Summary

To learn how to navigate the directories within Ubuntu operating system using command line interface. To set up Github and Github Classroom for use in the course. You will also continue to practice using Slack to support communication with the teaching assistants and the course instructor.

Using Your Computer Science Account

In advance of today’s lab you have already received the details about your Alden Hall computer account and learned how to log on. You may use this account on any computer in Alden labs 101, 103, or 109. Your files are stored on a central server; you don’t have to use the same machine every time you log on in a laboratory.

Hours of lab availability are posted on the bulletin board in each lab and on the following website: https://www.cs.allegheny.edu/; the on-duty lab monitor is available in Alden 101.

Utilizing Slack for Communication

Slack is a team collaboration application that allows users to create channels where discussions take place in public so everyone can participate. Many tech and other companies have started to use Slack to allow for instant communication and to save on time spent writing emails and attending meetings. Customers of Slack include a large number of start-ups, Comcast, Walmart, Blue Bottle Coffee, and several media companies, including The New York Times. Slack has several important features, including automatic archiving of all your communications, creating private groups, a good search engine and the ability to work on just about every device you use. These features have helped turn Slack into one of the fastest-growing business applications in history. After only over a year in operation, Slack now serves over a million users every day as a partial replacement for email, instant messaging and face-to-face meetings, with its base of users doubling every three months.

1. If you haven’t already done so, please sign up for the course’s Slack channel on https://cs100f2018.slack.com.

2. Using the menu on the top left, please ensure that your profile and your preferences are as you desire them to be. It is easier to open the Slack through the Slack application installed on Alden machines. To do so, you should click on dots on the bottom left of your screen, in the top search bar type ”Slack” and click on the Slack icon to start the app, then right click on the Slack icon in the left menu to add it to your favourites. Finally, at this time, consider
downloading a Slack app on your mobile device. Slack app is available for iPhone, iPad, and Android devices, as well as Mac and Windows machines.

3. Make sure #labs, #practicals and #class channels appear under your channels.

Please note that this channel is for discussions by students in section 1 of CMPSC 100. Please do not abuse it, as it may create an unnecessarily large number of notifications, and please keep the content of the public messages relevant to this course only. Also, remember you are bound by the Honor Code, even while using Slack. We will use the #general channel for general communications as a group, that means everyone can see what is posted on the #general channel, and other channels for more specific communications related to the specific class sessions, labs or practicals. You can also send me a direct message by clicking on my name under “Direct Messages”, which only I will be able to see.

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 “Tips on Using Linux and the Command Line Interface”. Locate the terminal window and open it as explained in the reading handout.

2. Now you will practice using the commands discussed in the handout. Follow the handout to try the commands discussed using the terminal window. Then, type each of the commands found in Table 1 of the supplemental handout. Make sure you understand what each command does. You will have to create new files in order to run some commands such as cp, mv, etc. The most basic method of creating a file is with the touch command. This will create an empty file using the name specified: touch file1 or multiple files as: touch file1 file2. 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, cp, pwd, ... , ls, etc.

3. After you finish practicing using the terminal commands delete all of the newly created files and directories from the previous practice step to avoid confusion in the future.

4. Now, if you have not done so in the previous step, create a directory called cs100f2018 in your home directory, by typing mkdir cs111s2018 command in your terminal. This is where all of the work you do in this class should reside.

5. From the home directory type pwd command in the terminal.

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

During the subsequent practical and laboratory assignments, we will securely communicate with the GitHub servers that will host all of the project templates and your submitted deliverables. In this assignment, you will perform all of the steps to configure your account on GitHub, so that you are ready to start your first lab assignment using GitHub Classroom next week. You can also learn more about GitHub Classroom by visiting https://classroom.github.com/. As you will be required to use Git, an industry standard tool, in all of the laboratory and remaining practical assignments and during the class sessions, you should keep a record of all of the steps that you complete and the challenges that you face. You may see the course instructor or one of the teaching assistants if you are not able to complete a certain step or if you are not sure how to proceed.

1. If you do not already have a GitHub account, then please go to the GitHub website (https://github.com/) and create one, making sure that you use your “allegheny.edu” email address so that you can join GitHub as a student at an accredited educational institution. You are also encouraged to sign up for GitHub’s “Student Developer Pack” at https://education.github.com/pack, qualifying you to receive free software development tools. Additionally, please add a description of yourself and an appropriate professional photograph to your GitHub profile. Unless your username is taken, you should also pick your GitHub username to be the same as Allegheny’s Google-based email account. Now, in the #practicals channel of our Slack team, please type on one line your full name, “allegheny.edu” email address, and your new GitHub username.

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 GitHub. But, to start, this task requires you to type commands in a terminal. Open the terminal as you have done in the previous step. Alternatively, you can search for it by starting to type the word “terminal”, and then select that program. Another way to open a terminal involves typing the key combination “<Ctrl>−<Alt>−t”.

3. Now that you have started the terminal, you will now need to type the “ssh-keygen” command in it. Follow the prompts to create your keys and save them in the default directory. That is, you should press “Enter” after you are prompted to “Enter file in which to save the key ... :” and then type your selected passphrase whenever you are prompted to do so. Please note that a “passphrase” is like a password that you will type when you need to prove your identity to GitHub. What files does “ssh-keygen” produce? Where does this program store these files by default? Do you have any questions about completing 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 find the “SSH and GPG keys” label on the left, click to create a “New SSH key”, and then upload your ssh key to GitHub. You can copy your 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 GitHub 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.

Since this is your first 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 typing “@jjumadinova” in a channel.

General Guidelines for Practical Sessions

- **Experiment!** Practical sessions are for learning by doing without the pressure of grades or “right/wrong” answers. So try things! The best way to learn is by trying things out.

- **Complete Something.** Your grade for this assignment is a “checkmark” indicating whether you did or did not complete the work.

- **Practice Key Laboratory Skills.** As you are completing this assignment, practice using the Ubuntu terminal until you can easily use its most important features. Additionally, ask a teaching assistant or a course instructor to teach you some of the advanced features of the terminal, thereby helping you to work more effectively.

- **Try to Finish During the Class Session.** Practical exercises are not intended to be the equal of the laboratory assignments. If you are simply a slow typist, I’ve given you until the end of the day, but ideally you should complete the assignment by the end of the class period.

- **Help One Another!** If your neighbor is struggling and you know what to do, offer your help. Don’t “do the work” for them, but advise them on what to type or how to handle things. If you are stuck on a part of this practical session and you could not find any insights in either your textbook or online sources, formulate an intelligent question to ask your neighbor, a teaching assistant, or a course instructor. Try to strike the right balance between asking for help when you cannot solve a problem and working independently to find a solution.