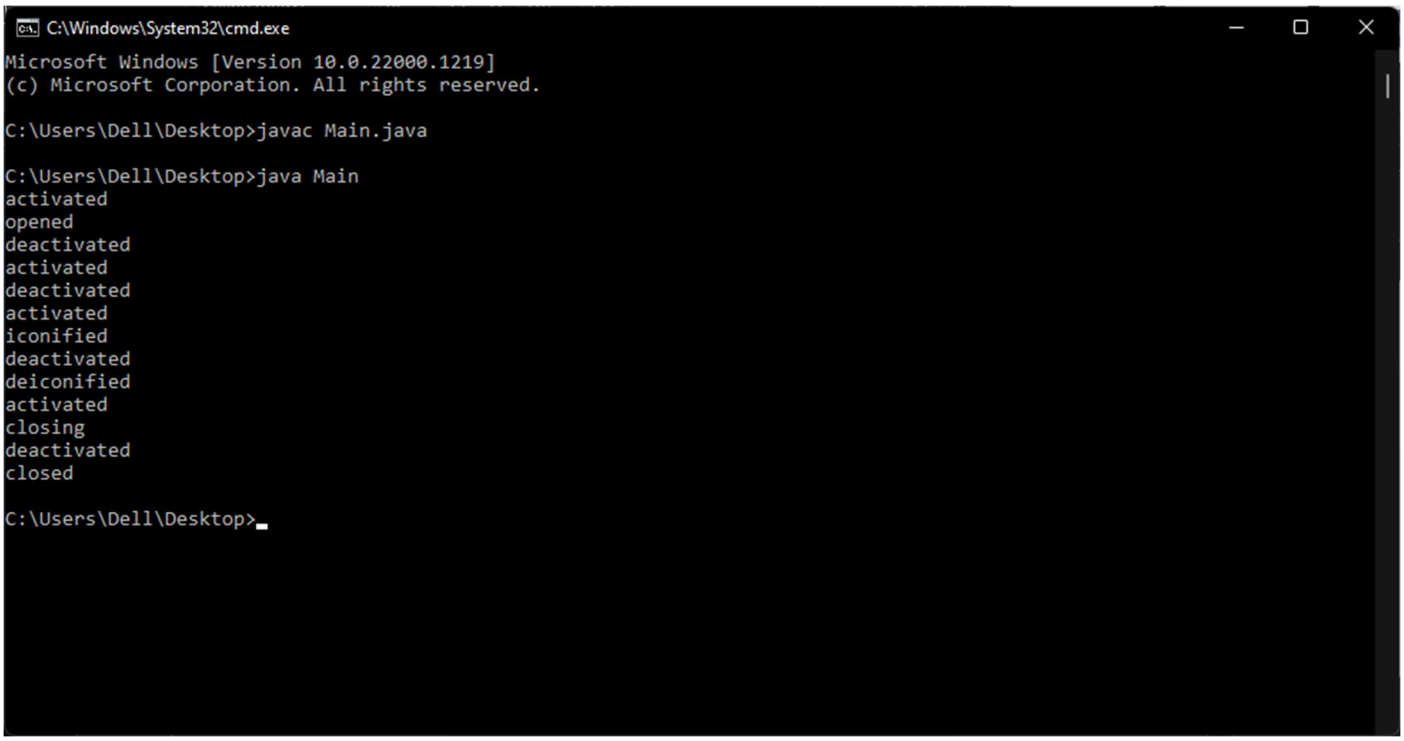
OBJECT ORIENTED PROGRAMMING IN JAVA – MODULE 4

MODULE 4 – Q1

CODE

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
public class Main extends Frame implements WindowListener
{
  Main() {
      addWindowListener(this);
      setSize (400, 400);
      setLayout (null);
      setVisible (true);
  }
  public static void main(String[] args) {
      new Main();
  }
  public void windowActivated (WindowEvent arg0) {
      System.out.println("activated");
  }
  public void windowClosed (WindowEvent arg0) {
      System.out.println("closed");
  }
  public void windowClosing (WindowEvent arg0) {
      System.out.println("closing");
      dispose();
  }
  public void windowDeactivated (WindowEvent arg0) {
      System.out.println("deactivated");
  }
  public void windowDeiconified (WindowEvent arg0) {
      System.out.println("deiconified");
   }
   public void windowIconified(WindowEvent arg0) {
       System.out.println("iconified");
   }
   public void windowOpened(WindowEvent arg0) {
       System.out.println("opened");
   }
}
```

OUTPUT



MODULE 4 – Q2

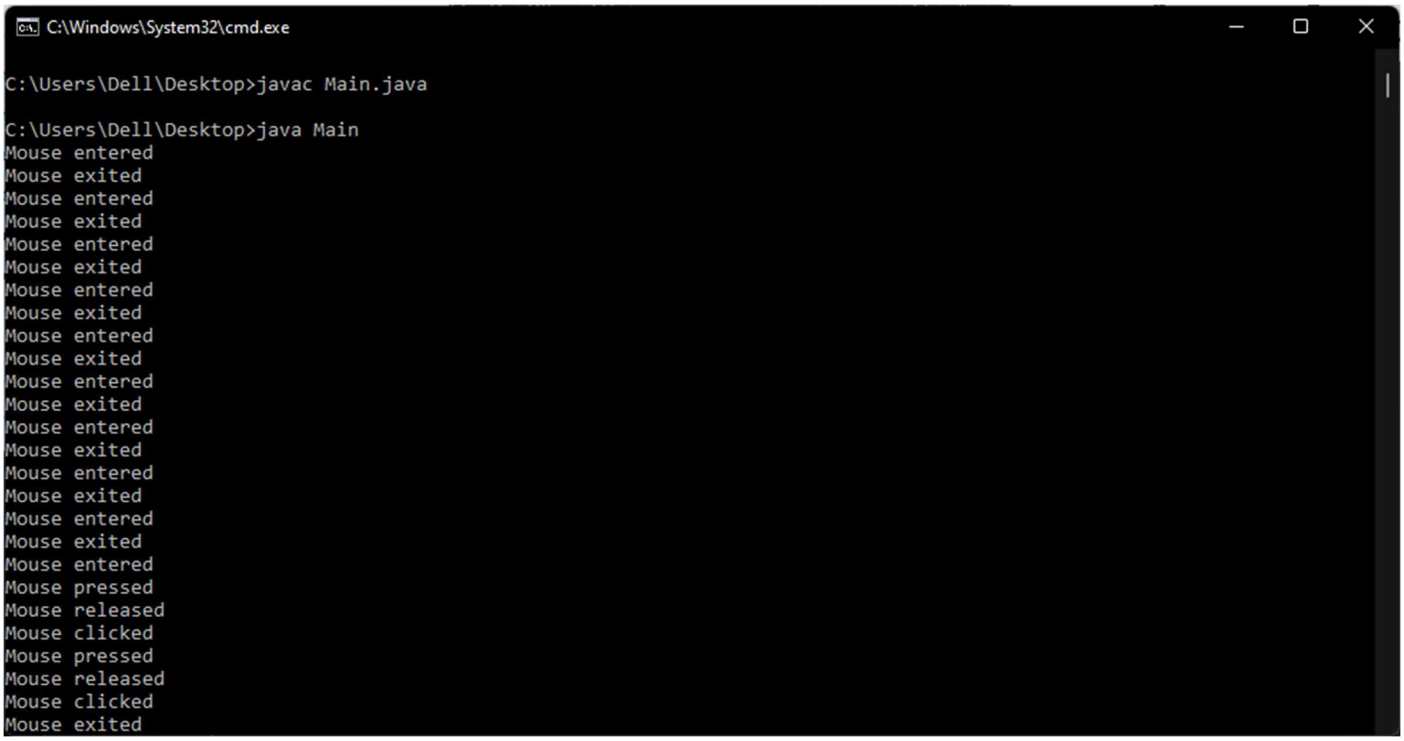
CODE

```
import javax.swing.*;
import javax.swing.event.*;
import java.awt.*;
import java.awt.event.*;
import org.w3c.dom.events.MouseEvent;
class Main extends Frame implements MouseInputListener{
  Main() {
       addMouseListener(this);
       setSize (400, 400);
       setLayout (null);
       setVisible (true);
```

```
}
  public static void main(String[] args) {
      new Main();
}
  public void mouseClicked(java.awt.event.MouseEvent e) {
      System.out.println("Mouse clicked");
  }
  public void mousePressed(java.awt.event.MouseEvent e) {
      System.out.println("Mouse pressed");
  }

  public void mouseReleased(java.awt.event.MouseEvent e) {
      System.out.println("Mouse released");
  }
  public void mouseEntered(java.awt.event.MouseEvent e) {
      System.out.println("Mouse entered");
  }
  public void mouseExited(java.awt.event.MouseEvent e) {
      System.out.println("Mouse exited");
  }
  public void mouseDragged(java.awt.event.MouseEvent e) {
      System.out.println("Mouse dragged");
  }
  public void mouseMoved(java.awt.event.MouseEvent e) {
      System.out.println("Mouse moved");
  }
}
```

OUTPUT



MODULE 4 – Q3

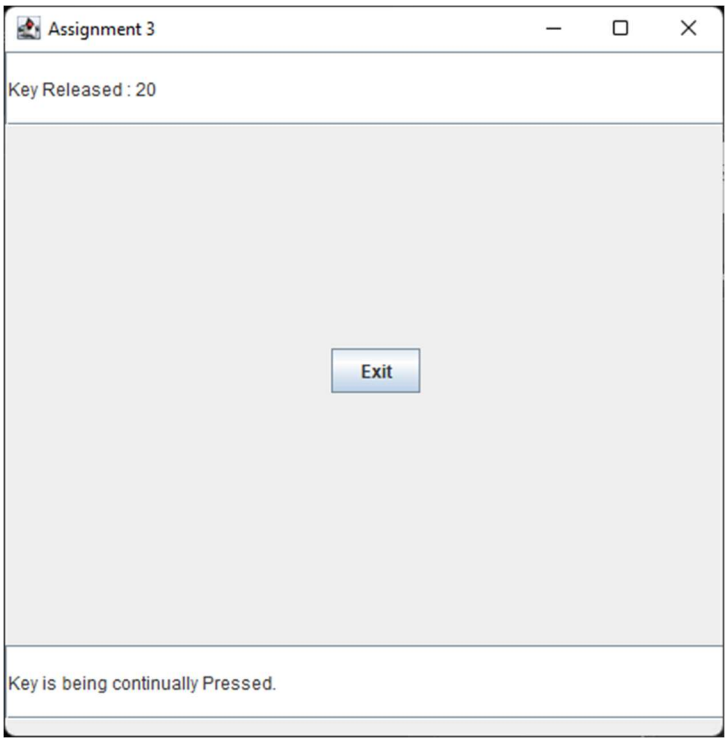
CODE

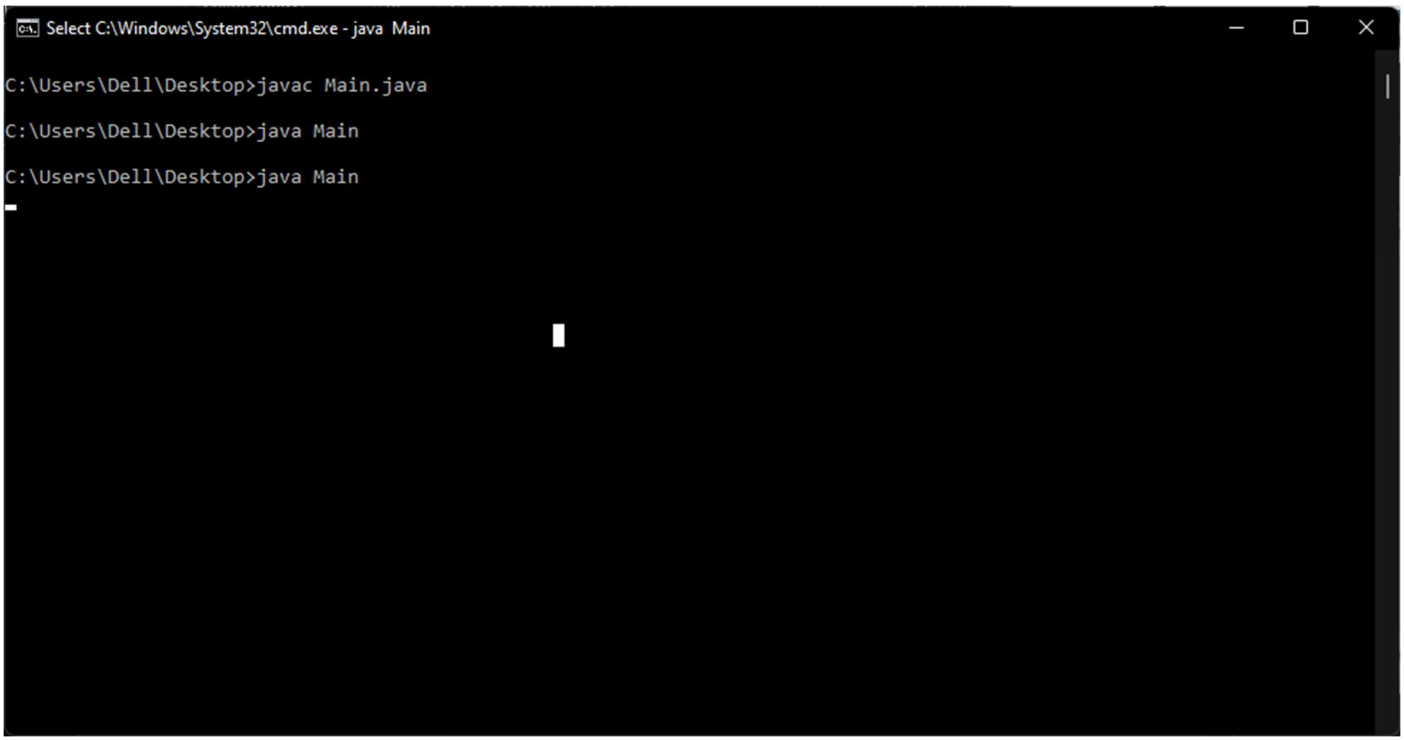
```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
class Main implements KeyListener, ActionListener {
  static JFrame frame;
  static JTextField input, output;
  public static void main(String[] args) {
      frame = new JFrame("Assignment 3");
      frame.setSize(500, 500);
      frame.setLayout(null);
      output = new JTextField();
      output.setBounds(0, 0, 500, 50);
      frame.add(output);
      input = new JTextField();
      input.setBounds(0, 400, 500, 50);
      frame.add(input);
      JButton exit = new JButton("Exit");
      exit.setBounds(220, 200, 60, 30);
      frame.add(exit);
      Main obj = new Main();
      input.addKeyListener(obj);
      exit.addActionListener(obj);
      frame.setVisible(true);
}
  public void actionPerformed(ActionEvent ae) {
      frame.dispose();
   }

   public void keyReleased(KeyEvent e) {
       output.setText("");
       output.setText("Key Released : "+e.getKeyCode());
       if(Character.isLetter(e.getKeyChar()))
           keyTyped(e);
       if(Character.isDigit(e.getKeyChar()))
           keyTyped(e);
}
   public void keyPressed(KeyEvent e) {
       output.setText("");
       output.setText("Key Pressed : "+e.getKeyCode());
       if(Character.isLetter(e.getKeyChar()))
           keyTyped(e);
       if(Character.isDigit(e.getKeyChar()))
```

```
            keyTyped(e);
}
   public void keyTyped(KeyEvent e) {
       output.setText("");
       output.setText("Key Typed : "+e.getKeyChar());
   }
}
```

OUTPUT



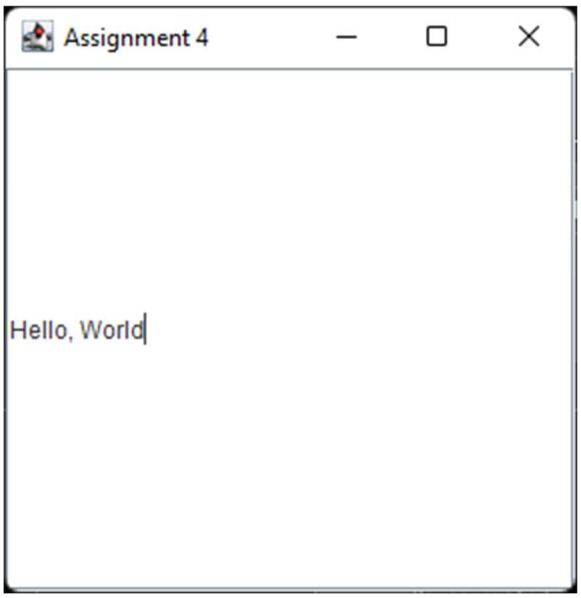


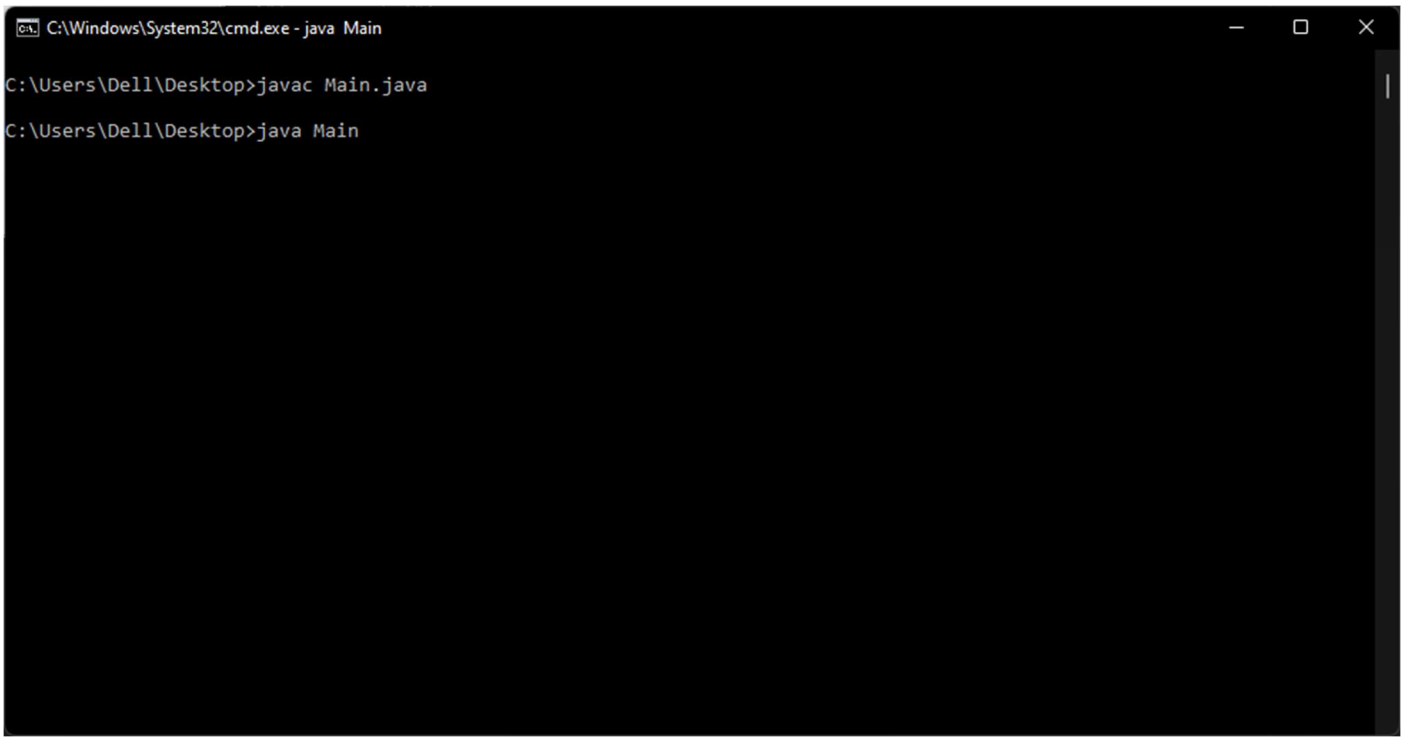
MODULE 4 – Q4

CODE

```
import javax.swing.*;
class Main {
  public static void main(String[] args) {
      JFrame frame = new JFrame("Assignment 4");
      frame.setSize(300, 300);
      frame.add(new JTextField("Hello, World"));
      frame.setVisible(true);
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
   }
}
```

OUTPUT



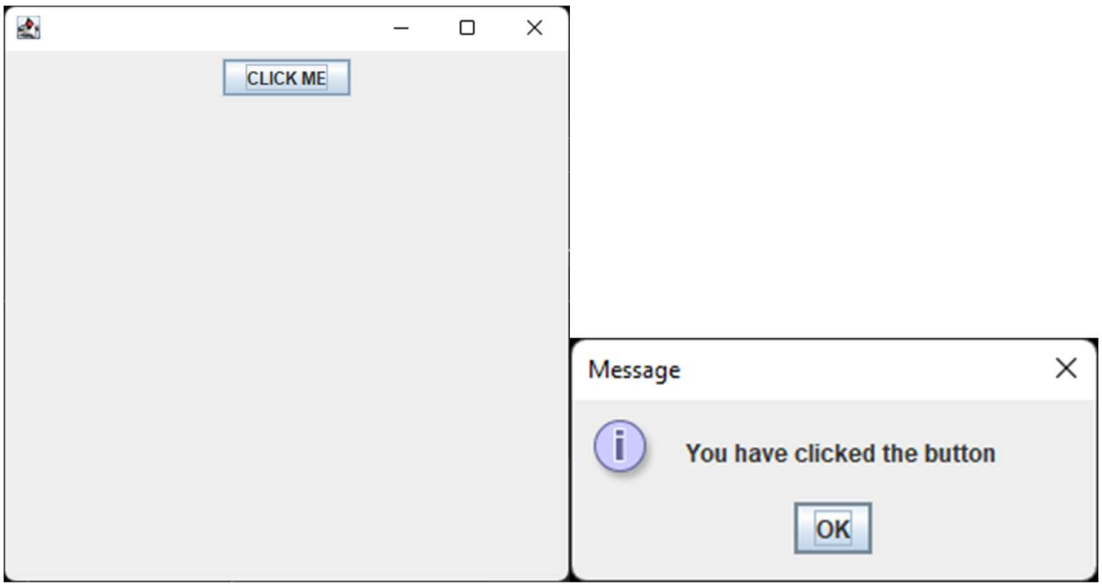


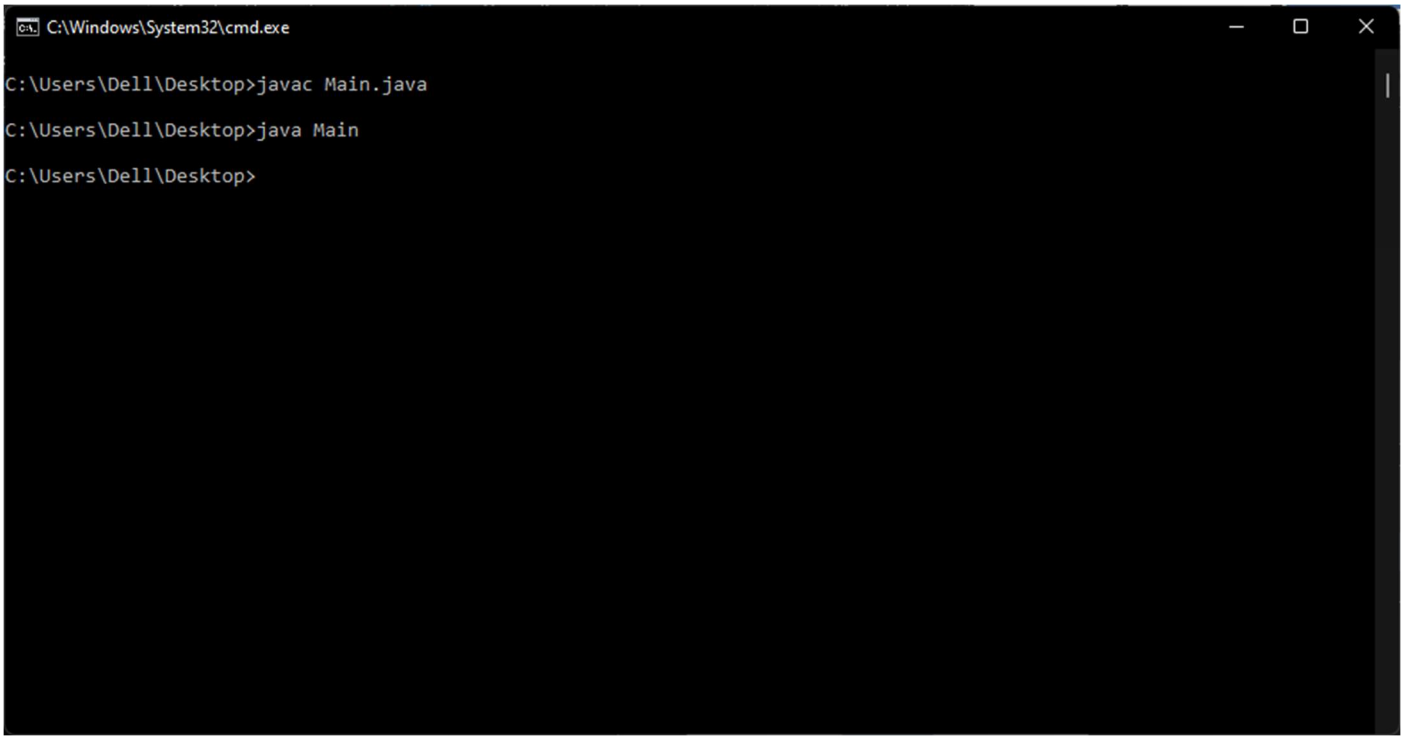
MODULE 4 – Q5

CODE

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
class Main {
  public static void main(String[] args) {
      new Main();
  }
  ActionListener e=new ActionListener() {
      public void actionPerformed(ActionEvent e) {
          JOptionPane.showMessageDialog(null,"You have clicked the button");
       }
   };
   public Main() {
      JFrame f = new JFrame();
      JButton b1 = new JButton();
      b1.setText("CLICK ME");
      b1.addActionListener(e);
      f.add(b1);
      f.setLayout(new FlowLayout());
      f.setVisible(true);
      f.setSize(400, 400);
      f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
   }
}
```

OUTPUT





MODULE 4 – Q6

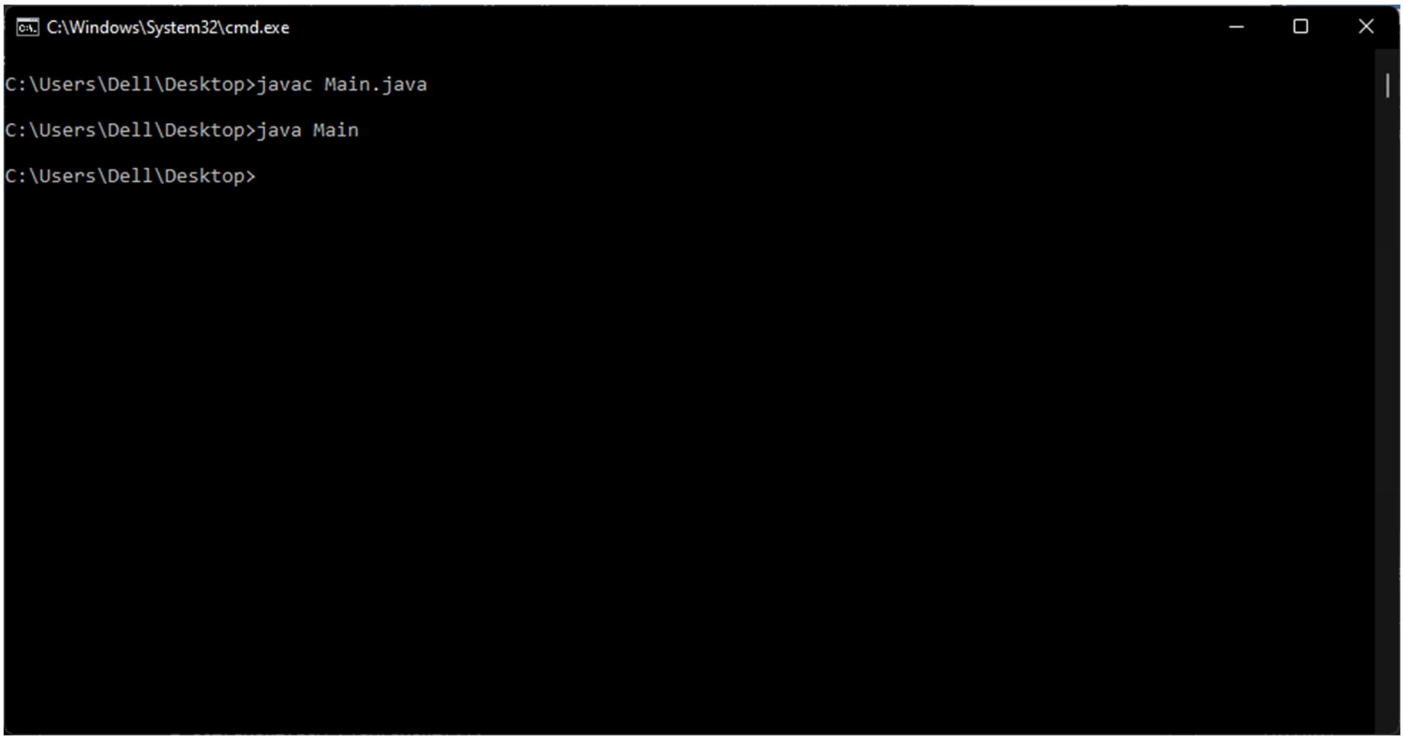
CODE

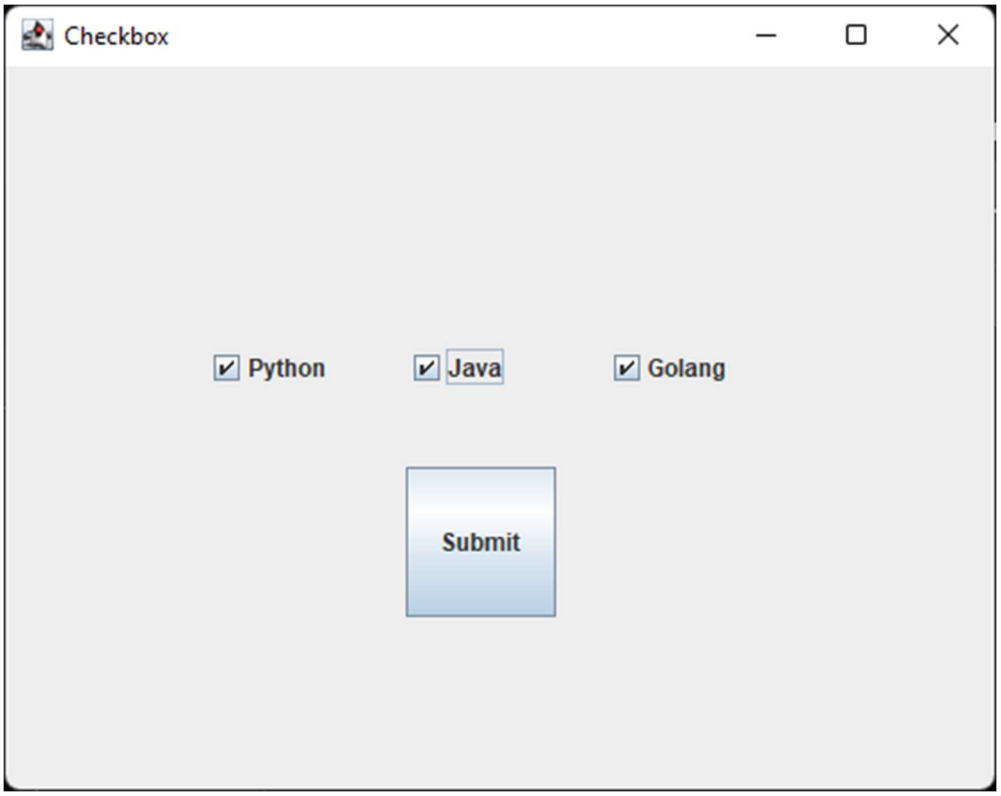
```
import javax.swing.*;
public class Main
{
   Main()
   {
       JFrame f = new JFrame("Checkbox");
       JCheckBox checkBox1 = new JCheckBox("Python", true);
       checkBox1.setBounds(100,100,100,100);
       JCheckBox checkBox2 = new JCheckBox("Java", false);
       checkBox2.setBounds(200,100,100,100);
       JCheckBox checkBox3 = new JCheckBox("Golang", false);
       checkBox3.setBounds(300, 100, 100,100);
       JButton btn = new JButton("Submit");
       btn.setBounds(200,200, 75,75);
       f.add(checkBox1);
       f.add(checkBox2);
       f.add(checkBox3);
       f.add(btn);
       f.setSize(400,400);
       f.setLayout(null);
       f.setVisible(true);
       f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
   }

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

```
    {
        new Main();
    }
}
```

OUTPUT



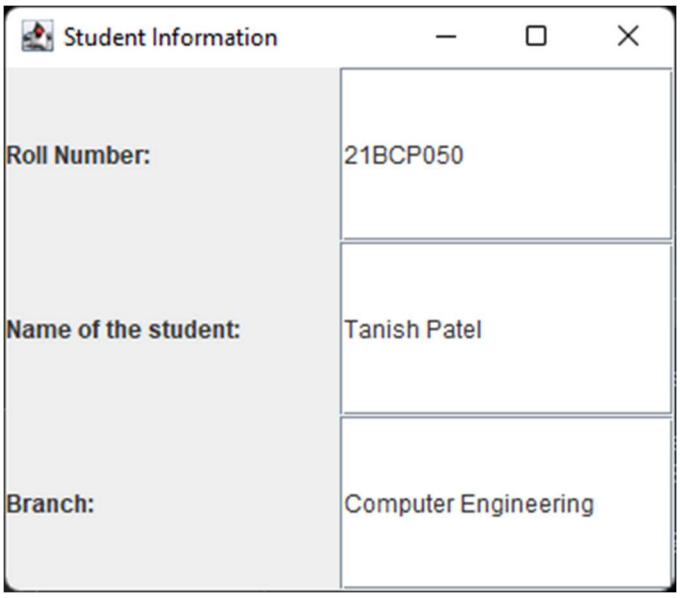


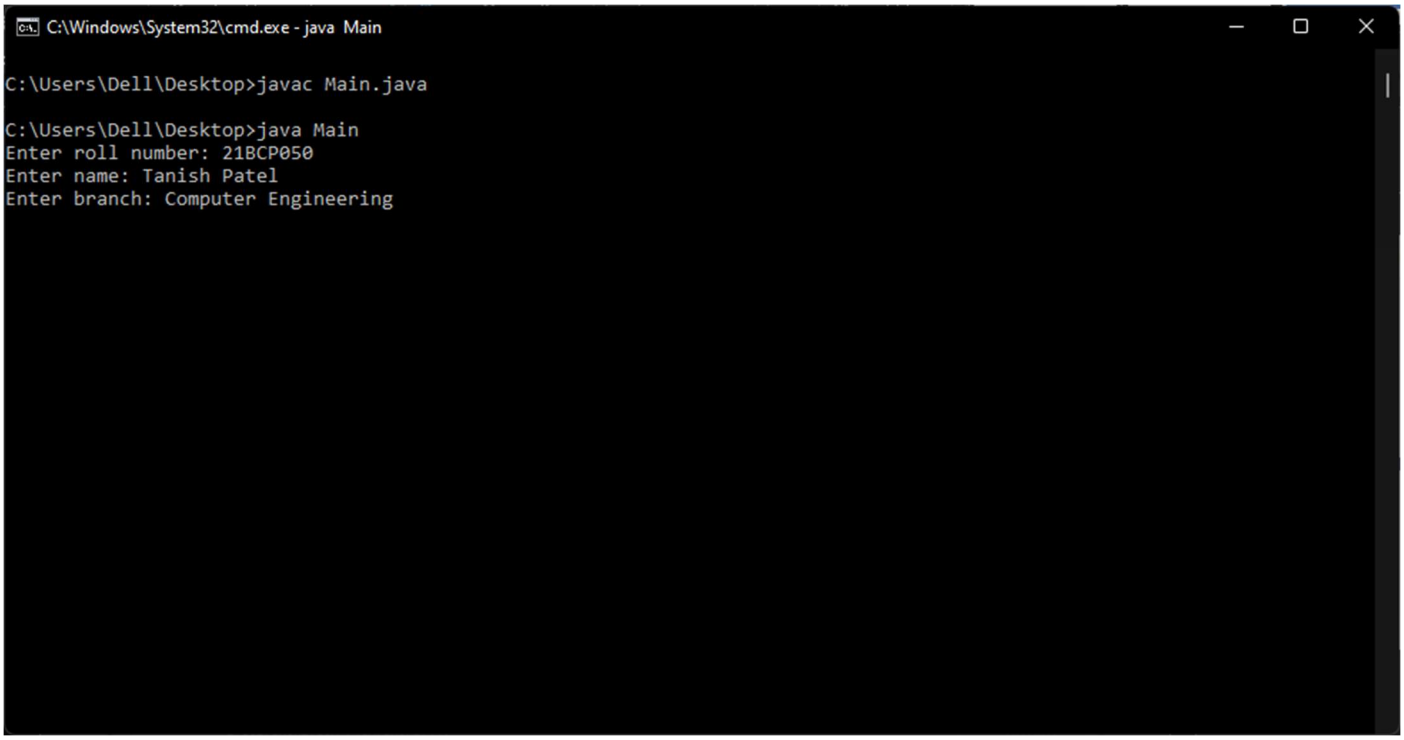
MODULE 4 – Q7

CODE

```
import javax.swing.*;
import java.awt.*;
import java.util.*;
class Student {
  JLabel L1, L2, L3;
  JTextField tf1, tf2, tf3;
  public Student() { initGui(); }
  public void initGui() {
      Scanner sc = new Scanner(System.in);
      JFrame frame = new JFrame("Student Information");
      this.L1 = new JLabel("Roll Number: ");
      this.L2 = new JLabel("Name of the student: ");
      this.L3 = new JLabel("Branch: ");
      this.tf1 = new JTextField(20);
      this.tf2 = new JTextField(20);
      this.tf3 = new JTextField(20);
      System.out.print("Enter roll number: ");
      String rollNumber = sc.nextLine();
      System.out.print("Enter name: ");
      String name = sc.nextLine();
      System.out.print("Enter branch: ");
      String branch = sc.nextLine();
      this.tf1.setText(rollNumber);
      this.tf2.setText(name);
      this.tf3.setText(branch);
      Container container = frame.getContentPane();
      container.setLayout(new GridLayout(3, 2));
      container.add(this.L1);
      container.add(this.tf1);
      container.add(this.L2);
      container.add(this.tf2);
      container.add(this.L3);
      container.add(this.tf3);
      frame.setSize(350, 300);
      frame.setVisible(true);
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
   }
}
public class Main {
  public static void main(String[] args) { new Student(); }
}
```

OUTPUT





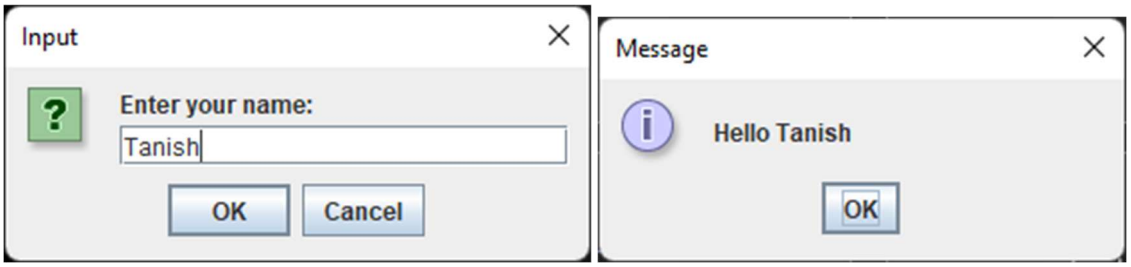
MODULE 4 – Q8

CODE

```
import javax.swing.*;
public class Main {
  Main() {
      JFrame frame = new JFrame();
      String name = JOptionPane.showInputDialog(frame, "Enter your name: ");
      JOptionPane.showMessageDialog(frame, "Hello " + name);
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
  }
  public static void main(String[] args) {
      new Main();
```

```
        System.exit(0);
    }
}
```

OUTPUT



MODULE 4 – Q9

CODE

```
import javax.swing.*;
import java.awt.*;
class Main {
    private static void buildButton(String value, Color color, JPanel toAdd) {
        JButton button = new JButton(value);
        button.setForeground(color);
        toAdd.add(button);
    }
    public static void main(String[] args) {
        JFrame frame = new JFrame("Assignment 9");
        frame.setSize(600, 600);
        JPanel buttonPanel = new JPanel(new FlowLayout());
        buildButton("BLUE", Color.BLUE, buttonPanel);
        buildButton("ORANGE", Color.ORANGE, buttonPanel);
        buildButton("RED", Color.RED, buttonPanel);
        buildButton("GREEN", Color.GREEN, buttonPanel);
        buildButton("MAGENTA", Color.MAGENTA, buttonPanel);
        JPanel mainPanel = new JPanel(new BorderLayout());
        mainPanel.add(buttonPanel, BorderLayout.SOUTH);
        mainPanel.add(new JButton("NORTH"), BorderLayout.NORTH);
        mainPanel.add(new JButton("WEST"), BorderLayout.WEST);
        mainPanel.add(new JButton("EAST"), BorderLayout.EAST);
        mainPanel.add(new JLabel("CENTER"), BorderLayout.CENTER);
        frame.setContentPane(mainPanel);
        frame.setVisible(true);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }
}
```

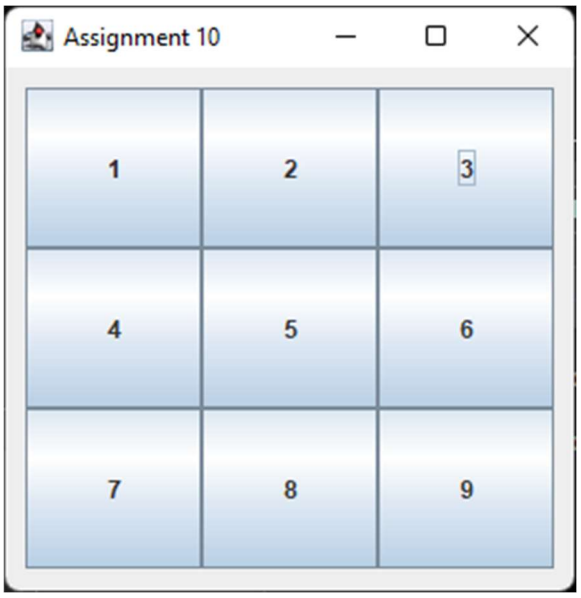
OUTPUT

MODULE 4 – Q10

CODE

```
import javax.swing.*;
import java.awt.*;
class Main {
  public static void main(String[] args) {
      JFrame frame = new JFrame("Assignment 10");
      JPanel panel = new JPanel();
      panel.setLayout(new GridLayout(3, 3));
      JButton button;
      for(int i = 1; i < 10; i++) {
          button = new JButton(i+"");
          panel.add(button);
       }
      JPanel main = new JPanel();
      main.setLayout(new CardLayout(10, 10));
      main.add("Numbers", panel);
      frame.setContentPane(main);
      frame.setSize(300, 300);
      frame.setVisible(true);
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
   }
}
```

OUTPUT



MODULE 4 – Q11

CODE

```
import javax.swing.*;
import java.awt.*;
import static javax.swing.GroupLayout.Alignment.*;

class Main{
   public static void main(String[] args) {
        JFrame frame = new JFrame("GroupLayout Implementation");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        Container myPanel = frame.getContentPane();
         GroupLayout groupLayout = new GroupLayout(myPanel);
        groupLayout.setAutoCreateGaps(true);
        groupLayout.setAutoCreateContainerGaps(true);
        myPanel.setLayout(groupLayout);
         JButton b1 = new JButton("Button One");
        JButton b2 = new JButton("Button Two");
        JButton b3 = new JButton("Button Three");
         groupLayout.setHorizontalGroup(groupLayout.createSequentialGroup()

.addGroup(groupLayout.createParallelGroup(LEADING).addComponent(b1).addComponent(b3))
                .addGroup(groupLayout.createParallelGroup(TRAILING).addComponent(b2)));
         groupLayout.setVerticalGroup(groupLayout.createSequentialGroup()

.addGroup(groupLayout.createParallelGroup(BASELINE).addComponent(b1).addComponent(b2))
                .addGroup(groupLayout.createParallelGroup(BASELINE).addComponent(b3)));
         frame.pack();
        frame.setVisible(true);
   }
}
```

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

class Main{
   public static void main(String[] args) {
       JFrame frame = new JFrame("Box Layout");
       frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

       JButton jb1 = new JButton("Button 1 -");
       JButton jb2 = new JButton("Button 2 --------");
       JButton jb3 = new JButton("Button 3 -");
       JButton jb4 = new JButton("Button 4 --------");
       JButton jb5 = new JButton("Button 5 -");
       JButton jb6 = new JButton("Button 6 --------");

       JPanel panel1 = new JPanel();
       JPanel panel2 = new JPanel();
       JPanel panel3 = new JPanel();

       panel1.setBorder(BorderFactory.createTitledBorder("LEFT"));
       panel2.setBorder(BorderFactory.createTitledBorder("CENTER"));
       panel3.setBorder(BorderFactory.createTitledBorder("RIGHT"));

       BoxLayout layout1 = new BoxLayout(panel1, BoxLayout.Y_AXIS);
       BoxLayout layout2 = new BoxLayout(panel2, BoxLayout.Y_AXIS);
       BoxLayout layout3 = new BoxLayout(panel3, BoxLayout.Y_AXIS);
       panel1.setLayout(layout1);
       panel2.setLayout(layout2);
       panel3.setLayout(layout3);

       jb1.setAlignmentX(Component.LEFT_ALIGNMENT);
       jb2.setAlignmentX(Component.LEFT_ALIGNMENT);
       panel1.add(jb1);
       panel1.add(jb2);

       jb3.setAlignmentX(Component.CENTER_ALIGNMENT);
       jb4.setAlignmentX(Component.CENTER_ALIGNMENT);
       panel2.add(jb3);
       panel2.add(jb4);

       jb5.setAlignmentX(Component.RIGHT_ALIGNMENT);
       jb6.setAlignmentX(Component.RIGHT_ALIGNMENT);
       panel3.add(jb5);
       panel3.add(jb6);

       frame.setLayout(new FlowLayout());
```

```
        frame.add(panel1);
        frame.add(panel2);
        frame.add(panel3);

        frame.pack();
        frame.setVisible(true);
    }
}
```

OUTPUT