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| **Khushi Desai - 21BCP264**  **Computer Engineering: Div 4 (G8)**  **JAVA LAB – ASSIGNMENT 4** | |
| **1.** | **Write a program to demonstrate different Window handling events.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.event.\*;  import javax.swing.\*;  import java.awt.\*;  public class Q1 implements MouseMotionListener, WindowListener {      JLabel l;      JFrame fr;      public void initGUI() {          fr = new JFrame();          l = new JLabel();          Container c = fr.getContentPane();          c.setLayout(new BorderLayout());          c.add(l, BorderLayout.NORTH);            fr.setSize(512, 512);          fr.setVisible(true);          fr.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);          fr.addMouseMotionListener(this);          fr.addWindowListener(this);      }      public void mouseDragged(MouseEvent me) {          int x = me.getX();          int y = me.getY();          l.setText("Dragged at[" + x + "][" + y + "]");      }      public void windowActivated(WindowEvent we) {      }      public void windowClosed(WindowEvent we) {      }      public void windowClosing(WindowEvent we) {          JOptionPane.showMessageDialog(null, "GoodBye");      }      public void windowDeactivated(WindowEvent we) {          JOptionPane.showMessageDialog(null, "Window is Deactivated");      }      public void windowDeiconified(WindowEvent we) {          JOptionPane.showMessageDialog(null, "Window is Maximized");      }      public void windowIconified(WindowEvent we) {          JOptionPane.showMessageDialog(null, "Window is Minimized");      }      public void windowOpened(WindowEvent we) {          JOptionPane.showMessageDialog(null, "Welcome to Java");      }      public void mouseMoved(MouseEvent me) {          int x = me.getX();          int y = me.getY();          l.setText("Moved at[" + x + "][" + y + "]");      }   public Q1()   {   initGUI();   }      public static void main(String args[]) {          Q1 m = new Q1();      }  } |
| Output:- |  |
| **2.** | **Write a program to demonstrate different mouse handling events like mouseClicked(), mouseEntered(), mouseExited(), mousePressed, mouseReleased() and mouseDragged().** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.\*;  import java.awt.event.\*;  import javax.swing.JLabel;  public class pr2 extends Frame implements MouseListener{      JLabel l;      pr2(){          addMouseListener(this);          l=new JLabel();          l.setBounds(100,100,100,100);          add(l);          setSize(300,300);          setLayout(null);          setVisible(true);      }      public void mouseClicked(MouseEvent e)  {          if(e.getButton() == MouseEvent.BUTTON1) {            l.setText("Left Click!");          }          if(e.getButton() == MouseEvent.BUTTON2) {            l.setText("Middle Click!");          }          if(e.getButton() == MouseEvent.BUTTON3) {            l.setText("Right Click!");          }        }      public void mouseEntered(MouseEvent e) {          l.setText("Mouse Entered");      }      public void mouseExited(MouseEvent e) {          l.setText("Mouse Exited");      }      public void mousePressed(MouseEvent e) {          l.setText("Mouse Pressed");      }      public void mouseReleased(MouseEvent e) {          l.setText("Mouse Released");      }      public void mouseDragged(MouseEvent e) {          l.setText("Mouse Dragged");      }  public static void main(String[] args) {      new pr2();  }  } |
| Output:- |  |
| **3.** | **Write a program to demonstrate different keyboard handling events.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import javax.swing.\*;  import java.awt.\*;  import java.awt.event.\*;  public class Q3 implements KeyListener, ActionListener {      static JFrame frame;      static JTextField output;      static JTextField input;      public static void main(String args[]) {          frame = new JFrame("Keyboard Event");          frame.setBackground(Color.BLUE);          frame.setSize(300, 300);          frame.setLayout(null);            input = new JTextField();          input.setBounds(0, 0, 300, 50);          frame.add(input);          output = new JTextField();          output.setBounds(0, 200, 300, 50);          frame.add(output);          JButton exit = new JButton("Exit");          exit.setBounds(100, 100, 100, 30);          frame.add(exit);          Q3 obj = new Q3();          input.addKeyListener(obj);          exit.addActionListener(obj);          frame.setVisible(true);      }      public void actionPerformed(ActionEvent e) {          frame.dispose();      }      public void keyReleased(KeyEvent e) {          output.setText("");          output.setText("OUTPUT::" + "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("OUTPUT::" + "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("OUTPUT::" + "Key Typed : " + e.getKeyChar());      }  } |
| Output:- |  |
| **4.** | **Write a program to generate a window without an applet window using main() function.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import javax.swing.\*;  import java.awt.\*;  import java.awt.event.\*;  public class QUE4 {          public static void main(String[] args) {                  JFrameDemo jfd = new JFrameDemo();          }  }  class JFrameDemo extends JFrame implements WindowListener {  JLabel l;          public JFrameDemo() {                  addWindowListener(this);                  l=new JLabel("Hello!!");                  add(l);                  setSize(200, 200);                  setVisible(true);          }          public void windowOpened(WindowEvent e) {                  System.out.println("Opening frame");          }          public void windowClosing(WindowEvent e) {                  System.out.println("Closing frame");                  dispose();          }          public void windowClosed(WindowEvent e) {                  System.out.println("Closed frame");                  System.exit(0);          }          public void windowIconified(WindowEvent e) {                  System.out.println("Iconified");          }          public void windowDeiconified(WindowEvent e) {                  System.out.println("Deiconified");          }          public void windowActivated(WindowEvent e) {                  System.out.println("window activated");          }          public void windowDeactivated(WindowEvent e) {                  System.out.println("window deactivated");          }  } |
| Output:- |  |
| **5.** | **Write a program to demonstrate the use of push buttons.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.\*;  import java.awt.event.\*;  import javax.swing.\*;  public class Q5 {      public static void main(String[] args) {          final JFrame frame = new JFrame();          JButton btnH = new JButton("HELLO");          btnH.addActionListener(new ActionListener() {              public void actionPerformed(ActionEvent e) {                  JOptionPane.showMessageDialog(frame, "HELLO HOW ARE YOU?");              }          });          JButton btnM = new JButton("MESSAGE");          btnM.addActionListener(new ActionListener() {              public void actionPerformed(ActionEvent e) {                  JOptionPane.showMessageDialog(frame, "HAVE A GOOD DAY:)");              }          });          JPanel buttonPanel = new JPanel();          buttonPanel.add(btnM);          buttonPanel.add(btnH);          frame.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);          frame.setSize(300, 300);          frame.getContentPane().add(buttonPanel, BorderLayout.SOUTH);          frame.setVisible(true);      }  } |
| Output:- |  |
| **6.** | **WAP to create a Menu using the frame.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import javax.swing.\*;  public class Q6 {      JMenu menu, submenu;      JMenuItem i1, i2, i3, i4, i5;      Q6() {          JFrame f = new JFrame("Title");          JMenuBar mb = new JMenuBar();          menu = new JMenu("Menu");          submenu = new JMenu("Sub Menu");          i1 = new JMenuItem("Item 1");          i2 = new JMenuItem("Item 2");          i3 = new JMenuItem("Item 3");          i4 = new JMenuItem("Item 4");          i5 = new JMenuItem("Item 5");          menu.add(i1);          menu.add(i2);          menu.add(i3);          submenu.add(i4);          submenu.add(i5);          menu.add(submenu);          mb.add(menu);            f.setJMenuBar(mb);          f.setSize(400, 400);          f.setLayout(null);          f.setVisible(true);          f.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);      }      public static void main(String args[]) {          new Q6();      }  } |
| Output:- |  |
| **7.** | **WAP to create a Frame that display the student information.** |
| Code:- | import java.awt.\*;  import java.awt.event.ActionEvent;  import java.awt.event.ActionListener;  import javax.swing.\*;  public class Q7 extends Frame {  JLabel l1;  JLabel l2;  JLabel l3;      Q7() {          super("Student details:");          l1 = new JLabel("First Name");          l1.setBounds(20, 50, 80, 20);          l2 = new JLabel("Last Name");          l2.setBounds(20, 80, 80, 20);          l3 = new JLabel("Date of Birth");          l3.setBounds(20, 110, 80, 20);          TextField firstNameTF = new TextField();          firstNameTF.setBounds(120, 50, 100, 20);          TextField lastNameTF = new TextField();          lastNameTF.setBounds(120, 80, 100, 20);          TextField dobTF = new TextField();          dobTF.setBounds(120, 110, 100, 20);          Button sbmt = new Button("Submit");          sbmt.setBounds(20, 160, 100, 30);          sbmt.addActionListener(new ActionListener() {              public void actionPerformed(ActionEvent e) {                  JOptionPane.showMessageDialog(sbmt, "SUBMITTED SUCCESFULLY");              }          });          Button reset = new Button("Reset");          reset.setBounds(120, 160, 100, 30);          reset.addActionListener(new ActionListener() {              public void actionPerformed(ActionEvent ae) {                  JOptionPane.showMessageDialog(reset, "RESET SUCCESFULL");              }          });          this.add(l1);          this.add(l2);          this.add(l3);          this.add(firstNameTF);          this.add(lastNameTF);          this.add(dobTF);          this.add(sbmt);          this.add(reset);          this.setSize(300, 300);          this.setLayout(null);          this.setVisible(true);      }      public static void main(String[] args) {          Q7 awt = new Q7();      }  } |
| Output:- |  |
| **8.** | **WAP to create a Dialogbox.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.\*;  import java.awt.event.\*;  import javax.swing.\*;  public class Q8 {      static Dialog d;      Q8() {          Frame f = new Frame();          d = new Dialog(f, "Dialog Example", true);          d.setLayout(new FlowLayout());          Button b = new Button("OK");          b.addActionListener(new ActionListener() {              public void actionPerformed(ActionEvent e) {                  JOptionPane.showMessageDialog(f, "HELLO HOW ARE YOU?");              }          });          d.add(new JLabel("Click button to continue."));          d.add(b);          d.setSize(300, 300);          d.setVisible(true);      }      public static void main(String args[]) {          new Q8();      }  } |
| Output:- |  |
| **9.** | **WAP to implement the FlowLayout and BorderLayout.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.\*;  import javax.swing.\*;  public class Q9 {      JFrame frameObj;      Q9() {          frameObj = new JFrame();          JButton b1 = new JButton("1");          JButton b2 = new JButton("2");          JButton b3 = new JButton("3");          JButton b4 = new JButton("4");          JButton b5 = new JButton("5");          JButton b6 = new JButton("6");          JButton b7 = new JButton("7");          JButton b8 = new JButton("8");          JButton b9 = new JButton("9");          JButton b10 = new JButton("10");          frameObj.add(b1);          frameObj.add(b2);          frameObj.add(b3);          frameObj.add(b4);          frameObj.add(b5);          frameObj.add(b6);          frameObj.add(b7);          frameObj.add(b8);          frameObj.add(b9);          frameObj.add(b10);          frameObj.setLayout(new FlowLayout());          frameObj.setSize(300, 300);          frameObj.setVisible(true);      }      public static void main(String argvs[]) {          new Q9();      }  } |
| Output:- |  |
| **10.** | **WAP to implement the GridLayout and CardLayout.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.\*;  import javax.swing.\*;  public class Q10 {      JFrame f;      Q10() {          f = new JFrame();          JButton b1 = new JButton("1");          JButton b2 = new JButton("2");          JButton b3 = new JButton("3");          JButton b4 = new JButton("4");          JButton b5 = new JButton("5");          JButton b6 = new JButton("6");          JButton b7 = new JButton("7");          JButton b8 = new JButton("8");          JButton b9 = new JButton("9");          f.add(b1);          f.add(b2);          f.add(b3);          f.add(b4);          f.add(b5);          f.add(b6);          f.add(b7);          f.add(b8);          f.add(b9);          f.setLayout(new GridLayout(3, 3));          f.setSize(300, 300);          f.setVisible(true);      }      public static void main(String[] args) {          new Q10();      }  } |
| Output:- |  |
| **11.** | **WAP to implement the GroupLayout and BoxLayout.** |
| **GroupLayout** | |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.awt.Container;  import javax.swing.GroupLayout;  import javax.swing.JButton;  import javax.swing.JFrame;  import static javax.swing.GroupLayout.Alignment.\*;  public class Q11 {      public static void main(String[] args) {          JFrame frame = new JFrame("GroupLayoutExample");          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);      }  } |
| Output:- |  |
| **BoxLayout** | |
| Code:- | //KHUSHI DESAI  //21BCP264  import javax.swing.JFrame;  import javax.swing.JButton;  import javax.swing.BoxLayout;  import javax.swing.Box;  import javax.swing.JPanel;  import javax.swing.border.EmptyBorder;  import java.awt.Insets;  import java.awt.Dimension;  // construct a class Demo\_1  public class Q11\_Box {      // Main Method      public static void main(String[] args) {          // Function to set up the window frame.          JFrame.setDefaultLookAndFeelDecorated(true);          // Creating Object of "JFrame" class          JFrame frame = new JFrame("BoxLayout Example Y\_AXIS");          // Declaration of objects of JButton class.          JButton jbtn1, jbtn2, jbtn3, jbtn4, jbtn5;          // Function to set the default close operation of JFrame the.          frame.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);          // Set the panel to add buttons          JPanel panel = new JPanel();          // Creating Object of "boxlayout" in Y\_Axis from top to down          BoxLayout boxlayout = new BoxLayout(panel, BoxLayout.Y\_AXIS);          // to set the box layout          panel.setLayout(boxlayout);          // Set border for the panel          panel.setBorder(new EmptyBorder(new Insets(100, 150, 100, 150)));          // Initialization of object "jb1" of JButton class.          jbtn1 = new JButton("Button 1");          // Initialization of object "jb2" of JButton class.          jbtn2 = new JButton("Button 2");          // Initialization of object "jb3" of JButton class.          jbtn3 = new JButton("Button 3");          // Initialization of object "jb4" of JButton class.          jbtn4 = new JButton("Button 4");          // Initialization of object "jb5" of JButton class.          jbtn5 = new JButton("Button 5");          // Adding JButton "jb1" on JFrame          panel.add(jbtn1);          // Adding JButton "jb2" on JFrame          panel.add(jbtn2);          // Adding JButton "jb3" on JFrame          panel.add(jbtn3);          // Adding JButton "jb4" on JFrame          panel.add(jbtn4);          // Adding JButton "jb5" on JFrame          panel.add(jbtn5);          // Function to set the panel ofJFrame.          frame.add(panel);          // Function to use the pack of JFrame.          frame.pack();          // Function to set visible status of JFrame.          frame.setVisible(true);      }  } |
| Output:- |  |
| **13.** | **WAP to demonstrate System clock.** |
| Code:- | //KHUSHI DESAI  //21BCP264  import java.time.Clock;  import java.time.Duration;  public class Q13 {  public static void main(String[] args) {      Clock c = Clock.systemUTC();      Duration d = Duration.ofHours(5);      Clock clock = Clock.offset(c, d);  System.out.println(clock.instant());    }  } |
| Output:- |  |