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JAVA EXPERIMENT 16

AIM:

Develop simple swing applications and complex GUI using Java Swing classes.

i. Write a program to create a window with four text fields for the name, street, city and pin code with suitable labels. Also windows contains a button MyInfo. When the user types the name, his street, city and pincode and then clicks the button, the types details must appear in Arial Font with Size 32, Italics.

ii. WA applet with 4 swing buttons with suitable texts on them. When the user presses a button a message should appear in the label as to which button was pressed by the user

THEORY

WHAT IS JAVA SWING?

Swing provides graphical user interface components to develop Java applications.

Most of the Swing components are lightweight components that redraw using Java code without having using native peers.

Java Swing is a part of Java Foundation Classes (JFC) that is *used to create window-based applications*. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in java.

Unlike AWT, Java Swing provides platform-independent and lightweight components.

The javax.swing package provides classes for java swing API such as JButton, JTextField, JTextArea, JRadioButton, JCheckbox, JMenu, JColorChooser etc.

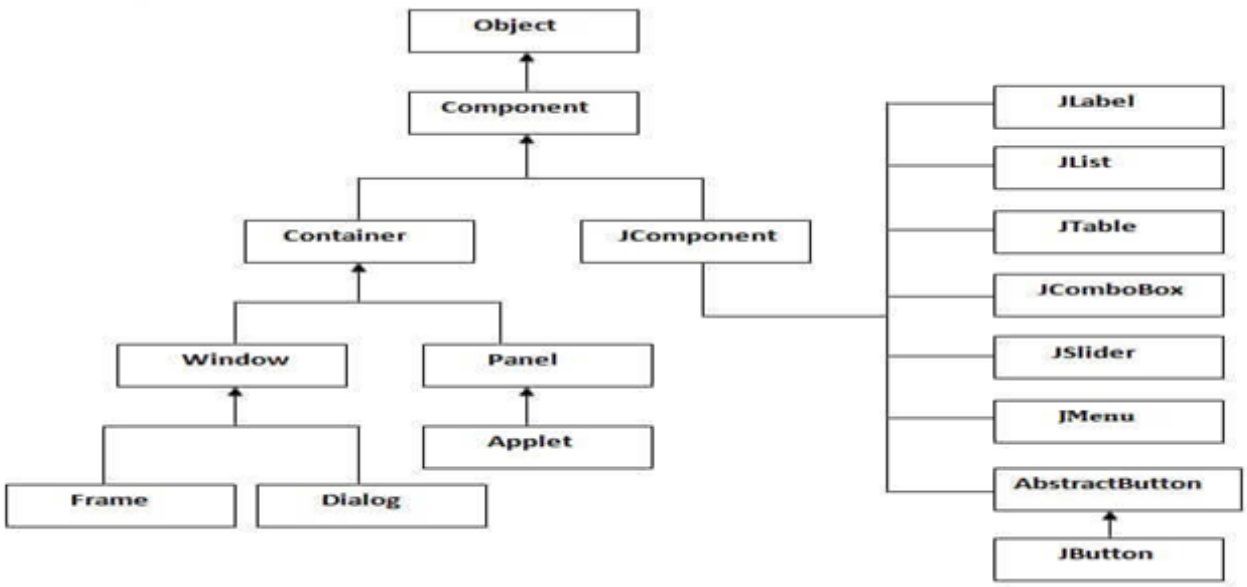
Difference between AWT and Swing

There are many differences between java awt and swing that are given below.

No.	Java AWT	Java Swing
1)	AWT components are **platform-dependent**.	Java swing components are **platform-independent**.
2)	AWT components are **heavyweight**.	Swing components are **lightweight**.
3)	AWT **doesn't support pluggable look and feel**.	Swing **supports pluggable look and feel**.
4)	AWT provides **less components** than Swing.	Swing provides **more powerful components** such as tables, lists, scrollpanes, colorchooser, tabbedpane etc.

Hierarchy of Java Swing classes

The hierarchy of java swing API is given below.



Commonly used Methods of Component class

The methods of Component class are widely used in java swing that are given below.

Method	Description
public void add(Component c)	add a component on another component.
public void setSize(int width,int height)	sets size of the component.
public void setLayout(LayoutManager m)	sets the layout manager for the component.
public void setVisible(boolean b)	sets the visibility of the component. It is by default false.

Java Swing Examples

There are two ways to create a frame:

- By creating the object of Frame class (association)
- By extending Frame class (inheritance)

We can write the code of swing inside the main(), constructor or any other method.

CODE AND OUTPUT

(i)

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

class MyFrame extends JFrame implements ActionListener {

      private Container c;
      private JLabel title;
      private JLabel name;
      private JTextField tname;
```

```
    private JLabel street;
    private JTextField tstreet;
    private JLabel city;
    private JTextField tcity;
    private JLabel pincode;
    private JTextField tpincode;
    private JCheckBox check;
    private JButton MyInfo;
    private JButton reset;
    private JTextArea tout;
    private JLabel res;
    private JTextArea resadd;

    public MyFrame() {
    setTitle("Details");
              setBounds(0, 0, 1500, 800);
              setDefaultCloseOperation(EXIT_ON_CLOSE);
              setResizable(true);

              c = getContentPane();
              c.setLayout(null);
              c.setBackground(Color.yellow);

              title = new JLabel("Details");
              title.setFont(new Font("Arial", Font.PLAIN, 30));
              title.setSize(300, 30);
              title.setLocation(300, 30);
              c.add(title);

              name = new JLabel("Name");
              name.setFont(new Font("Arial", Font.PLAIN, 20));
                   name.setSize(100, 20);
         name.setLocation(100, 100);
         c.add(name);

         tname = new JTextField();
         tname.setFont(new Font("Arial", Font.PLAIN, 15));
         tname.setSize(250, 20);
         tname.setLocation(200, 100);
         c.add(tname);

         street = new JLabel("Street");
         street.setFont(new Font("Arial", Font.PLAIN, 20));
         street.setSize(100, 20);
         street.setLocation(100, 150);
         c.add(street);
```

```
        tstreet = new JTextField();
        tstreet.setFont(new Font("Arial", Font.PLAIN, 15));
        tstreet.setSize(250, 20);
        tstreet.setLocation(200, 150);
        c.add(tstreet);

        city = new JLabel("City");
        city.setFont(new Font("Arial", Font.PLAIN, 20));
        city.setSize(100, 20);
        city.setLocation(100, 200);
        c.add(city);

        tcity = new JTextField();
        tcity.setFont(new Font("Arial", Font.PLAIN, 15));
        tcity.setSize(250, 20);
        tcity.setLocation(200, 200);
        c.add(tcity);

        pincode = new JLabel("Pincode");
        pincode.setFont(new Font("Arial", Font.PLAIN, 20));
        pincode.setSize(100, 20);
        pincode.setLocation(100, 250);
        c.add(pincode);

        tpincode = new JTextField();
        tpincode.setFont(new Font("Arial", Font.PLAIN, 15));
        tpincode.setSize(250, 20);
        tpincode.setLocation(200, 250);
        c.add(tpincode);

        check = new JCheckBox("Human Captcha");
        check.setFont(new Font("Arial", Font.PLAIN, 15));
        check.setSize(250, 20);
        check.setLocation(150, 400);
        c.add(check);

        MyInfo = new JButton("MyInfo");
             MyInfo.setFont(new Font("Arial", Font.PLAIN, 15));
        MyInfo.setSize(100, 20);
        MyInfo.setLocation(150, 450);
        MyInfo.addActionListener(this);
        c.add(MyInfo);

        reset = new JButton("Reset");
        reset.setFont(new Font("Arial", Font.PLAIN, 15));
        reset.setSize(100, 20);
        reset.setLocation(270, 450);
```

```
        reset.addActionListener(this);
        c.add(reset);

        tout = new JTextArea();
        tout.setFont(new Font("Arial", Font.ITALIC, 32));
        tout.setSize(600, 600);
        tout.setLocation(500, 100);
        tout.setLineWrap(true);
        tout.setEditable(false);
        c.add(tout);

        res = new JLabel("");
        res.setFont(new Font("Arial", Font.PLAIN, 20));
        res.setSize(500, 25);
              res.setLocation(100, 500);
        c.add(res);

              resadd = new JTextArea();
              resadd.setFont(new Font("Arial", Font.PLAIN, 15));
              resadd.setSize(200, 75);
              resadd.setLocation(580, 175);
              resadd.setLineWrap(true);
              c.add(resadd);

        setVisible(true);
    }
    public void actionPerformed(ActionEvent e) {
    if (e.getSource() == MyInfo) {
        if (check.isSelected()) {
              String data1;
              String data
              = "Name : "
                + tname.getText() + "\n"
                    + "Street : "
                    + tstreet.getText() + "\n"
                    + "City : "
                    + tcity.getText() + "\n"
                    + "Pincode : "
                      + tpincode.getText() + "\n";
              tout.setText(data);
              tout.setEditable(false);
              res.setText("Details entered successfully");
        }
        else {
              tout.setText("");
                    resadd.setText("");
              res.setText("Please accept the"
```

```
                                + " terms & conditions..");
            }
      }
      else if (e.getSource() == reset) {
                String def = "";
                tname.setText(def);
                tstreet.setText(def);
                tcity.setText(def);
                tpincode.setText(def);
                res.setText(def);
                tout.setText(def);
                check.setSelected(false);
                resadd.setText(def);
      }
      }
}

class Details {
      public static void main(String[] args) throws Exception {
      MyFrame f = new MyFrame();
      }
}
```

```
C:\Windows\System32\cmd.exe - java  Details
Microsoft Windows [Version 10.0.19041.572]
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E:\Engineering\Semester - 3\College Stuff\Java\PK Sir Practicals\Experiment 16>javac Details.java

E:\Engineering\Semester - 3\College Stuff\Java\PK Sir Practicals\Experiment 16>java Details
```

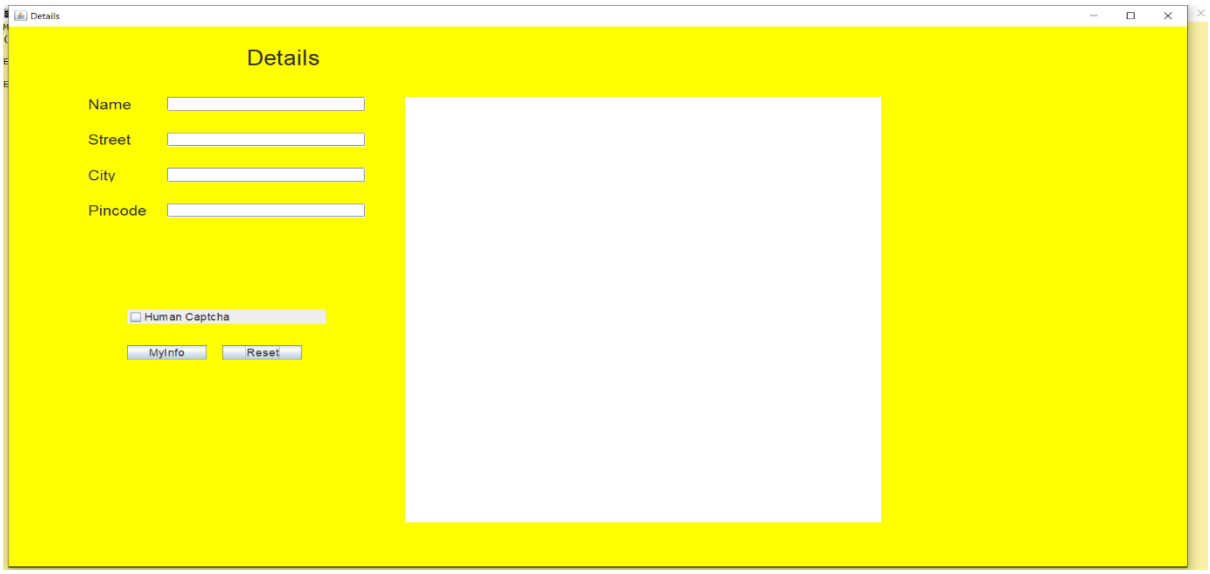

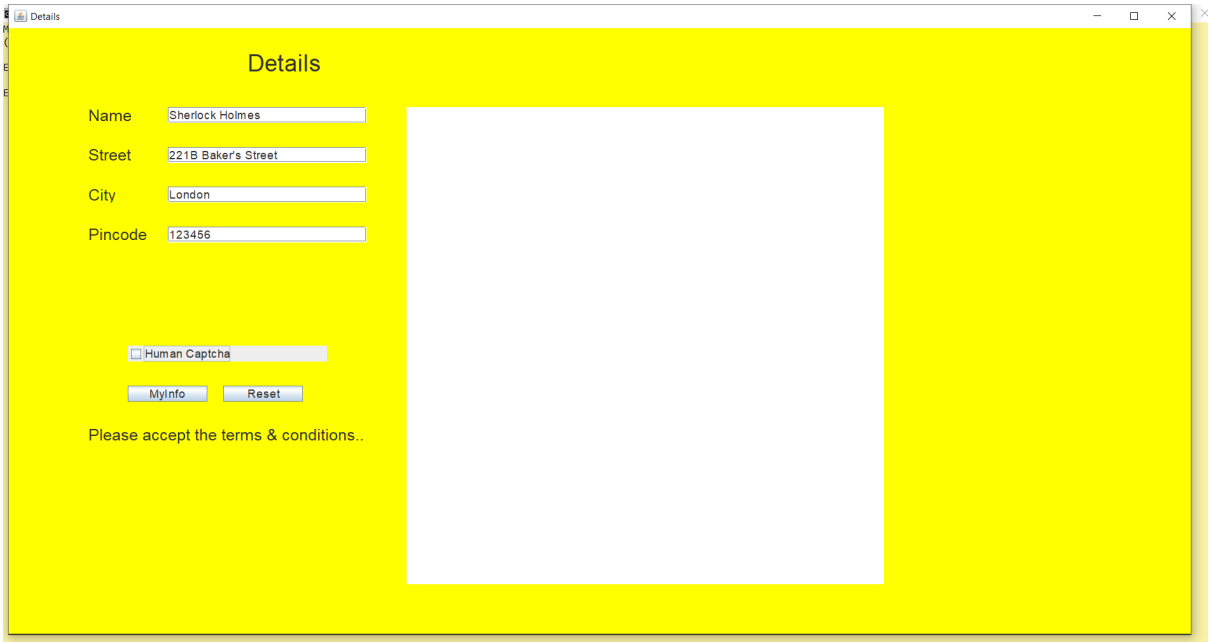
Details
Details
Name
Sherlock Holmes
Street
221B Baker's Street
City
London
Pincode
123456
Human Captcha
MyInfo
Reset
Please accept the terms & conditions..


Details
Details
Name
Sherlock Holmes
Street
221B Baker's Street
City
London
Pincode
123456
Human Captcha
MyInfo
Reset
Details entered successfully
Name : Sherlock Holmes
Street : 221B Baker's Street
City : London
Pincode : 123456

(ii)

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

class ButtonPress extends JFrame implements ActionListener{
      private Container c;
      private JLabel L1;
      private JButton B1;
      private JButton B2;
      private JButton B3;
      private JButton B4;
      private JButton exit;

      public ButtonPress(){
       setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
      setBounds(0,0,1000,500);
      setVisible(true);
      setResizable(true);
      setTitle("Button Event");

      c = getContentPane();
      c.setLayout(null);
      c.setBackground(Color.yellow);

      B1=new JButton("Login with Facebook");
      B1.setSize(300, 20);
      B1.setLocation(100, 30);
      B1.setBorder(BorderFactory.createLineBorder(Color.blue, 2));
      c.add(B1);
      B1.addActionListener(this);

      B2=new JButton("Login with Google");
      B2.setSize(300, 20);
      B2.setLocation(100, 60);
      B2.setBorder(BorderFactory.createLineBorder(Color.red, 2));
      c.add(B2);
      B2.addActionListener(this);

      B3=new JButton("Login with Github");
      B3.setSize(300, 20);
      B3.setLocation(100, 90);
       B3.setBorder(BorderFactory.createLineBorder(Color.black, 2));
      c.add(B3);
      B3.addActionListener(this);
```

```
      B4=new JButton("Signup");
      B4.setSize(300, 20);
      B4.setLocation(100, 120);
      B4.setBackground(Color.green);
      B4.setContentAreaFilled(false);
      B4.setOpaque(true);
      c.add(B4);
      B4.addActionListener(this);

      L1=new JLabel("No button pressed yet");
      L1.setSize(400, 20);
      L1.setLocation(100, 150);
      c.add(L1);

      exit=new JButton("Exit");
      exit.setSize(100, 20);
      exit.setLocation(100, 200);
      c.add(exit);
      exit.addActionListener(this);
      }
      public void actionPerformed(ActionEvent ae){
      if(ae.getSource() == B1){
            L1.setText("Login with Facebook button pressed");
      }
      else if(ae.getSource() == B2){
            L1.setText("Login with Google button pressed");
      }
      else if(ae.getSource() == B3){
            L1.setText("Login with Github button pressed");
      }
      else if(ae.getSource() == B4){
            L1.setText("Signup button pressed");
      }
      else if(ae.getSource() == exit){
            System.exit(0);
      }
      else {}
      }
      public static void main(String z[]){
      ButtonPress frm=new ButtonPress();
      }
}
```

```
C:\Windows\System32\cmd.exe - java  ButtonPress
Microsoft Windows [Version 10.0.19041.572]
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E:\Engineering\Semester - 3\College Stuff\Java\PK Sir Practicals\Experiment 16>javac ButtonPress.java

E:\Engineering\Semester - 3\College Stuff\Java\PK Sir Practicals\Experiment 16>java ButtonPress
```
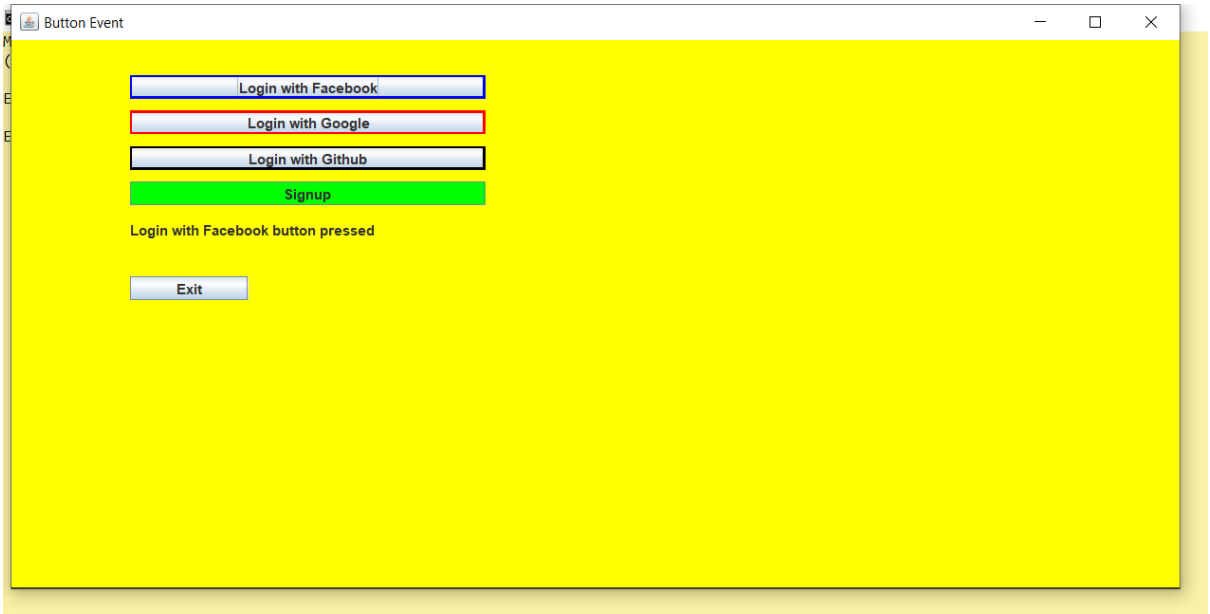
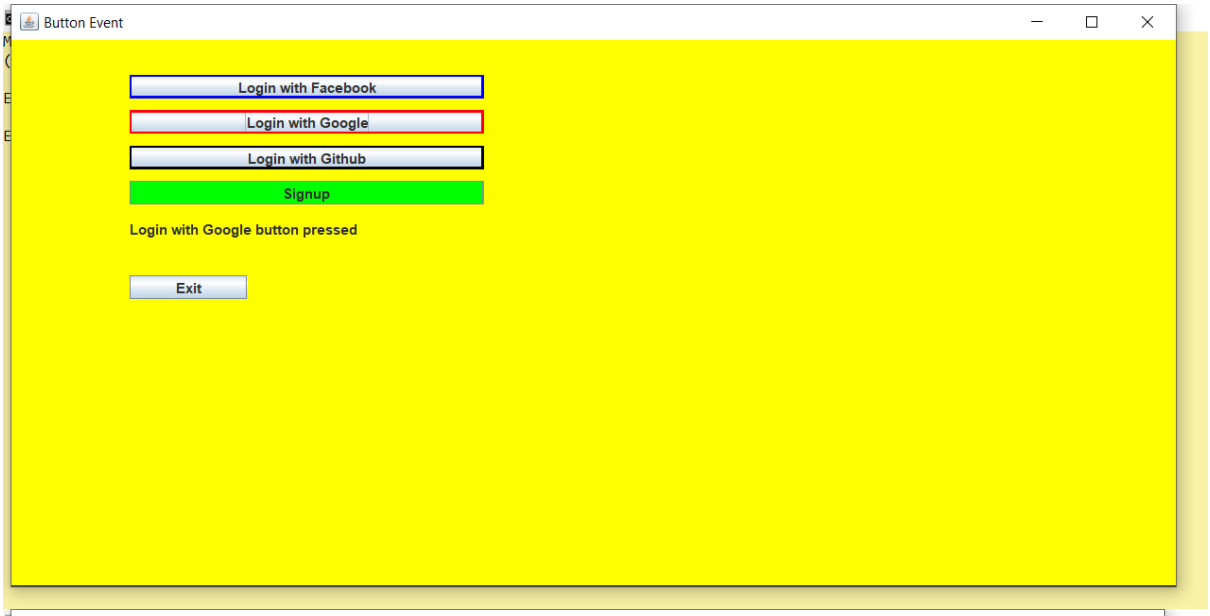
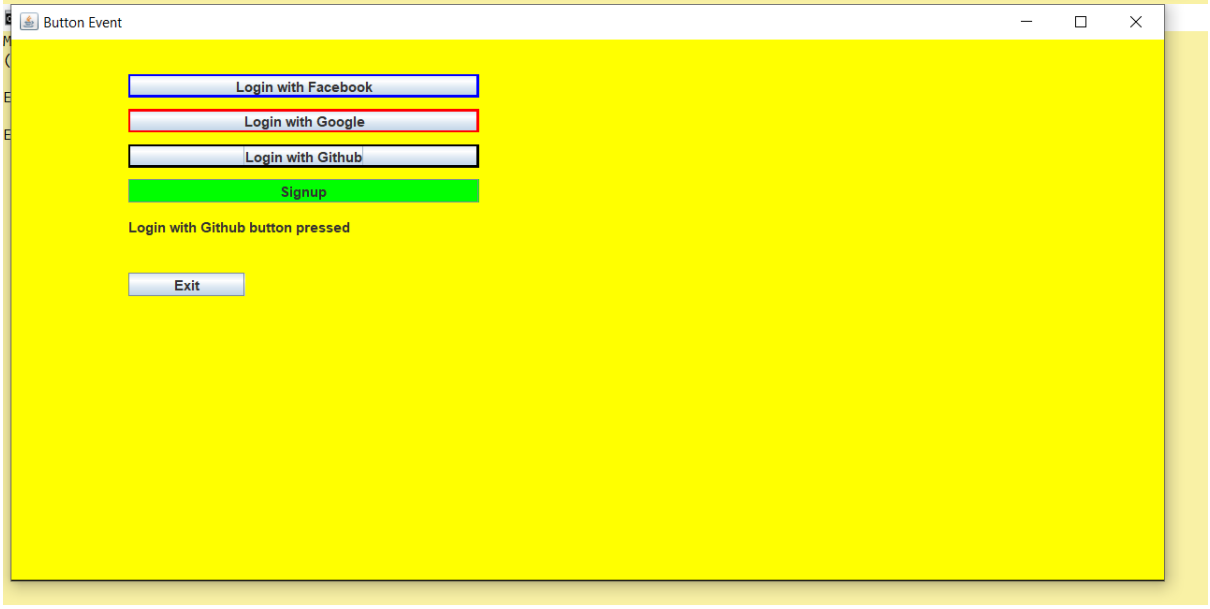




Button Event
Login with Facebook
Login with Google
Login with Github
Signup
Login with Google button pressed
Exit


Button Event
Login with Facebook
Login with Google
Login with Github
Signup
Login with Github button pressed
Exit


Button Event
Login with Facebook
Login with Google
Login with Github
Signup
Signup button pressed
Exit