CSCI 3215 (Advanced UNIX Command-Line Tools), Fall 2020
Homework 5

Credit: 40 points.

1 Reading

Be sure you have read, or at least skimmed, the assigned readings for 10/07.

2 Programming Problems

Do the following problems. While these aren't exactly programming problems (or are they?), I want your answers by e-mail so I can enlist the computer's help in checking them. So, follow the standard instructions below, with each answer in a separate plain-text file.

Submit your file(s) by sending mail to my TMail address with each file as an attachment. Please use a subject line that mentions the course and the assignment (e.g., "csci 3215 hw 5" or "UNIX hw 5"). You can develop your programs on any system that provides the needed functionality, but I will test them on one of the department's Linux machines, so you should probably make sure they work in that environment before turning them in.

Regular expressions

1. (5 points) Write a `grep` command to search all the files in the current directory for lines containing either your Linux username (e.g., `bmassing`) or your last name. (You don't have to also search subdirectories, just files in the current directory itself.)

2. (5 points) Write a `grep` command to search all files in the current directory for strings that could be Social Security numbers (strings of the form `nnn-nn-nnnn`, where each `n` is a decimal digit).

3. (5 points) Suppose you have a Scala program in file `foo.scala` containing the not-very-idiomatically-named variable `Bar`, and you want to change this variable to `bar` everywhere it occurs, without changing other occurrences of the string `Bar` (such as `myBar` or `BarFoo`). Write a `sed` command that makes this change. (Note that essentially the same command would work in `vim`.) Don't worry about saving the output back into the file; the point here is the command to make the change.

4. (15 points) Suppose you have a text file (call it `foo`) containing a list of names and e-mail addresses. Each line contains first an e-mail address (which for simplicity we'll define as any combination of letters, digits, underscores, and periods, followed by a `@`, followed by any combination of letters, digits, underscores, and periods), then some delimiter (a space, a colon, a comma – anything that can't be part of the address as just defined), and then a name, possibly including spaces. Write a `sed` command to reverse the addresses and names, removing the delimiters and leaving at least one space between the name and the address. For example, "me@mail.com: This Is Me!" would be changed to "This Is Me! me@mail.com". (*Hint:* Backreferences may be useful.) Again, don't worry about saving the changes back to the file. Also don't worry about what happens to lines that don't have the form described (e.g., no e-mail address), or about pruning out extra spaces.

3   Pledge

Include the Honor Code pledge or just the word "pledged", plus *at least one of the following* about collaboration and help (as many as apply).[1] Text *in italics* is explanatory or something for you to fill in. For programming assignments, this should go in the body of the e-mail or in a plain-text file `pledge.txt` (no word-processor files please).

- This assignment is entirely my own work. *(Here, "entirely my own work" means that it's your own work except for anything you got from the assignment itself — some programming assignments include "starter code", for example — or from the course Web site. In particular, for programming assignments you can copy freely from anything on the "sample programs page".)*

- I worked with *names of other students* on this assignment.

- I got help with this assignment from *source of help — ACM tutoring, another student in the course, the instructor, etc. (Here, "help" means significant help, beyond a little assistance with tools or compiler errors.)*

- I got help from *outside source — a book other than the textbook (give title and author), a Web site (give its URL), etc.. (Here too, you only need to mention significant help — you don't need to tell me that you looked up an error message on the Web, but if you found an algorithm or a code sketch, tell me about that.)*

- I provided help to *names of students* on this assignment. *(And here too, you only need to tell me about significant help.)*

4   Essay

Include a brief essay (a sentence or two is fine, though you can write as much as you like) telling me what if anything you think you learned from the assignment, and what if anything you found found interesting, difficult, or otherwise noteworthy. For programming assignments, it should go in the body of the e-mail or in a plain-text file `essay.txt` (no word-processor files please).

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[1] Credit where credit is due: I based the wording of this list on a posting to a SIGCSE mailing list. SIGCSE is the ACM's Special Interest Group on CS Education.