

Section 1: Define

Anonymous Class Listeners-

Anonymous classes enable you to make your code more concise. They enable you to declare and instantiate a class at the same time. They are like local classes except that they do not have a name. Use them if you need to use a local class only once.

MouseListener-

The listener interface for receiving "interesting" mouse events (press, release, click, enter, and exit) on a component. (To track mouse moves and mouse drags, use the `MouseMotionListener`.)

The class that is interested in processing a mouse event either implements this interface (and all the methods it contains) or extends the `AbstractMouseListener` class (overriding only the methods of interest).

The listener object created from that class is then registered with a component using the component's `addMouseListener` method. A mouse event is generated when the mouse is pressed, released, clicked (pressed and released). A mouse event is also generated when the mouse cursor enters or leaves a component. When a mouse event occurs, the relevant method in the listener object is invoked, and the `MouseEvent` is passed to it.

MouseMotionListener-

The listener interface for receiving mouse motion events on a component. (For clicks and other mouse events, use the `MouseListener`.)

The class that is interested in processing a mouse motion event either implements this interface (and all the methods it contains) or extends the `AbstractMouseMotionAdapter` class (overriding only the methods of interest).

The listener object created from that class is then registered with a component using the component's `addMouseMotionListener` method. A mouse motion event is generated when the mouse is moved or dragged. (Many such events will be generated). When a mouse motion event occurs, the relevant method in the listener object is invoked, and the `MouseEvent` is passed to it.

<u>KEY IDENTIFIERS</u>	<u>NAME KEY ON THE KEY BOARD</u>
VK_HOME	Home
VK_END	<u>End</u>

VK_PGUP	<u>PageUp</u>
VK_PGDN	<u>PageDown</u>
VK_UP	<u>Arrow key up</u>
VK_DOWN	<u>Arrow key down</u>
VK_LEFT	<u>Arrow Key Left</u>
VK_RIGHT	<u>Arrow key Right</u>
VK_ESCAPE	<u>Esc</u>
VK_TAB	<u>Tab</u>
VK_CONTROL	<u>Ctrl</u>
VK_TAB	<u>Tab</u>
VK_CONTROL	<u>Ctrl</u>
VK_SHIFT	<u>Shift</u>
VK_BACK_SPACE	<u><-BackSpace</u>
VK_CAPS_LOCK	<u>Caps Lock</u>
VK_NUM_LOCK	<u>Num Lock</u>
VK_ENTER	<u>Enter</u>
VK_UNDEFINED	<u>KeyCode that's unKnown</u>
VK_F1 to VK_F12	<u>F1 to F12</u>
VK_0 to VK_9	<u>0 to 9</u>
VK_A to VK_Z	<u>A to Z</u>

Task 1:**USE OBJECT ORIENTATED PROGRAM DESIGN TO SOLVE PROBLEM**

(Display a Character) Write a program to get a character input from the key-board and display the character where the mouse points.

```

1  package mouse;
2
3  import java.awt.*;
4  import java.awt.event.MouseEvent;
5  import java.awt.event.MouseListener;
6  import java.awt.event.MouseMotionListener;
7  import java.awt.Graphics;
8  import java.awt.Font;
9  import static java.awt.font.TextAttribute.FONT;
10 import javax.swing.*;
11 import java.util.Scanner;
12
13 public class Mouse extends JFrame {
14
15     private JPanel mousepanel;
16     private JLabel statusbar;
17     private Graphics globalGraphics = null;
18     private String a;
19
20     @Override
21     public void paint(Graphics g) {
22         super.paint(g);
23         this.setSize(new Dimension(400, 300));
24
25         if(globalGraphics == null) {
26             globalGraphics = g.create();
27         }
28     }
29     public void drawDot(int x, int y) {
30
31         globalGraphics.drawString(a, x, y);
32     }
33
34     public void init() {
35         Scanner input = new Scanner(System.in);
36         System.out.print("Please input a character: ");
37         this.a = input.next();
38     }
39
40     public Mouse() {
41         super("Window Title");
42
43         mousepanel = new JPanel();
44         mousepanel.setBackground(Color.WHITE);
45         add(mousepanel, BorderLayout.CENTER);
46
47         statusbar = new JLabel("Default");
48         add(statusbar, BorderLayout.SOUTH);
49
50
51         Handlerclass mousehandle = new Handlerclass();
52         mousepanel.addMouseListener(mousehandle);
53         statusbar.addMouseListener(mousehandle);
54     }
55
56     private class Handlerclass implements MouseListener, MouseMotionListener {
57
58         @Override
59         public void mouseClicked(MouseEvent me) {
60             int mousex = me.getX();

```

```

61         int mousey = me.getY();
62         drawDot(mousex, mousey);
63
64         statusBar.setText("(" + String.valueOf(mousex) + "," + String.valueOf(mousey) + ")");
65
66     }
67
68     @Override
69     public void mousePressed(MouseEvent me) {
70         int mousex = me.getX();
71         int mousey = me.getY();
72         drawDot(mousex, mousey);
73
74         statusBar.setText("(" + String.valueOf(mousex) + "," + String.valueOf(mousey) + ")");
75     }
76
77     @Override
78     public void mouseReleased(MouseEvent me) {
79         //System.out.println("release");
80     }
81
82     @Override
83     public void mouseEntered(MouseEvent me) {
84         //System.out.println("entered");
85     }
86
87     @Override
88     public void mouseExited(MouseEvent me) {
89         //System.out.println("exited");
90     }
91
92     @Override
93     public void mouseDragged(MouseEvent me) {
94         //System.out.println("dragged");
95     }
96
97     @Override
98     public void mouseMoved(MouseEvent me) {
99         int mousex = me.getX();
100        int mousey = me.getY();
101
102        statusBar.setText("(" + String.valueOf(mousex) + "," + String.valueOf(mousey) + ")");
103    }
104
105 }
106
107 public static void main(String[] args) {
108
109     Mouse sample = new Mouse();
110     sample.init();
111     sample.setPreferredSize(new Dimension(400, 300));
112     sample.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
113     sample.pack();
114     sample.setLocationRelativeTo(null);
115     sample.setFocusable(true);
116     sample.requestFocusInWindow();
117     sample.setVisible(true);
118
119 }
120

```

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