```
 1 package project5;
 2
 3 import javax.swing.*;
 4 import java.awt.*;
 5 import java.awt.event.*;
 6 import java.io.*;
 7
 8
 9 public class BinaryTree extends JFrame implements ActionListener {
10
11 private static int winxpos=0,winypos=0;// place window here
12
13 // Private state variables.
14
15 private Font boldfont = new Font ("TimesRoman",Font.BOLD,18);
16 private Font plainfont = new Font ("TimesRoman",Font.PLAIN,12);
17
18 private JButton insertbutton,exitbutton;
19 private JTextField infield;
20 private JPanel northPanel;
21 private MyPanel centerPanel;
22 private static final int WINWIDTH = 1200;
23 private static final int WINHEIGHT = 800;
24 private Tree theTree = new Tree();
25
26
27 ////////////MAIN//////////////////////
28
29 public static void main(String[] args) {
30         BinaryTree tpo = new BinaryTree();
31
32         tpo.addWindowListener(new WindowAdapter() {   // this exits the program when X box
clicked
33             public void windowClosing(WindowEvent e) {
34                 System.exit(0);
35             }
36         });
37 }
38
39
40
41 ////////////CONSTRUCTOR////////////////////
42
43 public BinaryTree ()
44
45 {
46        northPanel = new JPanel();
47        northPanel.add(new Label("Enter a number to insert: "));
48        infield = new JTextField("",20);
49        northPanel.add(infield);
50        insertbutton = new JButton("Insert");
51        northPanel.add(insertbutton);
52        insertbutton.addActionListener(this);
53        exitbutton = new JButton("Exit");
54        northPanel.add(exitbutton);
55        exitbutton.addActionListener(this);
56        getContentPane().add("North",northPanel);
57
58        centerPanel = new MyPanel();
59        getContentPane().add("Center",centerPanel);
60
61
62
63       theTree.insert(50, 1.5);
```

```
 64       theTree.insert(25, 1.2);
 65       theTree.insert(75, 1.7);
 66       theTree.insert(12, 1.5);
 67       theTree.insert(37, 1.2);
 68       theTree.insert(43, 1.7);
 69       theTree.insert(30, 1.5);
 70       theTree.insert(33, 1.2);
 71       theTree.insert(87, 1.7);
 72       theTree.insert(93, 1.5);
 73       theTree.insert(97, 1.5);
 74       theTree.displayTree();
 75
 76       setSize(WINWIDTH,WINHEIGHT);
 77       setLocation(winxpos,winypos);
 78       setVisible(true);
 79
 80 }
 81
 82
 83 ////////////BUTTON CLICKS ////////////////////////
 84
 85 public void actionPerformed(ActionEvent e) {
 86
 87          if (e.getSource()== exitbutton) {
 88         dispose(); System.exit(0);
 89
 90         }
 91
 92
 93
 94         if (e.getSource()== insertbutton) {
 95                theTree.insert(Integer.parseInt(infield.getText()),2.1);
 96                repaint();
 97         }
 98
 99
100 }
101
102
103 class MyPanel extends JPanel {
104
105  ////////////    PAINT   ////////////////////////////////
106   public void paintComponent (Graphics g) {
107     //
108          g.setFont(plainfont);
109          g.drawString("Nick Rebhun, "
110                 + "Project 5 (CS-182), "
111                 + "Mapping a Binary Tree",20,30);
112          theTree.displayTree();
113
114          theTree.displayTree(g,theTree.getRoot(),WINWIDTH/2,80, 1);
115
116     }
117   }
118 }     // End Of BinaryTree
```