2.getText();
        int count=st.executeUpdate("update student set sname='"+s2+"' where
rno='"+i+"'");
        System.out.println("Record Updated "+count);
    }
    catch(Exception e)
    {
        System.out.println("Update Exp "+e);
    }
}

private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try
    {
        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        Connection c=DriverManager.getConnection("jdbc:odbc:dsn1","", "");
        Statement st=c.createStatement();
        String s1=jTextField1.getText();
        int i=Integer.parseInt(s1);
        int count=st.executeUpdate("delete * from student where rno='"+i+"'");
        System.out.println("Record Deleted "+count);
    }
    catch(Exception e)
    {
        System.out.println("Delete Exp "+e);
    }
}

private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    try
    {

```

```

        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        Connection c=DriverManager.getConnection("jdbc:odbc:dsn1"," "," ");
        Statement st=c.createStatement();
        String s1=jTextField1.getText();
        int i=Integer.parseInt(s1);
        ResultSet rs=st.executeQuery("select * from student where rno="+i+"");
        while(rs.next())
        {
            jTextField2.setText(rs.getString("sname"));
        }
    }
    catch(Exception e)
    {
        System.out.println("Select Exp "+e);
    }
}

/**
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code
(optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look
and feel.
    * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    }
    catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.loggin
g.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

```

```

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging
g.Level.SEVERE, null, ex);
    }
//</editor-fold>

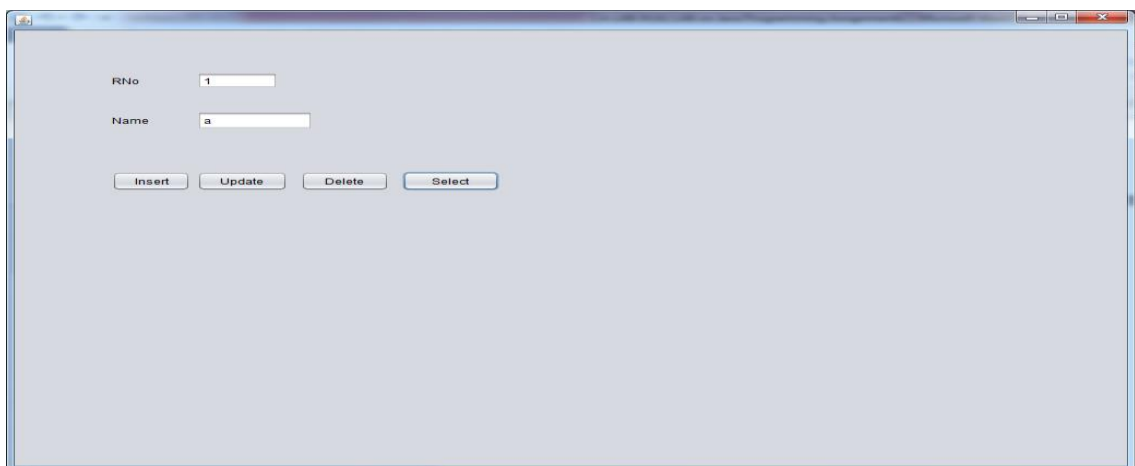
/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new NewJFrame().setVisible(true);
    }
});
}

// Variables declaration - do not modify
private javax.swing.JButton jButton1;
private javax.swing.JButton jButton2;
private javax.swing.JButton jButton3;
private javax.swing.JButton jButton4;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JPanel jPanel1;
private javax.swing.JTextField jTextField1;
private javax.swing.JTextField jTextField2;
// End of variables declaration
}

```

10. Right Click in Code-Run File

OUTPUT:-



Assignment 14) Write a program that demonstrates package creation and use in program.

```
package assignment14;
import mypackage.NewClass;
public class Assignment14
{
    public static void main(String[] args)
    {
        NewClass n=new NewClass();
        n.show();
    }
}
//Create mypackage, Create NewClass
package mypackage;
public class NewClass
{
    public void show()
    {
        System.out.println("Show Method is Called");
    }
}
```

OUTPUT:-

Show Method is Called