FS 102
Software Everywhere
Spring 2017

Practical 1
Assigned: Friday, January 20, 2017
Due: Wednesday, January 25, 2017 at the start of class
"Checkmark" grade

Introduction

Writers and presenters on the cutting-edge of technology often use a version control system to manage most of the artifacts produced during the phases of drafting and delivering an article or a talk. In this course, we will always use the Git distributed version control system to manage the files associated with our writing, presentation, and practical assignments.

In this practical assignment, you will learn how to use the GitHub service for managing Git repositories and the `git` command-line tool in the Ubuntu operating system. Next, you will learn how to browse and start to understand the source code of a web site, identify mistakes or enhancements that a web site needs, and then bring these issues to the attention of the site's creator. Please carefully adhere to the following guidelines for success when you are completing this practical assignment and all of the subsequent writing, speaking, and practical assignments.

- **If possible, use the laboratory computers.** If it is absolutely necessary for you to work on a different machine, be sure to regularly transfer your programs to the Alden machines and check their correctness. Please remember that, as stated in the syllabus, students should try to complete assignments using the specialized workstations in the laboratory. If you cannot use a laboratory computer, then please carefully explain the setup of your laptop to a teaching assistant or the course instructor when you are asking questions.

- **Follow each step carefully.** Slowly read each sentence in every assignment sheet, making sure that you precisely follow each instruction. Take notes about each step that you attempt, recording your questions and ideas and the challenges that you faced. If you are stuck, then please tell a teaching assistant or instructor what step you recently completed.

- **Regularly ask and answer questions.** Please log into Slack at the start of a class or practical session and then join the appropriate channel. If you have a question about one of the steps in an assignment, then you can post it to the designated channel. Or, you can ask a student sitting next to you or talk with a teaching assistant or the course instructor.

- **Store your files in Git**. Starting with this laboratory assignment, you will be responsible for storing all of your files in a Git repository. Please verify that you have saved your source code in your Git repository by typing "`git status`" and ensuring everything is up to date.

- **Keep all of your files!** Don't delete your programs, output files, and reports after you hand them in—you will need them again later when you study for the quizzes and examinations and work on the other laboratory, practical, and final project assignments.

- **Back up your files regularly**. Use a flash drive, Google Drive, or your favorite backup method to keep a copy of your files in reserve. In the event of a system failure, you are responsible for ensuring that you have access to a recent backup copy of all your files.

Configuring Git and GitHub

During this practical assignment and subsequent assignments, we will securely communicate with the GitHub.com servers that will host all of our projects. In this practical assignment, we will perform all of the steps to configure the accounts on the departmental servers and the GitHub service. Throughout this assignment, you should refer to the following web site for additional information: `https://guides.github.com/activities/hello-world/`. As you will be required to use Git in the remaining writing, speaking, and practical assignments and during the class sessions, please be sure to keep a record of all of the steps that you complete and the challenges that you face. You are also responsible for communicating with other students to ensure that everyone is able to successfully complete each of the steps outlined in this assignment.

1. If you do not already have a GitHub account, then please go to the GitHub web site and create one—make sure that you use your `allegheny.edu` email address so that you can join the GitHub Educational Community as this step becomes necessary. Also, please make sure that you add a description of yourself and an appropriate professional photograph to your GitHub profile. For examples of what a professional GitHub profile might look like, please consider studying `https://github.com/una` and `https://github.com/gkapfham`.

2. If you have never done so before, you must use the `ssh-keygen` program to create secure-shell keys that you can use to support your communication with the GitHub servers. But, to start, this task requires you to type commands in a program that is known as a terminal. To run it, on the left side of your screen, click on the icon that contains the ">" symbol. Alternatively, you can type the "Super" key, start typing the word "terminal", and then select that program. Another way to open a terminal involves typing the key combination `<Ctrl>-<Alt>-t`.

3. If you have not done so already, you will now need to run the `ssh-keygen` command in your terminal window. Follow the prompts to create your keys and save them in the default directory (press "Enter" after you are prompted: "`Enter file in which to save the key ... :`", then press "Enter" twice if you do not wish to create a passphrase at this time or type your selected passphrase if you do). What files does `ssh-keygen` produce? Where does this program store these files by default? Do you have questions about this step?

4. Once you have created your ssh keys, you should raise your hand to invite either a teaching assistant or the course instructor to help you with the next steps. First, you must log into GitHub and look in the right corner for an account avatar with a down arrow. Click on this link and then select the "Settings" option. Now, scroll down until you found the "SSH and GPG keys" label on the left, click create a new "SSH key", and then upload your ssh key to GitHub. You can copy your to SSH key to the clipboard by going to the terminal and typing "`cat ~/.ssh/id_rsa.pub`" command and then highlighting this output. When you are completing this step in your terminal window, please make sure that you only highlight the letters and numbers in your key—if you highlight any extra symbols or spaces then this step may not work correctly. Then, paste this into the text field in your web browser.

5. Again, when you are completing these steps, please make sure that you take careful notes about the inputs, outputs, and behavior of each command. If there is something that you do not understand, then please ask the course instructor or the teaching assistant about it.

6. Since this is your first practical assignment and you are still learning how to use the appropriate software, don't become frustrated if you make a mistake. Instead, use your mistakes as an opportunity for learning both about the necessary technology and the background and expertise of the other students in the class, the teaching assistants, and the course instructor. Remember, you can use Slack to talk with the instructor by using "`@gkapfham`" in a channel.

Critiquing the Writing on a Web Site

In this next phase of this assignment, you should first go to the web site of the course instructor, which is available at `http://www.cs.allegheny.edu/sites/gkapfham/`. Next, you should browse this site so that you can locate the GitHub repository that the instructor uses to store all of the source code for the web site. Now, you should take time to use your web browser to look through the different directories of source code. What is source code? Can you find a source code file and explain to another person in the class how it is connected to a page on the instructor's web site?

Using both a mobile device and either a desktop or laptop computer, you should read many of the pages on the course instructor's web site. As you are doing this, you try to answer the questions from the "Introduction" slides in module one on the course web site. Then, start to read this web site and identify mistakes in the writing, find ways to improve its color, layout, and use of fonts, or assess whether the site is fully mobile-ready. Next, you should identify a mistake or an enhancement that you would like to see the course instructor implement in a future version of the site. Once you know what your "issue" is for the instructor's web site, go to its GitHub repository and click the "Issues" tab on the left side of the page. Using precise, error-free, and compelling language, use the GitHub issue tracker to fully describe your issue concerning this site.

Once you have finished writing your issue, you should carefully review it using the "Preview" tab of the text area. After you are confident that the writing is precise and error-free, please click the green "Submit new issue" button. Next, you should read the issues that have been raised by the other students in the class and comment on at least one of them. Do you agree with the points that are raised by your colleague? If you do, then add your persuasive argument as to why this issue should be resolved in the next version of the site. If you disagree with a point made by another issue-raiser, then persuasively argue why a different approach should be adopted instead.

Summary of the Required Deliverables

This practical assignment invites you to complete the following tasks:

1. Create a professional GitHub profile that will host all of your writing and presentations.

2. Upload your ssh key to the GitHub system, in support of completing the later assignments.

3. Review the source code, design, layout, and writing on the course instructor's web site.

4. Raise at least one publicly-visible issue on the GitHub repository for the instructor's web site.

In adherence to the Honor Code, students should complete this assignment on an individual basis. While it is appropriate for students in this class to have high-level conversations about the assignment, 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. Any deliverables that are nearly identical to the work of others will be taken as evidence of violating Allegheny College's Honor Code.