Objectives
To learn how to navigate the directories within Ubuntu operating system using command line interface. To establish and configure Bitbucket repositories that will be used in this course throughout the semester; learn basic commands for downloading course materials from the instructor and for submitting material to the instructor using Git.

Reading Assignment
Please review the handout on “Tips on Using Linux and the Command Line Interface”. Throughout the assignment, you should also refer to the following Web site for additional information about the Bitbucket: https://confluence.atlassian.com/display/BITBUCKET/Bitbucket+101 and to find information about Git commands, please go to: https://confluence.atlassian.com/stash/basic-git-commands-278071958.html (bookmark this page).

Navigating using the Command Line Interface
A command-line interface allows the user to interact with the computer by typing in commands. Computing professionals prefer to use the command line interface, built into operating systems like Linux, instead of using the graphical user interface. In many situations command line interface tends to be very efficient and effective, for example, it allows you to complete some tasks with a simple one line command instead of using the “pumping” motion of the mouse!

1. Read through the supplemental handout on using Linux and the command line interface. As you read through the handout, follow along by trying the commands on your machine. Remember to execute a command, you should press “Enter” after typing a command. Check with your neighbors to see if they are able to open the terminal window, and use commands such as cd, cd .., ls, etc.

2. Open a terminal window on your workstation and create a directory called cs111f2016 in your home directory, by typing mkdir cs111f2016 command in your terminal.

3. Go to the newly created cs111f2016 directory. Remember, the “cd” command followed by the name of the directory allows you to change into a directory.

4. Type ls or ls -l command to list all of the items inside that directory. It should be empty, so nothing should appear after you type the ls command.

5. Take a screen shot (using “PrtScn” button located at the top right part of the keyboard) of your terminal window, showing the commands you have just typed.

6. You can now close the terminal window by typing the exit command.
Configuring Git and Bitbucket

Practicing software developers normally use a version control system to manage most of the artifacts produced during the phases of the software development life cycle. In this course, we will always use the Git distributed version control system to manage the files associated with our class, laboratory and practical sessions. In particular, we will securely communicate with the Bitbucket.org servers that will host all of our projects. In this laboratory assignment, we will perform all of the steps to configure the accounts on the departmental servers and the Bitbucket service. As you will be required to use Git in the remaining laboratory 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 working with a partner to ensure that each of you is able to successfully complete each of the steps outlined in this assignment.

1. 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 while you are a student.

2. I have created the course’s Bitbucket repository that I need to share with you once you have created your Bitbucket account. Please raise your hand and ask your course instructor to share the course repository with you. Then open a terminal window on your workstation and change into the directory called cs111f2016 that you created in the first portion of this assignment. cs111f2016 directory will contain the repository that the instructor will always use to share files with you and your own repository that you will create and use to submit your assignments. Look to the left side of your Bitbucket web site, you will see a menu bar with a blue icon with a bucket in it (which looks exactly like the the image directly left of this point). Directly below this icon you will see three grey dots. Click on the three grey dots and a menu of actions will appear. Select the “Clone” option. Select HTTPS from the drop-down menu and then copy the text that is located in the text box. Back in the terminal, once you have changed into cs111f2016 directory, please paste the clone command into the terminal using your mouse.

If everything worked correctly, you should be able to download all of the files that you will need for this laboratory assignment. Please resolve any problems that you encountered by first reviewing the Bitbucket documentation and then discussing the matter with a teaching assistant. If you are still not able to run git clone, then please see a course instructor.

3. Take another screen shot of your terminal window, showing your recently typed commands.

4. Using your terminal window, you should browse the files that are in this shared Git repository.

Creating a New Repository

Now that you have learned how to clone an existing Git repository, you should make a new repository in the cs111f2016 directory that you previously created. First, change into cs111f2016 directory in your terminal, if you are not currently there. Then inside cs111f2016 directory create a new directory called cs111f2016-<your user name> using the mkdir command in your terminal window. If you opened a new terminal window, then you could type the following commands to create the needed directory; again, make sure that you understand each of these steps, discussing them with your neighbor, a teaching assistant, or one of the course instructors if you are confused.
cd cs111f2016
mkdir cs111f2016-<your user name>
cd cs111f2016-<your user name>

Once you have changed into this new directory you can type the command `git init`. Then, you can use the `mkdir` `labs` command to make a new directory and `cd` `labs` to change into it. Next, you should again use the `mkdir` command to create an additional directory called `lab1`. Please make sure that you completed each of these steps inside of the parent directory called `cs111f2016-<your user name>`.

Next, you should use the Bitbucket Web site to create a repository that has the same name as your local directory `cs111f2016-<your user name>`. You must follow Bitbucket’s instructions to push the code and tags in your local repository to the remote one. You should share your Bitbucket repository with the course instructor, my user name is “janyljumadinova”. At this point, please raise your hand, so that a teaching assistant or the instructor could verify that you have shared your repository correctly.

After completing this step you need to take another screen shot of your terminal window, showing your recently typed commands. Then using a graphical browser, locate three screen shots of your terminal window and copy them into your lab1 directory. Finally, use appropriate Git commands, such as `git add -A`, `git commit -m ‘your message’` and `git push` to send your screen shot images to the Bitbucket’s server.

You can learn more about Git by consulting Web sites like [http://try.github.io/](http://try.github.io/) and [http://gitimmersion.com/](http://gitimmersion.com/). After discussing them with a class member and a teaching assistant, you should ensure that you have a basic understanding of the following Git commands:

```
git init, git status, git add, git commit, git push, git pull
```

**Required Deliverables**

This assignment invites you to submit electronic versions of the following deliverables through your Bitbucket repository (`cs111f2016-<your user name>`).

1. Images of three terminal windows, showing the usage of Linux commands such as `cd` and `mkdir`, Git command `git clone` and Git commands such as `git init`, `git add`, `git commit` and `git push`.

Share your lab 1 files with the instructor through your Git repository by correctly using `git add`, `git commit`, and `git push` commands. When you are done, please ensure that the Bitbucket Web site has a `lab1` directory in your repository with three screen shots of the terminal window. You should see the instructor if you have questions about assignment submission.