School of Computer Science, McGill University

COMP-206 Introduction to Software Systems, Winter 2021

Mini Assignment 1: Familiarizing yourself with Linux

Due Date Jan 27th, 18:00 EST

This is an individual assignment. You need to solve these questions on your own. If you have questions, post them on Piazza, but do not post major parts of the assignment code. Though small parts of code are acceptable, we do not want you sharing your solutions (or large parts of them) on Piazza. If your question cannot be answered without sharing significant amounts of code, please make a private question on Piazza or utilize TA/Instructors office hours. Late penalty is -15% per day. Even if you are late only by a few minutes it will be rounded up to a day. Maximum of 2 late days are allowed.

You MUST use `mimi.cs.mcgill.ca` to create the solution to this assignment. You must not use your Mac command-line, Windows command-line, nor a Linux distro installed locally on your laptop. You can access `mimi.cs.mcgill.ca` from your personal computer using **ssh** or **putty** as seen in class and in Lab A. All of your solutions should be composed of commands that are executable in `mimi.cs.mcgill.ca`.

Questions in this assignment require you to take screenshots of your work. This will serve as proof that you have done this assignment by yourself. Instructors/TAs upon their discretion may ask you to demonstrate/explain your solution. No points are awarded for commands that do not execute at all. (Commands that execute, but provide incorrect behavior/output will be given partial marks.) All questions are graded proportionally. This means that if 40% of the question is correct, you will receive 40% of the grade. **Please read through the entire assignment before you start working on it. You can loose up to 3 points for not following the instructions.**

Lab A provides some background help for this mini assignment.

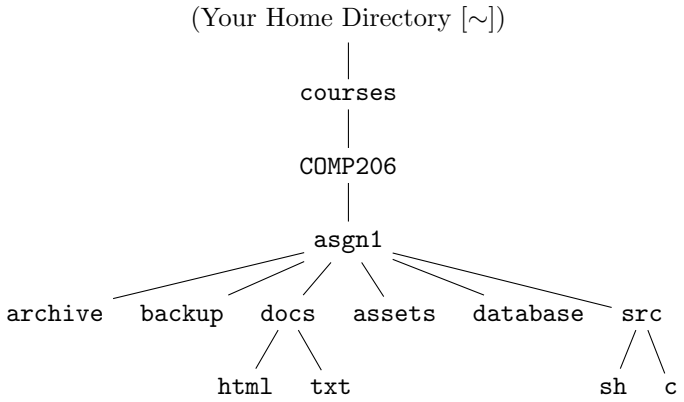
Total Points: 20

Ex. 1 — Familiarizing yourself with the File System (7 Points)

1. **(3 Points)** Your first task is to create a folder structure similar to the one given below, immediately under your home directory in `mimi`. The structure below represents a typical directory hierarchy that can be employed in developing complex software applications or working on your CS courses. Below, `courses` is a subdirectory of your home directory (∼), `COMP206` is a subdirectory of `courses`, `asgn1` is a subdirectory of `COMP206`, and so forth. After you have created the necessary directories, from your home directory, execute the following command.

```
$ tree courses
```

This will display a folder heirarchy. **Take a screen shot as an image and turn it in as EX1_1.PNG or EX1_1.JPG**



2. **(2 Points)** Next, starting from you home directory, use the `pwd` command to show that you are in your home directory. Then, perform the change directory command, `cd`, to the `asgn1` directory that you just created in the above step. Now use the `pwd` command to show that you are in the `asgn1` directory. The directory change **MUST** be performed using a single `cd` command execution that will take you directly from your home directory to the `asgn1` directory.

3. **(2 Points)** Now use the `ls` command to list all the directories that are immediately under the `asgn1` directory. The listing should also include the permissions and the owner/group names associated each directory. (Therefore, this should demonstrate that you are the owner of these directories).

   Turn in a screen shot of your shell that shows clearly that you executed the `pwd` and `cd` commands from the previous question and the `ls` command. The screenshot must be an image, either EX1_2.PNG or EX1_2.JPG.

Ex. 2 — Exploring the files (7 Points)

1. (a) **(2 Points)** Use the `cd` command(s) to move to the `docs` directory.
   From here, copy the file `/home/2013/jdsilv2/206/philosophy.txt` into the `docs` directory using the `cp` command.
   (b) **(1 Point)** From inside the `docs` directory, execute the `pwd` command.
   (c) **(1 Point)** From within the `docs` directory, execute the `ls` command. Make sure that the `ls` command show that the file was created by your user id, and its time stamp.
   (d) **(1 Point)** Next, `cat` the file you just copied to display its contents.
   Turn in a screen shot that shows the `cp`, `pwd`, `ls`, and `cat` commands and the output that they produce. Include all of it in a single screen shot, EX2_1.PNG or EX2_1.JPG.

2. (a) **(1 Point)** From within the `docs` directory, execute the `pwd` command.
   (b) **(1 Point)** Now make a copy of the philosophy file to the `backup` directory that you had created before, with a new name, `philosophy_old.txt`, by using the `cp` command (You MUST execute the `cp` command from the `docs` directory).
   Turn in a screen shot that shows the `pwd`, `cp` commands and the output (if any) that they produce. Include all of it in a single screen shot, EX2_2.PNG or EX2_2.JPG.

Ex. 3 — Using grep (3 Points)

From the `docs` directory, use pipe to make the `ls` and `grep` commands (with appropriate arguments to them) to interact such that it produces the following output. (You would of course have different owner/group names, permissions, file sizes and time stamp for your output. However, the names and order of the files and the content format of the output should be the same.)

```
-rw------- 1 jdsilv2 root 116 Jan 17 17:31 philosophy.txt
drwx------ 2 jdsilv2 root   2 Jan 17 17:27 txt
```

Turn in a screen shot that shows the command you executed and the output that it produces as EX3.PNG or EX3.JPG.

Ex. 4 — Transfering files to and from Mimi (3 Points)

1. In this exercise, you are going to transfer files between your personal computer and mimi using the File Transfer Protocol (FTP). Using your File Transfer program of choice (we recommend FileZilla or WinSCP), begin by connecting to `mimi.cs.mcgill.ca` (`sftp://mimi.cs.mcgill.ca` if using FileZilla) .
2. **(2 Points)** In your File Transfer program, on the remote side (right), make your way to the `backup` directory under `asgn1` and upload the screenshots taken for the previous exercises from your personal computer to mimi. **Take a screenshot of the File Transfer program window showing that the files have been uploaded to mimi. Turn it in as EX4.PNG or EX4.JPG**
3. **(1 Point)** Again using your File Transfer program of choice, download the philosophy.txt file you copied in Exercise 2.1. **Turn in your `philosophy.txt` file.**

WHAT TO HAND IN

Turn in `philosophy.txt` with the six screen shots, named properly as mentioned above (so that the TA can identify which screen shot is for which which question). You do not have to zip all of the filesk together. **You must upload all of these files to mycourses under the `mini 1` folder.**

FOOD FOR THOUGHT!

The following discussion is meant to encourage you to search independently for creative and optimal ways to perform rudimentary tasks with less effort and does not impact the points that you can achieve in the above questions.

- Can you find a way in which you can create all the directories using a single command in Exercise 1.1?
- Can you execute the copy command in such a way so that the timestamp of `philosophy_old.txt` ends up being the same as that of `philosophy.txt` (the one in your `docs` directory) in Exercise 2.2?