Objectives

To learn how to use GitHub to access the files for a laboratory assignment. Additionally, continue to learn how to use the Ubuntu operating system and the “terminal window”. You will also continue to practice using Slack to support communication with the technical leaders and the course instructor. Next, you will how to write a Markdown document and submit the files for grading. Finally, Windows Home users will complete the needed installations on their laptops.

Reading Assignment

Please read all of the relevant “GitHub Guides”, available at https://guides.github.com/, that explain how to use many of the features that GitHub provides. In particular, please make sure that you have read guides such as “Mastering Markdown” and “Documenting Your Projects on GitHub”; each of them will help you to understand how to use both GitHub and GitHub Classroom. Please see the instructor or one of the technical leaders if you have questions these reading assignments.

Windows Home Installations

If you have Windows Home technical leaders and the instructor will work with you at this time to install the following software on your laptop. Students who have an operating system other than Windows Home and have Docker Desktop, Git and Atom installed and configured on their machines should go to the next section.

1. Java Development Kit 12
2. Gradle: go to gradle.org/install, scroll down until you see “Microsoft Windows users” and follow installation steps.
3. Python: Scroll to the bottom and download an appropriate Windows executable installer”. To find out if you have a 64-bit version of Windows, you can type “System” in the search. The “64-bit Operating System” will be displayed under “System type”.
4. pipenv:
   • Open a command prompt window in administrator mode. To do this, search for “cmd” in the start menu, then right-click and select “Run as Administrator”.
   • Now run the following command:
     pip install pipenv
   • Finally, execute the following command and change jjumadinova to your user name:

     set PATH=%PATH%;set PATH=%PATH%;'c:\users\jjumadinova\appdata\local\programs\python\python36-32\Scripts'
Navigating the Directory Structure

To have an orderly and easy access to course files stored locally on your machine you are to create a specific directory structure. Please refer to practical 1 supplemental document for examples of terminal navigation commands. Select a directory where you would like to store files for this course, it could be a “home” directory, a “Desktop”, “Documents”, etc. Open your terminal window and using a “cd” command navigate to your selected directory. Now use the “mkdir” command to create a new directory called “cs100”. Then, navigate inside “cs100” directory and make the following new directories: “class”, “labs”, “practicals”. The path displayed in the instructor’s terminal after completing the steps above is as follows:

`$ /home/j/jjumadinova/cs100/`. Typing “ls” command at this point should show: class labs practicals. Take a snapshot of your terminal screen to be used in your report in the following steps. Finally, go inside the “labs directory” and continue to the next section.

Accessing the Laboratory Assignment on GitHub

To access the laboratory assignment, you should go into the #labs channel in our Slack team and find the announcement that provides a link for it. Copy this link and paste it into your web browser. Now, you should accept the laboratory assignment and see that GitHub Classroom created a new GitHub repository for you to access the assignment’s starting materials and to store the completed version of your assignment. Specifically, to access your new GitHub repository for this assignment, please click the green “Accept” button and then click the link that is prefaced with the label “Your assignment has been created here”. Unless you provide the instructor with documentation of the extenuating circumstances that you are facing, not accepting the assignment means that you automatically receive a failing grade for it.

Before you move to the next step of this assignment, please make sure that you read all of the content on the web site for your new GitHub repository, paying close attention to the technical details about the commands that you will type and the output that your program must produce. Now you are ready to download the starting materials to your laboratory computer. Click the “Clone or download” button and, after ensuring that you have selected “Clone with SSH”, please copy this command to your clipboard. In the terminal window inside `cs100/labs/` directory type “git clone” and then paste in the string that you copied from the GitHub site so that you can download all of the files for this assignment. After this command finishes, use “cd” to change into the new directory.

Please continue to use the “cd” and “ls” (or “dir” in the Windows command prompt) commands to explore the files that you automatically downloaded from GitHub. What files and directories do you see? What do you think is their purpose? Spend some time exploring, sharing your discoveries with a neighbor and a technical leader.

Writing in Markdown

In order to view the source code of a Java program or a Markdown-based writing assignment, you need a text editor. In this class we will normally use the text editor called “atom”. Today, you will write your first report in atom! To load the template for the report into atom, you should type “atom writing/” in your terminal window or navigate to “report.md” file in your graphical folder and right click on it to select to open it with atom. This should cause a new window, the atom text editor, to appear on your screen opening “report.md” document, which is written in the Markdown writing language. You can learn more about Markdown by viewing the aforementioned GitHub guide.
To complete this aspect of the assignment, you should write one high-quality (at least 250 word) paragraph in Markdown. Your report should describe your background, aspirations, etc. (anything you want your instructor to know) and any experiences in computer science you may have had before this class. Your report should also comment on your experiences in class so far, and describe the input, output, and behavior of each command you typed in the terminal when navigating the directory structure in the previous step, including the picture of your terminal window displaying the correct directory structure. Your report should contain the following Markdown elements as you learn how to write using this language:

- Text in bold and italic
- At least two different types of headers
- At least one list
- At least one image (your terminal window snapshot of the /cs100 directory)
- At least one link

Since this is our first laboratory assignment and you are still learning how to use the appropriate hardware and 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 technical leaders, and the course instructor.

Summary of the Required Deliverables
This assignment invites you to submit the following deliverables.

1. Stored in writing/reflection.md, a one-paragraph (at least 250 word) report on your background (anything you want your instructor to know) and any experiences in computer science you may have had before this class. This Markdown-based document should also reflect on your experiences in class so far, and comment on the input, output, and behavior of each command you typed in the terminal when navigating the directory structure. Finally, this report must be submitted through GitHub using appropriate “add”, “commit” and “push” commands.

2. Properly installed programs to facilitate Java program development. If you are using your own laptop in class, before the due date you should either have a working 1) Docker Desktop, Git and atom, or 2) JDK, Python, Gradle, pipenv, Git, atom.

Evaluation of Your Laboratory Assignment
Using a report that the instructor shares with you through the commit comment in GitHub, you will privately receive a feedback on your submitted deliverables. Your grade for the assignment will be a function of the whether or not it was submitted in a timely fashion and whether your program satisfies the requirements outlined above. Additionally, the instructor will also evaluate the accuracy of your technical writing. Please see the instructor if you have questions about the evaluation of this laboratory assignment.
Adhering to the Honor Code

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. Deliverables (e.g., Java source code or Markdown-based technical writing) that are nearly identical to the work of others will be taken as evidence of violating the Honor Code. Please see the course instructor if you have questions about this policy.

Suggestions for Success

• **Follow each step carefully.** Try to follow each instruction outlined in this assignment precisely. 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 technical leader or instructor what assignment step you recently completed.

• **Regularly ask and answer questions.** Please log into Slack at the start of a laboratory 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 #labs channel. Or, you can ask a student sitting next to you or talk with a technical leader or the course instructor.

• **Store your files in GitHub.** Starting with this laboratory assignment, you will be responsible for storing all of your files (e.g., Java source code and Markdown-based writing) in a Git repository using GitHub Classroom. Please verify that you have saved your source code in your Git repository by using “git status” to ensure that everything is updated. You can see if your assignment has been submitted correctly by checking the commits on the lab repository’s GitHub webpage.

• **Keep all of your files.** Don’t delete your programs, output files, and written reports after you submit them through GitHub; you will need them again when you study for the quizzes and examinations and work on the other laboratory, practical, and final project assignments.

• **Back up your files regularly.** All of your files are regularly backed-up to the servers in the Department of Computer Science and, if you commit your files regularly, stored on GitHub. In the event of any type of system failure, you are responsible for ensuring that you have access to a recent backup copy of all your files.

• **Explore teamwork and technologies.** While certain aspects of the laboratory assignments will be challenging for you, each part is designed to give you the opportunity to learn both fundamental concepts in the field of computer science and explore advanced technologies that are commonly employed at a wide variety of companies. To explore and develop new ideas, you should regularly communicate with your team and/or the technical leaders and tutors.

• **Hone your technical writing skills.** Computer science assignments require you to write technical documentation and descriptions of your experiences when completing each task. Take extra care to ensure that your writing is interesting and both grammatically and technically correct, remembering that computer scientists must effectively communicate and collaborate with their team members and the tutors, technical leaders, and course instructor.