🐧 Linux & Shell Scripting Exercises

🔰 Easy (Basics & Familiarity)

These exercises will help you get comfortable with the command line and basic scripting.

File & Directory Management

1. Create a directory called `practice` and navigate into it.
2. Create an empty file named `notes.txt` inside `practice`.
3. Copy `notes.txt` into a new file called `backup.txt`.
4. Move `backup.txt` into a new folder called `archive`.
5. Delete `backup.txt` and remove the `archive` directory.

Viewing & Searching

6. Display the first 10 lines of `/etc/passwd`.
7. Display the last 15 lines of `/var/log/syslog` (or `/var/log/messages` on some distros).
8. Count the number of words in `notes.txt`.
9. Search for the word "root" in `/etc/passwd`.
10. Find all `.txt` files inside your home directory.

Permissions & Processes

11. Change permissions of `notes.txt` to `rw-r--r--`.
12. Make yourself the owner of `notes.txt`.
13. Run a background process using `sleep 100 &`.
14. List all running processes and kill the sleep process.

Basic Scripting

15. Write a script that prints "Hello, Linux!" to the terminal.
16. Write a script that takes your name as input and greets you.
17. Write a script that displays today's date and time.

🔰 Medium (Intermediate Shell Use)

These exercises push you toward automation and multi-step scripting.

File Handling & Text Processing

18. Write a script to rename all `.txt` files in a folder to `.bak`.

19. Display the top 5 largest files in your home directory.
20. Write a command to count the number of `.sh` scripts in the current directory.
21. Extract all usernames from `/etc/passwd` and save them to `users.txt`.
22. Write a script that checks if a given file exists and prints a message.

Loops & Conditions

23. Write a script that prints numbers 1 to 10 using a `for` loop.
24. Write a script that sums numbers from 1 to 100 using a `while` loop.
25. Write a script that takes a filename as input and checks if it's empty or not.
26. Write a script that prints whether a number is even or odd.

System & User Management

27. Display the top 5 CPU-consuming processes.
28. Display the top 5 memory-consuming processes.
29. Write a script that creates a new user with a given username.
30. Write a script that monitors free disk space and warns if usage exceeds 80%.

◈ Hard (Advanced & Real-World Scenarios)

These will help you think like a sysadmin/devops engineer.

Automation & File Management

31. Write a script that automatically backs up a directory to a `.tar.gz` file with today's date.
32. Write a script that monitors a directory and logs whenever a new file is added.
33. Write a script that compresses all log files older than 7 days.
34. Write a script to find and delete files larger than 100MB in a given directory.

Text & Data Processing

35. Parse an Apache/Nginx access log and find the top 10 IP addresses.
36. Write a script that extracts email addresses from a text file.
37. Write a script to count how many times each shell (bash, zsh, etc.) is used in `/etc/passwd`.
38. Write a script to monitor failed login attempts from `/var/log/auth.log`.

Advanced Scripting

39. Write a script that takes a list of URLs and checks which are online (using `curl` or `wget`).
40. Write a script to set up a simple TODO list (add/remove/view tasks).
41. Write a script to display system health: CPU load, memory usage, disk space, uptime.
42. Write a script that automatically rotates and compresses logs.
43. Write a script to implement a simple menu (backup files, show processes, check memory).

Networking & Security

44. Write a script that pings a list of servers and logs if they are up or down.
45. Write a script to check open ports using `netstat` or `ss`.
46. Write a script that scans your local network for active IPs using `ping` or `nmap`.
47. Write a script to generate random secure passwords.
