

CSE 374 26su Midterm 1 Review Problems

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1. Shell Commands & Navigation

Problem 1.1: You are in the directory `/var/log`. You want to copy a file named `syslog` to your home directory (`~`). Write the single command to do this.

Problem 1.2: Suppose your current working directory is `/home/alice/hw1`. Write a single command using *relative* paths to move the file `data.txt` from `/home/alice/hw1/tests` to `/home/alice/hw2`.

Problem 1.3: What will be the output of the following sequence of commands?

```
$ mkdir proj
$ cd proj
$ touch file1.txt file2.txt
$ mkdir src
$ mv file1.txt src/
$ ls
```

2. Files, Directories, and Paths

Problem 2.1: Categorize each of the following paths as either **Absolute** or **Relative**.

- a. `../scripts/run.sh`
- b. `/etc/passwd`
- c. `~/documents/notes.pdf`
- d. `bin/executable`

3. Operating System: Access Control (Permissions)

Problem 3.1: You run `ls -l script.sh` and see the following output:

```
-rw-r--r-- 1 bob staff 1024 Jul 10 10:00 script.sh
```

You want to make the script executable for the user (owner), but leave all other permissions the same. Write the `chmod` command to achieve this using symbolic mode (e.g., `u, g, o, +, -`).

Problem 3.2: What will be the exact permission string (e.g., `-rwxrwxrwx`) for a file after executing `chmod 750 data.csv`? Who is allowed to read this file?

4. Scripting: I/O Streams & Piping

Problem 4.1: Write a Bash script that iterates over all `.txt` files in the current directory and prints "Processing [filename]" to standard output for each one.

Problem 4.2: You have a text file `names.txt`. Write a single pipeline (using commands like `cat, sort, uniq, wc`) to count how many *unique* names are in the file. (Assume each name is on its own line).

5. Globbing and Regular Expressions

Problem 5.1 (Globs): You are in a directory with the following files: `test1.c, test2.c, test10.c, test_final.c, test1.h`. List exactly which files are matched by the glob pattern: `test?.c`

Problem 5.2 (Regex): Consider the following regular expression: `^[A-Z][a-z]*[0-9]{2,4}$`
Which of the following strings will match this regex? (Select all that apply)

a. Alice12

- b. bob2024
- c. CS374
- d. Linux20
- e. Unix12345

6. Documentation & Unix Philosophy

Problem 6.1: According to the Unix Philosophy, it is preferred to build small tools that do one thing well and chain them together. What shell feature is the primary mechanism used to chain these tools together by passing the standard output of one command to the standard input of another?

7. Git & Version Control

Problem 7.1: You have just cloned a repository. You modify a file named `main.c` and create a new file named `helper.c`. Write the series of git commands required to stage *only* `helper.c`, commit it with the message "Add helper file", and push it to the remote repository.

Problem 7.2: Explain the difference between the **Working Directory** and the **Staging Area** in Git.

Problem 7.3: You accidentally added a large compiled binary file (`program.out`) to your staging area using `git add .`, but you have not committed yet. What command can you run to unstage this specific file so it is not included in your next commit?