Change request log

1 Team - bughunters

Nishant Kashiv – documentation
Saurabh Deotale – change request implementation (complete process)

Code repository - https://github.com/kashivns/cs515-001-s20-bughunters-jEdit
(For looking up changes, go to pull requests section for the repository and search with following query:
is:pr head:changeRequest#je1)

2 Change Request

Change Request Id – changerequest#ps1

Description - The left side of the status bar of jEdit reports: the line number containing the caret, the column position of the caret, the character offset of the caret from the beginning of the file, and the number of characters in the file (see Figure 1). The request is to modify the status bar to show: the word offset of the caret from the beginning of the file and the number of words in the file. As a result of this change, the status bar for the example of Figure 1 should report: 216,23 (3777/775740)(536/124706).

For the sake of consistency, the new caret display options should be added to the Status Bar preference dialog as check boxes.

3 Concept Location

Before performing the following steps, we changed the version of ivy in the build file from 2.2.0 to 2.5.0 to make sure the project builds, and the built application runs without any issues.

IDE used – IntelliJ IDEA

The following are the steps followed for concept location for change request #1:

Step #	Description	Rationale
1	● Run the installer version of the software to observe the behavior related to the change request	To get familiar with the system and its behavior.
2	● Loaded a text file in the editor ● Observe the behavior of the status bar ● Go to the Status Bar settings and toggle the settings and observe the change in the status bar.	To get an idea of the different options and their impact on the status bar.
3	● Search for “status bar” and related strings in the whole project directory. ● IDE Feature used: Find ● Possible modules: org.gjt.sp.jedit.gui org.gjt.sp.jedit.options ● Possible Classes • StatusBar.java • StatusBarOptionPane.java	Try to identify modules and classes which implement the Status Bar functionality.
4	● Navigate and understand the modules listed	Some code navigation as preparation for debugging

	above to identify possible breakpoints.	the application.
5	Debug the application to identify all the components involved in displaying the StatusBar	Try to understand the workflow implemented for the status bar
6	While debugging we observed that when the caret position is changed in the application the updateCaretStatus() method inside the StatusBar class is called.	Try to locate the code which displays the status bar caret information.
7	In the updateCaretStatus() method we observe that the caret offset, line number and other similar information is being calculated, and then a buffer is generated according to the values of some properties.	Try to understand the responsibilities of the method updateCaretStatus().
8	We searched for the properties in the whole project and found that they are being set in the StatusBarOptionPane.java class. During our debugging we found that this class is responsible for the display of the StatusBar Settings.	Try to understand how the properties are being set.
9	We identified that we need to add a property in the StatusBarOptionPane.java and when this property will be true the StatusBar.java will display the word offset.	We confirmed StatusBar.java and StatusBarOptionPane.java classes had to be modified.

Time spent (in minutes): 100

4 Impact Analysis

After the last step we determined that we need to:

1. Inside the StatusBarOptionPane.java _init() method add a checkbox which sets the value of a new property.
2. In StatusBar.java updateCaretStatus() calculate the word offset of the caret and the word count of the whole buffer.
3. If the property is true, display the word offset and word count.

Step #	Description	Rationale
1	● We found that we will not change the current functionality of the classes in any way. ● We found no classes having direct impact due to identified change. As the StatusBar.java class has all the information needed to calculate the word offset. ● We found that the StatusBar.java extends Swings' JPanel class. ● The updateCaretStatus is called from EditPane	Track all the classes impacted.
2	● We tried to debug and found out that the changes will be limited to the StatusBar.java and StatusBarOptionPane.java	Track all the classes to be changed.

Time spent (in minutes): 30

5 Prefactoring (optional)

The changes do not require any change in the existing code as we are only adding a method and calling it inside the updateCaretStatus method.

Time spent (in minutes): 0

6 Actualization

Step #	Description	Rationale
1	We added a method doWordCount() which takes the current buffer of the EditText and the caret position. Both required parameters are already present in the method scope.	Implement a method which calculates the word offset and the word count by taking in the buffer and the caret position
2	We added a check box member variable in the StatusBarOptionPane.java	Add a way the user can toggle the new functionality
3	We added a property options.status.caret.word-offset in the StatusBarOptionPane by referring to the pre-existing properties in the class.	Property is used to save the preference of the user.
4	In the _init() method we set the value of the checkbox according to the property and set the value of the property if the user changes the state of the checkbox.	At initialization the property value is set according to the value present in the properties file.
5	In the _save() method we save the state of the checkbox in the newly added property	Save the value of the property in a file to be read afterward.

Time spent (in minutes): 60

7 Postfactoring (optional)

Add an entry for the text to be displayed for the property options.status.caret.word-offset in the file responsible for localization. As we are not familiar with other languages, we added a translation only for English.

Time spent (in minutes): 0

8 Validation

We validated our changes using manual tests for confirming correct behavior as well as output.

Step #	Description	Rationale
1	Manual Test: Start jEdit after a clean install. The status bar should by default display the caret word offset and the word count.	We set the default value of the property as true.
2	Manual Test: Go to Status Bar options in the settings and uncheck the option to display the caret word offset. Apply the changes The Word Offset and Word Count info from the status bar is removed.	Test the functionality of the checkbox in the Options pane is working as expected.

3	Manual Test: Start jEdit application. Open a text file with multiple lines and words. Move the cursor to a different location.	Check if the word count and word offset information changes with change in caret position.
4	Manual Test: Go to the Status Bar options pane and toggle different checkboxes. Click on apply Check if the status bar only displays the information which is selected in the properties.	The Status Bar should only display the information for those properties which are selected in the options pane.
5	Manual Test: Open jEdit, go to the Status Bar Options, change the value of the check box corresponding to the caret word offset. Apply the changes. Close the jEdit application Open the application again See if the preferences applied previously are still in effect	The previous preferences should be saved when the application is closed and loaded again when the application starts.

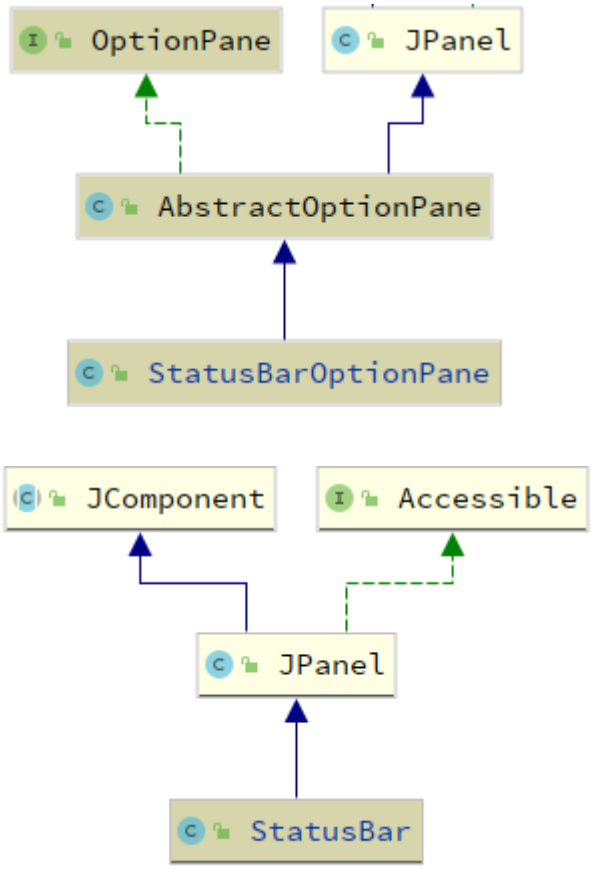
Time spent (in minutes): 30

9 Timing

Summarize the time spent on each phase.

Phase Name	Time (in minutes)
Concept location	100
Impact Analysis	30
Prefactoring	0
Actualization	60
Postfactoring	0
Verification	30
Total	220

10 Reverse engineering



11 Conclusions

For this change, concept location was the most challenging step. Once concept location was completed rest of the process went by smoothly. The understanding of the software design helped immensely in locating the root-cause. We used IntelliJ IDEA IDE for all the steps performed (implementation and testing).

Classes and methods changed:

- jEdit/org/gjt/sp/jedit/gui/StatusBar.java
  - updateCaretStatus()
  - doWordCount(

- org/gjt/sp/jedit/options/StatusBarOptionPane.java
  - _init()
  - _save()