CMPSC 112
Introduction to Computer Science II
Spring 2014

Laboratory Assignment Two: Using Vim as an Integrated Development Environment

Introduction

Practicing software developers normally use an integrated development environment (IDE) to manage various tasks associated with the design, implementation, and testing of data structures and algorithms. In this course, we will use Vim as an IDE. In this laboratory assignment, you will work to learn about the basic features associated with Vim and then individually prepare your own tutorial that explains how to use basic Vim commands and plugins to support the navigation and manipulation of Java source code. The goal for this assignment is to ensure that you can effectively use Vim, thus enabling you to focus more on the course concepts and less on the use of the IDE.

Learning the Basics of Vim

Before you start to complete the remainder of this laboratory assignment, you may want to review some of the reasons why people like to use the Vim text editor, as explained at `http://usevim.com/2012/10/26/why-vim/`. When you are finished learning about some of the reasons behind using Vim, you can open a GVim window and load in the source code of a Java program. Using this code and ultimately writing your own tutorial, you should identify, learn, and document some of the basic features that are offered by Vim. For instance, make sure that you know how to perform the following actions. You must be able to accomplish these tasks without using the mouse; this will both allow you to use Vim in a terminal and to write Java programs more rapidly.

1. Open, close, and save files in windows or tabs

2. Move to the beginning and end of a file

3. Navigate to specific lines and columns within a file

4. Enter and exit normal mode

5. Enter and exit insert and append mode

6. Select line(s) of text in visual mode

7. Copy, paste, and delete lines of text

8. Undo the result of a previous command

9. Search for and replace specific words in a file

10. Any additional features that you deem to be useful

Since we will be using Vim throughout the semester, please make sure that you can easily invoke all of the editor's most important commands. You should take notes and screenshots to demonstrate that you understand how to use basic Vim commands. As you explore how to use Vim, you should prepare content for a tutorial explaining all of the aforementioned tasks.

Using Plugins to Extend Vim

We will use a variety of Vim plugins to ensure that Vim can operate as a full-fledged integrated development environment when you complete the laboratory assignments and the final project. In this phase of the assignment, you are responsible for learning how to use all of the plugins in the following list. If you have not already done so, please make sure that you install the spf13-vim distribution; you can learn more about this approach to enhancing Vim by visiting `http://vim.spf13.com/`. Once you have learned about spf13-vim and you are sure that all of its associated plugins are installed correctly, you should prepare a tutorial that explains the inputs, outputs, and behavior of the key features offered by each of the following plugins.

1. Ctrl-P
2. Fugitive
3. NERDTree
4. NERDCommenter
5. EasyMotion
6. Tabularize
7. Tagbar

For instance, when learning how to use the Ctrl-P plugin, you should press the key combination `<ctrl-p>` and then use the interface to navigate the file system and load in new files. Alternatively, you can press `<ctrl-E>` and browse the file system and load files with the NERDTree plugin. Please make sure that you understand, in detail, how to use each of the aforementioned plugins. That is, even if you already have a "tried and true" method for accomplishing a certain task in GVim, you should push yourself to explore the features of these plugins and determine if you can become a more efficient implementor of programs in GVim. One way to practice using GVim is to write your tutorial as a plaintext file that you edit directly with Vim!

Summary of the Required Deliverables

In addition to storing the required deliverable in your Git repository, this assignment invites you to submit one printed and signed version of a tutorial that contains:

1. A description of the steps you took to install the spf13-vim distribution.
2. A full-featured description of the basic features associated with the Vim text editor.
3. A complete introduction to the use of the aforementioned Vim plugins.

Please note that each student in the class is responsible for completing and submitting their own version of this assignment. While it is acceptable for members of this class to have high-level conversations, you should not share source code or full command lines with your classmates. That is, it is necessary to distinguish carefully between the student who discusses the principles underlying a problem with others and the student who produces assignments that are identical to, or merely variations on, someone else's work. Writing or output that is largely similar to other submissions or to online material will be judged as evidence of violating the Honor Code. Please see the course instructor if you have questions about the policies for this laboratory assignment.