

Spontaneous Source Code Recommendation Tool Based on Text Search Techniques

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```
DynamicTreeDemo.java
+ * This code is based on an example provided by Richard Stanford,
import java.awt.BorderLayout;

public class DynamicTreeDemo extends JPanel
    implements ActionListener {
    private int newNodeSuffix = 1;
    private static String ADD_COMMAND = "add";
    private static String REMOVE_COMMAND = "remove";
    private static String CLEAR_COMMAND = "clear";

    private DynamicTree treePanel;

    public DynamicTreeDemo() {
        super(new BorderLayout());

        //Create the components.
        treePanel = new DynamicTree();
        populateTree(treePanel);
    }
}
```

```
CardLayoutDemo.java
cb.setEditable(false);
cb.addItemListener(this);
comboBoxPane.add(cb);

//Create the "cards"
JPanel card1 = new JPanel();
card1.add(new JButton("Button 1"));
card1.add(new JButton("Button 2"));

```

```
VerifyDialog.java
/** Machine-generated. */
private javax.swing.JPanel ivjPass1Panel = null;
/** Machine-generated. */

JPanel card1 = new JPanel();
card1.add(new JButton("Button 1"));
card1.add(new JButton("Button 2"));

```

```
Test.java
import javax.swing.JButton;
import javax.swing.JPanel;

public class Test {
    JPanel panel1;
    JPanel panel2;
    JButton button1;
    JButton button2;

    public Test() {
        panel1 = new JPanel();
    }
}

public Test() {
    panel1 = new JPanel();
}

```

You created a *JPanel* object, but how to add buttons to this?

Here you found *JPanel* has *add* method and a *JButton* object can be passed as an argument!

```
TextInputDemo.java
LeftHalf.add(createEntryFields());
LeftHalf.add(createButtons());

add(leftHalf);
add(createAddressDisplay());
}

protected void createButtons() {
    JPanel panel = new JPanel(new FlowLayout(FlowLayout.TRAILING));

    JButton button = new JButton("Set address");
    button.addActionListener(this);
    panel.add(button);

    button = new JButton("Clear address");
    button.addActionListener(this);
    button.setActionCommand("clear");
    panel.add(button);
}

VerifyDialog.java
/** Machine-generated. */
private javax.swing.JPanel getJDialogContentPane() {
    if (ivjJDialogContentPane == null) {
        try {
            ivjJDialogContentPane = new javax.swing.JPanel();
            ivjJDialogContentPane.setName("JDialogContentPane");
            ivjJDialogContentPane.setLayout(null);
        }
    }
}
```

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

public class Test {
    JPanel pa;
    JPanel pa;
    JButton b;
    JButton b;

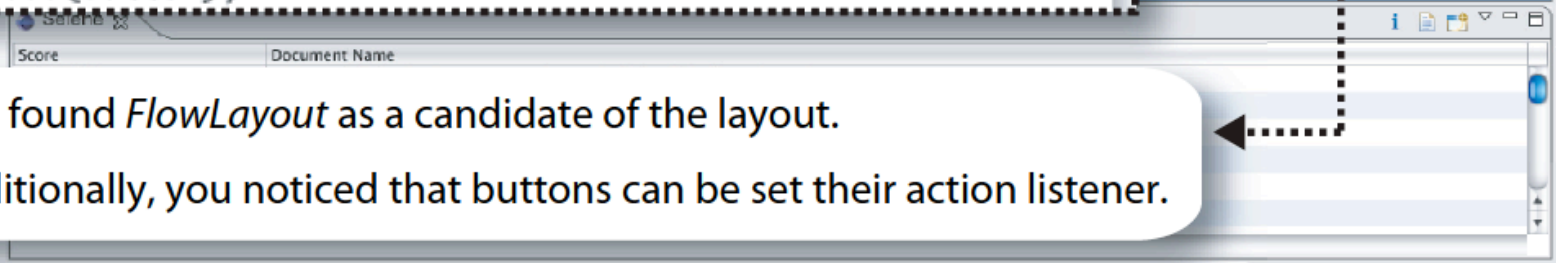
    public Test() {
        panel1 = new JPanel();
        panel2 = new JPanel();
        button1 = new JButton("Button1");
        button2 = new JButton("Button2");
        panel1.add(button1);
        panel1.add(button2);
        panel1.setLayout();
    }
}
```

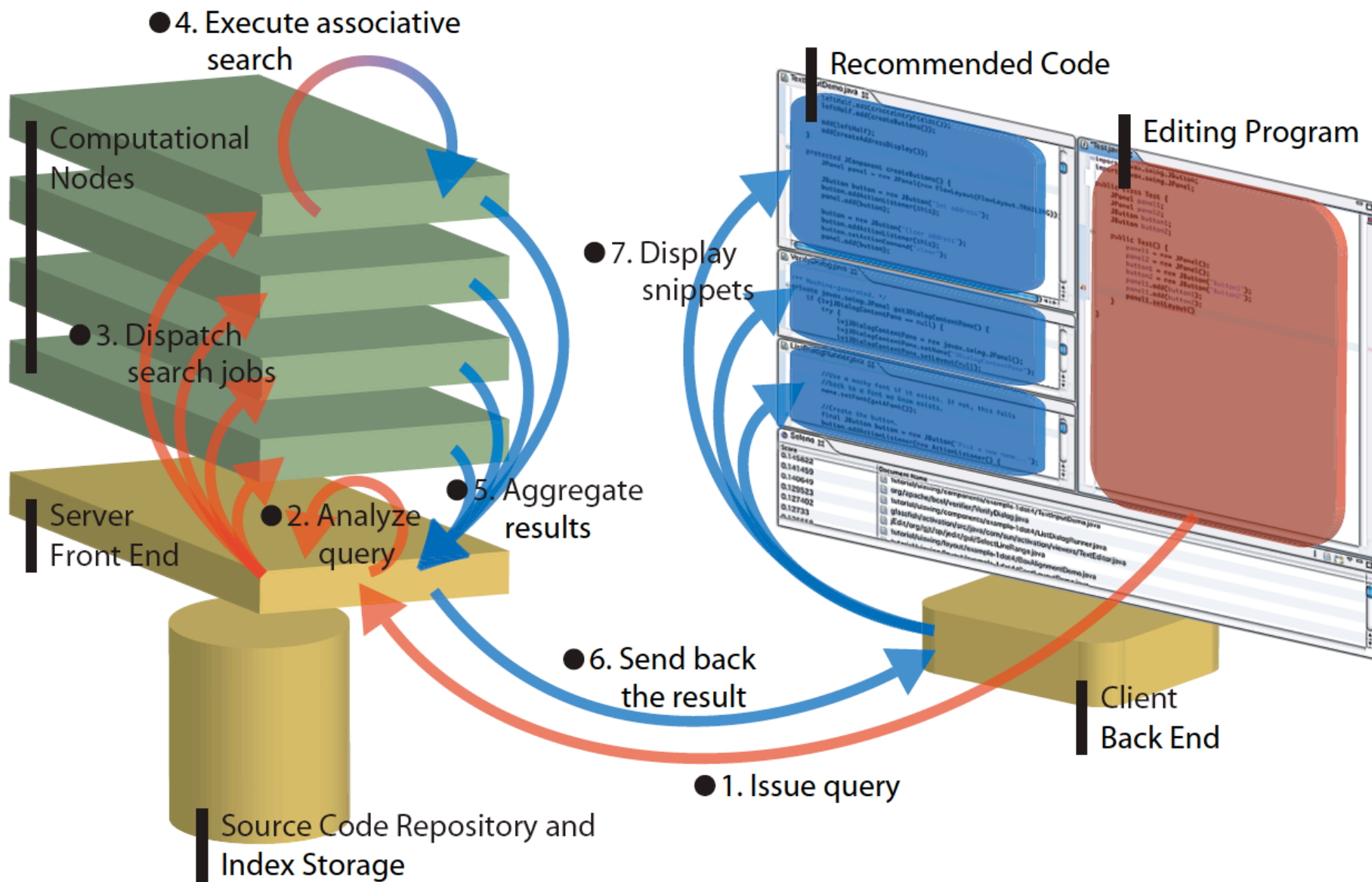
You added buttons to the panel and started to think about their layout.

```
JPanel panel = new JPanel(new FlowLayout(FlowLayout.TRAILING));

JButton button = new JButton("Set address");
button.addActionListener(this);
panel.add(button);
```

You found *FlowLayout* as a candidate of the layout. Additionally, you noticed that buttons can be set their action listener.



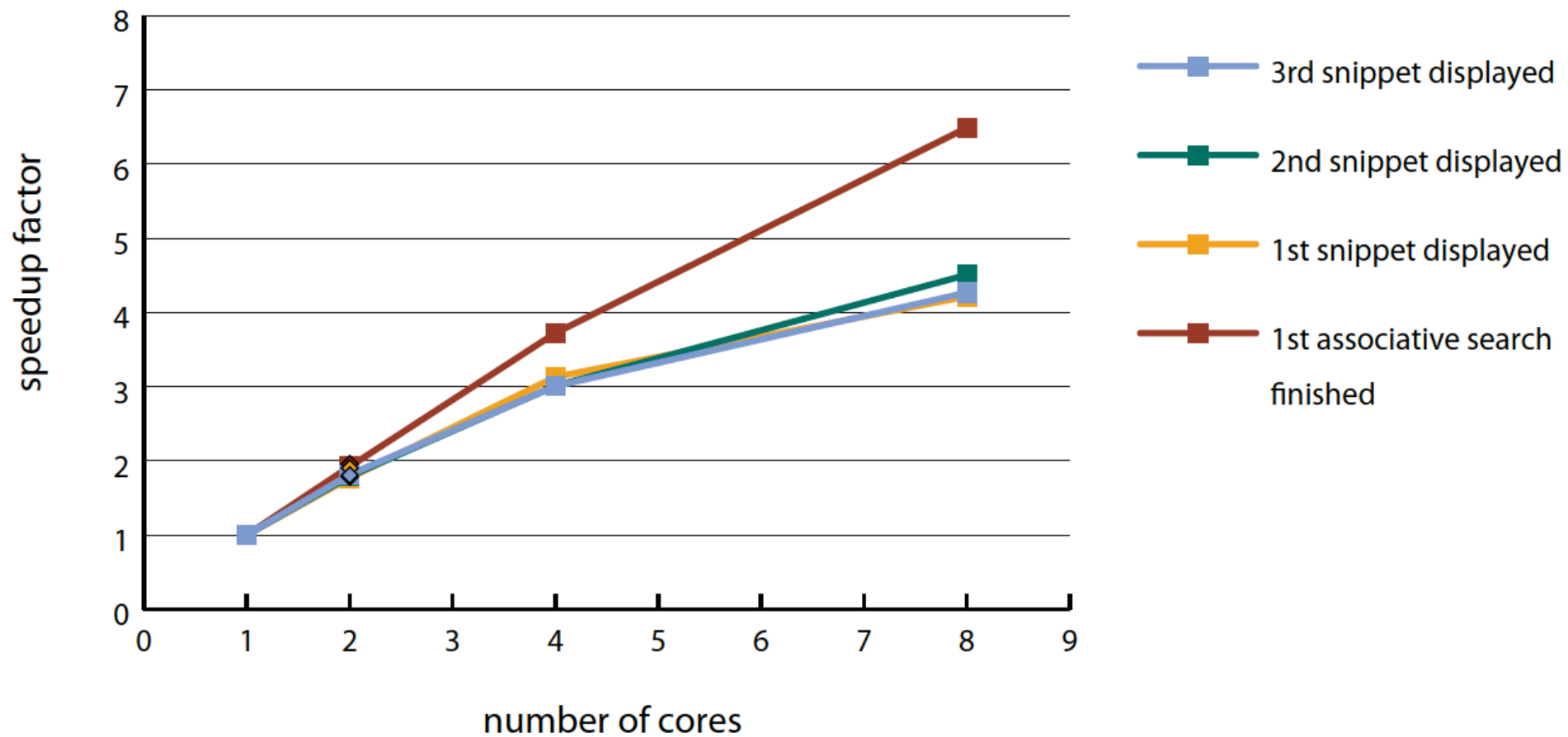


Design Overview of Selene

Characteristics of our approach

- Using whole program text as a query
 - not keyword search
- Simple comparison method, used in NLP
 - not by program analysis
 - with a large repository of code
 - language independent
- Spontaneous recommendation

Effect of the number of cores



Effect of the number of files

