**DEPARTMENT OF INFORMATION TECHNOLOGY**

**COURSE CODE: DJS22ITL306 DATE:3/11/23**

**COURSE NAME: Programing Laboratory 1 (Advanced Java) NAME: Anish Sharma**

**CLASS: S.Y B. Tech IT SAP ID : 60003220045**

**EXPERIMENT NO.3**

**CO/LO: CO1**- Modify the behavior of methods, classes, and interfaces at runtime.

**AIM / OBJECTIVE:** Build a desktop application with Java Beans using NetBeans IDEs.

**PROBLEM STATEMENTS:**

**1.** Write a Java program that creates a calculator using Java Frame and swings. It should perform following operations on the input numbers,

Addition, Subtraction, multiplication, division, modulus, power, Reset.

**CODE:**

/\*

* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
* Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template

\*/

package com.mycompany.javabeans\_project;

/\*\*

\*

* @author abhin

\*/

public class myCalci extends javax.swing.JFrame {

/\*\*

* Creates new form myCalci

\*/

int num1 = 0 , num2 = 0 ; String operator = null; public myCalci() { initComponents();

}

/\*\*

* This method is called from within the constructor to initialize the form. \* WARNING: Do NOT modify this code. The content of this method is always \* regenerated by the Form Editor.

\*/

@SuppressWarnings("unchecked")

// <editor-fold defaultstate="collapsed" desc="Generated Code"> private void initComponents() {

jLabel1 = new javax.swing.JLabel(); t1 = new javax.swing.JTextField(); b2 = new javax.swing.JButton(); b3 = new javax.swing.JButton(); bdiv = new javax.swing.JButton(); b1 = new javax.swing.JButton(); b5 = new javax.swing.JButton(); b6 = new javax.swing.JButton(); bmul = new javax.swing.JButton(); b4 = new javax.swing.JButton(); b8 = new javax.swing.JButton(); b9 = new javax.swing.JButton(); badd = new javax.swing.JButton(); b7 = new javax.swing.JButton(); bdot = new javax.swing.JButton(); bequal = new javax.swing.JButton(); bsub = new javax.swing.JButton(); bclr = new javax.swing.JButton(); b0 = new javax.swing.JButton();

bback = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT\_ON\_CLOSE);

jLabel1.setFont(new java.awt.Font("Segoe UI", 1, 24)); // NOI18N jLabel1.setHorizontalAlignment(javax.swing.SwingConstants.CENTER); jLabel1.setText("My Calculator");

t1.setFont(new java.awt.Font("Segoe UI", 1, 18)); // NOI18N t1.setHorizontalAlignment(javax.swing.JTextField.RIGHT); t1.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { t1ActionPerformed(evt);

} });

b2.setText("2"); b2.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b2ActionPerformed(evt);

} });

b3.setText("3"); b3.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b3ActionPerformed(evt);

} });

bdiv.setText("/"); bdiv.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bdivActionPerformed(evt);

} });

b1.setText("1"); b1.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b1ActionPerformed(evt);

} }); b5.setText("5"); b5.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b5ActionPerformed(evt);

} });

b6.setText("6"); b6.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b6ActionPerformed(evt);

} });

bmul.setText("\*"); bmul.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bmulActionPerformed(evt);

} });

b4.setText("4"); b4.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b4ActionPerformed(evt);

} });

b8.setText("8"); b8.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b8ActionPerformed(evt);

} });

b9.setText("9"); b9.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b9ActionPerformed(evt);

} });

badd.setText("+"); badd.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { baddActionPerformed(evt);

} });

b7.setText("7"); b7.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b7ActionPerformed(evt);

} });

bdot.setText("."); bdot.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bdotActionPerformed(evt);

} });

bequal.setText("="); bequal.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bequalActionPerformed(evt);

} });

bsub.setText("-"); bsub.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bsubActionPerformed(evt);

} });

bclr.setFont(new java.awt.Font("Segoe UI", 1, 12)); // NOI18N bclr.setText("CLEAR"); bclr.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bclrActionPerformed(evt);

} });

b0.setText("0"); b0.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { b0ActionPerformed(evt);

} });

bback.setFont(new java.awt.Font("Segoe UI", 1, 12)); // NOI18N bback.setText("BACK"); bback.addActionListener(new java.awt.event.ActionListener() { public void actionPerformed(java.awt.event.ActionEvent evt) { bbackActionPerformed(evt);

} });

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane()); getContentPane().setLayout(layout); layout.setHorizontalGroup( layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING) .addComponent(t1)

.addGroup(layout.createSequentialGroup()

.addContainerGap()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING) .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addGroup(layout.createSequentialGroup()

.addComponent(b1, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(b2, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 15,

Short.MAX\_VALUE)

.addComponent(b3, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(bdiv, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()

.addComponent(b4, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(b5, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addComponent(b6, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(bmul, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addGroup(layout.createSequentialGroup()

.addComponent(b7, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(b8, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addComponent(b9, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(badd, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false) .addComponent(bclr, javax.swing.GroupLayout.Alignment.LEADING, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addGroup(layout.createSequentialGroup()

.addComponent(b0, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(18, 18, 18)

.addComponent(bdot, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE)))

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

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(layout.createSequentialGroup()

.addComponent(bequal, javax.swing.GroupLayout.DEFAULT\_SIZE,

javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE)

.addGap(18, 18, 18)

.addComponent(bsub, javax.swing.GroupLayout.PREFERRED\_SIZE, 64, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addComponent(bback, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, Short.MAX\_VALUE))))

.addContainerGap())

);

layout.setVerticalGroup( layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(layout.createSequentialGroup()

.addContainerGap()

.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED\_SIZE, 43, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED) .addComponent(t1, javax.swing.GroupLayout.PREFERRED\_SIZE, 52, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addGap(30, 30, 30)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(b3, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b2, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(bdiv, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b1, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE))

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

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(b6, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b5, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(bmul, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b4, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addGap(10, 10, 10)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(b7, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b8, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b9, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(badd, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE))

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

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(bdot, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(bequal, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(bsub, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(b0, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(bclr, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE)

.addComponent(bback, javax.swing.GroupLayout.PREFERRED\_SIZE, 40, javax.swing.GroupLayout.PREFERRED\_SIZE))

.addContainerGap(10, Short.MAX\_VALUE))

);

pack();

}// </editor-fold>

private void t1ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

}

private void b9ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "9");

}

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

t1.setText("");

}

private void bbackActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here: String str = t1.getText(); t1.setText(str.substring(0, str.length()-1));

}

private void b1ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "1");

}

private void b2ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "2");

}

private void b3ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "3");

}

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

t1.setText(t1.getText() + "/");

}

private void b4ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "4");

}

private void b5ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "5");

}

private void b6ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "6");

}

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

t1.setText(t1.getText() + "\*");

}

private void b7ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "7");

}

private void b8ActionPerformed(java.awt.event.ActionEvent evt) {

// TODO add your handling code here:

t1.setText(t1.getText() + "8");

}

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

t1.setText(t1.getText() + "+");

}

private void b0ActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here:

t1.setText(t1.getText() + "0");

}

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

t1.setText(t1.getText() + ".");

}

private void bequalActionPerformed(java.awt.event.ActionEvent evt) { // TODO add your handling code here: int res=0;

if(t1.getText().contains("+")){

String[] cs = t1.getText().split("\\+"); int a= Integer.parseInt(cs[0]); int b= Integer.parseInt(cs[1]); res = a+b;t1.setText(""+res);

}

else if(t1.getText().contains("-")){ String[] cs = t1.getText().split("\\-"); int a= Integer.parseInt(cs[0]); int b= Integer.parseInt(cs[1]); res = a-b;t1.setText(""+res);

}

else if(t1.getText().contains("\*")){ String[] cs = t1.getText().split("\\\*"); int a=Integer.parseInt(cs[0]); int b= Integer.parseInt(cs[1]); res = a\*b;t1.setText(""+res);

}

else if(t1.getText().contains("/")){ String[] cs = t1.getText().split("\\/"); float a= Integer.parseInt(cs[0]); float b= Integer.parseInt(cs[1]); float res2 = a/b; t1.setText(""+res2);

}

}

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

t1.setText(t1.getText() + "-");

}

/\*\*

* @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(myCalci.class.getName()).log(java.util.logging.Level.SEVE RE, null, ex);

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

} catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(myCalci.class.getName()).log(java.util.logging.Level.SEVE RE, null, ex);

} catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(myCalci.class.getName()).log(java.util.logging.Level.SEVE RE, null, ex);

}

//</editor-fold>

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

}

}); }

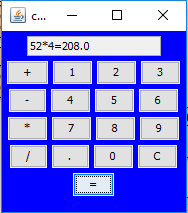
// Variables declaration - do not modify private javax.swing.JButton b0; private javax.swing.JButton b1; private javax.swing.JButton b2; private javax.swing.JButton b3; private javax.swing.JButton b4; private javax.swing.JButton b5; private javax.swing.JButton b6; private javax.swing.JButton b7; private javax.swing.JButton b8; private javax.swing.JButton b9; private javax.swing.JButton badd; private javax.swing.JButton bback; private javax.swing.JButton bclr; private javax.swing.JButton bdiv; private javax.swing.JButton bdot; private javax.swing.JButton bequal;

private javax.swing.JButton bmul; private javax.swing.JButton bsub; private javax.swing.JLabel jLabel1; private javax.swing.JTextField t1;

// End of variables declaration

}

**Output :**



**OBSERVATION:**

**What are the functionalities of swings?**

* Pluggable look and feel
* Uses MVC architecture

* Lightweight Components
* Platform Independent
* Advanced features such as JTable, JTabbedPane, JScollPane, etc.

**CONCLUSION:**

**With the help of Experiment 3 , we have learnt the use of java beans and the use of swings .**