

CMPS 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 with your team members to learn about the basic features associated with Vim and then individually prepare your own tutorial that explains how to use basic Vim commands, Vim runtime configuration files, and plugins to support the navigation and manipulation of Java source code.

Using Runtime Configuration Files

It is very easy to configure Vim by writing VimScript in your `.vimrc` and `.gvimrc` files. To complete this phase of the assignment you should run the `git pull` command inside of your `cs112S2014-share` Git repository. Now, change into the `labs/lab2/src/dotfiles/` directory. What files did you find in this location? Now, you should copy these files from the git repository into the root of your home directory. At this point, you should run the GVim command so that you can see the source code of one of the Java programs that we used during our class sessions. Do you see that the color scheme is different? If you would like, you can customize the color scheme by using the “Edit” and “Color Scheme” menus. Finally, you should also use GVim to study the VimScript in the `.vimrc` and `.gvimrc` files. Make sure that you and your team members have a basic understanding of these configuration files. What new features does GVim now have?

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 return to the GVim window that should still have the source code of a Java program in it. Using your own program and ultimately writing your own tutorial, you should work with your team members to 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.

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. To start learning more about these plugins, load the source code of your `.vimrc` file into GVim and search for a line that starts with the command `Bundle`. For each of the plugins that you are required to investigate, you can visit the associated Web site, as listed in the `.vimrc`.

Next, you should run the `:BundleInstall` command in GVim. After all of the plugins are correctly installed, your enhanced version of Vim should have many new features! To access these features, you should quit GVim and then run the program again to view the same Java program that you were previously editing. Now, 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. MatchIt
4. NERDTree
5. Sneak
6. TComment
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 `<F11>` and browse the file system and load files with the NERDTree plugin.

Summary of the Required Deliverables

This assignment invites you to submit one printed version of a tutorial that contains:

1. A commentary on how Vim uses runtime configuration files
2. A full-featured description of the basic features associated with the Vim text editor
3. A complete introduction to the use of the Vim aforementioned plugins

Along with turning in a printed version of your tutorial, you should ensure that your document is also available in the repository that is named according to the convention `cs112S2014-<your user name>`. Please note that students in the class are responsible for completing and submitting their own version of this assignment. However, you also will be assigned to work in a team that is tasked with ensuring that all of its members are able to complete each step of the assignment. Team members should make themselves available to each other to answer questions and resolve any problems that develop during the laboratory session. While it is acceptable for members of a team to have high-level conversations, you should not share source code or full command lines with your team members. To ensure that you can communicate effectively, members of each team should sit next to each other in the room. Please see the instructor if you have questions about this policy.