CMPSC 580
Topics and Research Methods in Computer Science
Spring 2015

Assignment 5
Managing Technical Writing with Git
Due 23 January 2015

Introduction

Researchers and developers in the field of computer science normally use a version control system to manage most of the artifacts produced during many of the phases associated with their work. In this course, we will always use the Git distributed version control system to manage the files associated with our assignments. In this assignment, you will learn how to use the Bitbucket service for managing Git repositories and the `git` command-line tool in the Ubuntu Linux operating system.

Configuring Git and Bitbucket

During this assignment and subsequent assignments, we will securely communicate with the Bitbucket.org servers that will host our all of our projects. In this assignment, we will perform all of the steps to configure the accounts on the departmental servers and the Bitbucket service. Throughout the assignment, you should refer to the following Web site for additional information: `https://confluence.atlassian.com/display/BITBUCKET/Bitbucket+101`.

Throughout the completion of this assignment, please be sure to keep a record of all of the steps that you took to configure Git and Bitbucket. You should also practice the steps multiple times to ensure that you can easily use Git throughout the remainder of the academic semester.

Please follow the below steps to configure and begin to use the Git service provided by Bitbucket:

1. 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 Bitbucket servers. Type `man ssh-keygen` and talk with one of the course instructors to learn more about how to use this program. What files does `ssh-keygen` produce? Where does this program store these files?

2. If you do not already have a Bitbucket account, please go to the Bitbucket Web site and create one — make sure that you use your `allegheny.edu` email address so that you can create an unlimited number of free Bitbucket repositories.

3. Now, you need to test to see if you can authenticate with the Bitbucket servers. First, show one of the course instructors that you have correctly configured your Bitbucket account. Now, ask this instructor to share the course's Git repository with you. Open a terminal window on your workstation and change into the directory where you will store your files for this course. For instance, you might make a `cs580S2015/` directory that will contain the Git repository that we will always use to share files with you. Next, please type the following command: `git clone git@bitbucket.org:gkapfham/cs580s2015-share.git`. If everything worked correctly, you should be able to download some files that you can use for

this assignment. Please resolve any problems that you encountered by first reviewing the Bitbucket documentation and then asking a course instructor for additional assistance.

Creating a New Repository

Now that you have learned how to clone an existing Git repository, you should create a new repository in the `cs580S2015/` directory that you previously created. First, create a new directory called `cs580S2015-<your user name>`. Then, change into this directory and type the command `git init .`. Then, you need to start adding some files into your repository. For instance, if you have already types in your survey of interests, you could add that to your repository using the command `git add` and `git commit`. Next, you should use the Bitbucket Web site to create a repository that has the same name as the local directory and local repository. You must follow Bitbucket's instructions to push the code and tags in your local repository to the remote one.

Students who would like to learn more about Git can consult Web sites like `http://try.github.io/` and `http://gitimmersion.com/`. At minimum, you should ensure that you fully understand how to use the following Git commands in the terminal window:

1. `git init`

2. `git status`

3. `git add`

4. `git commit`

5. `git push`

6. `git pull`

In summary, the main point of this assignment is to review how to create and use Git and Bitbucket. We will leverage these tools throughout the remainder of the semester. You should make sure that you are able to both access code that I share with you and share code with me through a Git repository. Please see the course instructor if you cannot complete these steps.