

Here are some of the **best Bash scripting problems** that will help you sharpen your skills in **Kali Linux**, covering automation, security, networking, and system administration.

1. Basic Bash Scripting Challenges

1. Hello, Kali!

- Write a script that prints "Hello, Kali Linux!" to the terminal.

2. User Info Script

- Write a script that prints the current username, hostname, and the current working directory.

3. Check if a file exists

- Write a script that checks if a given file exists and is readable.

4. Odd or Even Checker

- Write a script that takes a number as input and determines if it's odd or even.

5. Countdown Timer

- Write a script that takes a number as input and counts down to zero.

2. File and Directory Management

6. List all files with details

- Write a script to list all files in a directory along with their permissions and sizes.

7. Backup Important Files

- Write a script that copies all `.conf` files from `/etc` to a backup directory.

8. Find and Delete Large Files

- Write a script that finds files larger than 100MB in `/var/log` and deletes them.

9. Rename Multiple Files

- Write a script that renames all `.txt` files in a folder to `.bak`.

10. Monitor Directory Changes

- Write a script that continuously monitors a directory for any file changes.
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3. Networking and Security

11. Check if a website is up

- Write a script that takes a URL as input and checks if it is reachable.

12. Port Scanner

- Write a script that scans open ports on a given IP address.

13. Find Active Devices on Network

- Write a script that uses `ping` to list all active devices in a subnet.

14. Extract IP Addresses from Logs

- Write a script that extracts all IP addresses from `auth.log`.

15. Brute Force SSH Login Detection

- Write a script that analyzes `/var/log/auth.log` and detects multiple failed SSH login attempts.
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4. System Monitoring and Automation

16. Check System Uptime

- Write a script that prints how long the system has been running.

17. Monitor CPU Usage

- Write a script that displays CPU usage every 5 seconds.

18. Monitor Memory Usage

- Write a script that shows memory usage and alerts if it exceeds 80%.

19. Monitor Running Processes

- Write a script that lists all running processes and allows killing a selected process.

20. Automated System Update

- Write a script that updates the system and removes unnecessary packages.

5. Ethical Hacking and Penetration Testing

21. Automated Nmap Scan

- Write a script that runs an `nmap` scan on a target IP and saves the output.

22. Extract URLs from a Website

- Write a script that downloads a webpage and extracts all the URLs.

23. Brute Force a Login Page (For ethical testing only)

- Write a script that attempts multiple login attempts using `curl`.

24. Create a Simple Keylogger

- Write a script that logs keystrokes using `xinput`.

25. Packet Sniffer using Tcpdump

- Write a script that captures and logs network packets.
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6. Encryption and Forensics

26. Encrypt and Decrypt Files

- Write a script that encrypts and decrypts files using `openssl`.

27. Hash a File

- Write a script that calculates and verifies the hash of a file.

28. Steganography Detection

- Write a script that detects hidden data inside images using `steghide`.

29. Find Hidden Files

- Write a script that searches for hidden files in a given directory.

30. Disk Usage Analysis

- Write a script that analyzes disk usage and alerts if it exceeds 90%.
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