

Homework 1: Linux Command Line Basics

Complete the following tasks by using appropriate Linux commands. For each task, provide:

1. The **command(s)** you used
2. A **brief explanation** of how the command solves the problem
3. Any **output** you generated (screenshots)

Task 1: System Investigation

- Find out what directory you are currently in.
- Go to the **Documents** directory inside your home directory using a **relative path**.
- Confirm your new location.

Task 2: Directory Setup

- Create a folder named `project_logs` in your current directory.
- Inside it, create subfolders `old_backup`, `archive`, and `current`. Then, create a file `temp.txt`.
- Verify that they exist.

Task 3: Log Review

- You received a system log file at `/var/log/syslog`.
- Display the **last 10 lines** and the **first 5 lines** of the file.
- Reverse the content of the file for a quick scan.

Task 4: Pattern Search

- Search for all lines that contain the word `error` (case-insensitive).
- Save only these lines to a file called `errors.log`.
- Count how many such lines exist.

Task 5: Stream Redirection

- Redirect the list of all files in `/etc` into a file named `etc_list.txt` without showing it on screen.
- Append the list of files from `/bin` to the same file.
- View the result one page at a time.

Task 6: Text Processing

Create a file `users.txt` with the following content:

```
Alice:Admin  
Bob:User  
Carol:Guest
```

- Use `cut` or `awk` to extract just the usernames.
- Use `tr` to convert them to lowercase.
- Use `sort` to display them in reverse alphabetical order.

Task 7: Cleanup Script

- Remove an empty directory named `old_backup`
- Delete a file named `temp.txt`
- Move a file `report.txt` to the `archive` folder
- Copy `archive/report.txt` to `current/report_backup.txt`

Task 8: File Hunting

- Find all `.conf` files under `/etc`
- Find all files with `755` permission in your home directory
- Find all directories under `/usr` that contain the word `lib`

Task 9: Joining Data

- Create two files:

names.txt:

1 Alice
2 Bob
3 Carol

roles.txt:

1 Admin
2 User
3 Guest

- Join them into one file with both name and role.

Task 10: Line Numbering & Word Counts

- Use `nl` to number the lines of `users.txt`
- Use `wc` to count:
 - Number of lines
 - Number of words
 - Number of bytes in `users.txt`

Submission Format

Submit a markdown file (`student_id.md`) and its exported PDF file (`student_id.pdf`) that includes:

- Your command for each task
- Short explanation
- Output snippets (or screenshots if needed)