

# Terminal Practice

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## Goal

Practice core terminal workflows:

- navigating directories and listing files
- creating, editing, viewing, copying, moving, and deleting files/directories
- managing permissions and (optionally) ownership
- running a process, identifying it, and terminating it
- using `man` pages

## Rules

- Do **not** use a GUI file explorer.
- Keep your work inside the directory you create for this lab.
- Be careful with recursive deletion.

## 1 Part A — Project structure

Create the following structure (exact names required):

```
terminal_lab/
  project_1/
    src/
    data/
    notes/
  project_2/
```

Tasks:

- A1.** Verify your current location in the filesystem.
- A2.** Create the directory structure above (including nested directories).
- A3.** Move into `terminal_lab/` and verify the structure by listing directories in multiple ways (including showing hidden files and detailed listing).
- A4.** Create an empty file `project_1/notes/description.txt`.

## 2 Part B — Edit and view

- B1.** Edit `project_1/notes/description.txt` and write **at least 15** lines (any content. You can quit nano with Control+X).
- B2.** Display the file in three different ways: full content, beginning only, and end only.

## 3 Part C — Copy, move, rename, delete

- C1.** Create a copy of `description.txt` in the same folder.
- C2.** Rename the copy to `lorem_ipsum.txt`.
- C3.** Move `lorem_ipsum.txt` to the `terminal_lab/` folder.
- C4.** Delete `lorem_ipsum.txt`.
- C5.** Make a recursive backup copy of `project_1/` into `project_2/` (name it `project_1_copy`).

## 4 Part D — Remove directories safely

- D1.** Create an empty directory inside `project_1/` (choose a name), then remove it using the command that only works for **empty** directories.
- D2.** Create a directory `project_1/to_delete/sub/` and place a file inside it, then remove `to_delete/` recursively. **PAY ATTENTION.**

## 5 Part E — Permissions and the “annoying” program

Create a script file `project_1/src/annoying.sh`. Paste **exactly** this content:

```
#!/bin/bash
while true; do
    echo "I'm annoying"
    sleep 10
done
```

- E1.** Try running the script from the terminal (from the correct directory). Observe what happens.
- E2.** Change its permissions so it can be executed by the user.
- E3.** Run it so it prints I’m annoying every 10 seconds.

## 6 Part F — Identify and kill the process

- F1.** In a second terminal window/tab, list processes.
- F2.** Find the process corresponding to the running script and identify its PID.
- F3.** Terminate it using a signal kill command.
- F4.** Confirm that it is no longer running.

## 7 Part G — Users, groups, and manual pages

- G1.** Display the logged-in users and your groups.
- G2.** Open the manual pages for at least two commands you used in this lab (one must be `chmod` or `ls`) and note one flag/option meaning.
- G3.** (Optional) Open the manual for `chown`. Do not run `chown` unless you understand permissions on your system.

## Expected Final State

At the end of the exercise, your filesystem must have the following structure inside `terminal_lab/`:

```
terminal_lab/
|-- project_1/
|   |-- src/
|   |   '-- annoying.sh
|   |-- data/
|   '-- notes/
|       '-- description.txt
 '-- project_2/
     '-- project_1_copy/
         |-- src/
         |-- data/
         '-- notes/
             '-- description.txt
```

The file `annoying.sh` must be executable by the user and contain exactly the provided script. When executed, it must print `I'm annoying` every 10 seconds.

The file `description.txt` must contain at least 15 lines of text. All temporary files and directories created during the exercise (e.g., empty folders, backup files, or test directories) must have been removed.

# Terminal Commands Cheatsheet

## Navigation & Directories

|                             |                                       |
|-----------------------------|---------------------------------------|
| <code>pwd</code>            | Show current working directory        |
| <code>ls</code>             | List files in current directory       |
| <code>ls -a</code>          | List all files (including hidden)     |
| <code>ls -l</code>          | List files with details               |
| <code>ls -la</code>         | List all files with details           |
| <code>ls &lt;dir&gt;</code> | List contents of a specific directory |
| <code>cd &lt;dir&gt;</code> | Change current directory              |

## Viewing Files

|                            |                          |
|----------------------------|--------------------------|
| <code>cat file.txt</code>  | Show entire file content |
| <code>head file.txt</code> | Show beginning of file   |
| <code>tail file.txt</code> | Show end of file         |

## Copying, Moving, Deleting

|                              |  |
|------------------------------|--|
| <code>cp a b</code>          | Copy file a to b                         |
| <code>cp -r dir1 dir2</code> | Copy directory recursively               |
| <code>mv a b</code>          | Move or rename file                      |
| <code>rm file</code>         | Delete file                              |
| <code>rm -r dir</code>       | Delete directory recursively (dangerous) |

## Creating & Editing

|                               |                            |
|-------------------------------|----------------------------|
| <code>mkdir dir</code>        | Create directory           |
| <code>mkdir -p dir/sub</code> | Create nested directories  |
| <code>rmdir dir</code>        | Remove empty directory     |
| <code>touch file</code>       | Create empty file          |
| <code>nano file</code>        | Edit file with nano editor |

## Permissions & Ownership

|                                    |                                  |
|------------------------------------|----------------------------------|
| <code>chmod u+x file</code>        | Add execute permission to user   |
| <code>chmod g-x file</code>        | Remove execute from group        |
| <code>chmod a+rwx file</code>      | Give all permissions to everyone |
| <code>chown user file</code>       | Change file owner                |
| <code>chown :group file</code>     | Change file group                |
| <code>chown user:group file</code> | Change owner and group           |
| <code>groups</code>                | Show groups of current user      |
| <code>users</code>                 | Show logged-in users             |

## Processes

|                                 |                                 |
|---------------------------------|---------------------------------|
| <code>ps</code>                 | Show processes in current shell |
| <code>ps aux</code>             | Show all running processes      |
| <code>ps aux   grep name</code> | Filter processes by name        |
| <code>kill -SIGKILL PID</code>  | Force kill process by PID       |

## Help

|                          |                                |
|--------------------------|--------------------------------|
| <code>man command</code> | Show manual page for a command |
|--------------------------|--------------------------------|