SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

DEPARTMENT OF INFORMATION TECHNOLOGY

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CLASS: S.Y B.Tech IT-1
COURSE: Advance Java
DATE: 3/11/23
COURSE CODE: DJS22ITL306

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
 */
```

```java
public class myCalci extends javax.swing.JFrame {
    int num1 = 0 , num2 = 0 ;    String
operator = null;    public myCalci()
{
initComponents();
    }
    @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
```

```java
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.setTe
xt("5");
b5.addA
ctionLis
tener(ne
w
java.awt
.event.A
ctionLis
tener() {
public void
actionPe
rformed
(java.aw
t.event.
ActionE
vent
evt) {
b5Actio
nPerfor
med(evt
);
        }
});

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

```java
    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);
```

```java
        }
    });

    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() {
```

```java
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)
```

```java
                    .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>
```

```java
    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");
    }
```

```java
    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() + "*");
    }
```

```java
    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 =
ab;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 */
```

```java
    //<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.SE
VE 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);
        }
```

Academic Year 2022-23

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```
    });
}

    // 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 ,I have learnt the use of java netbeans and the use of swings .