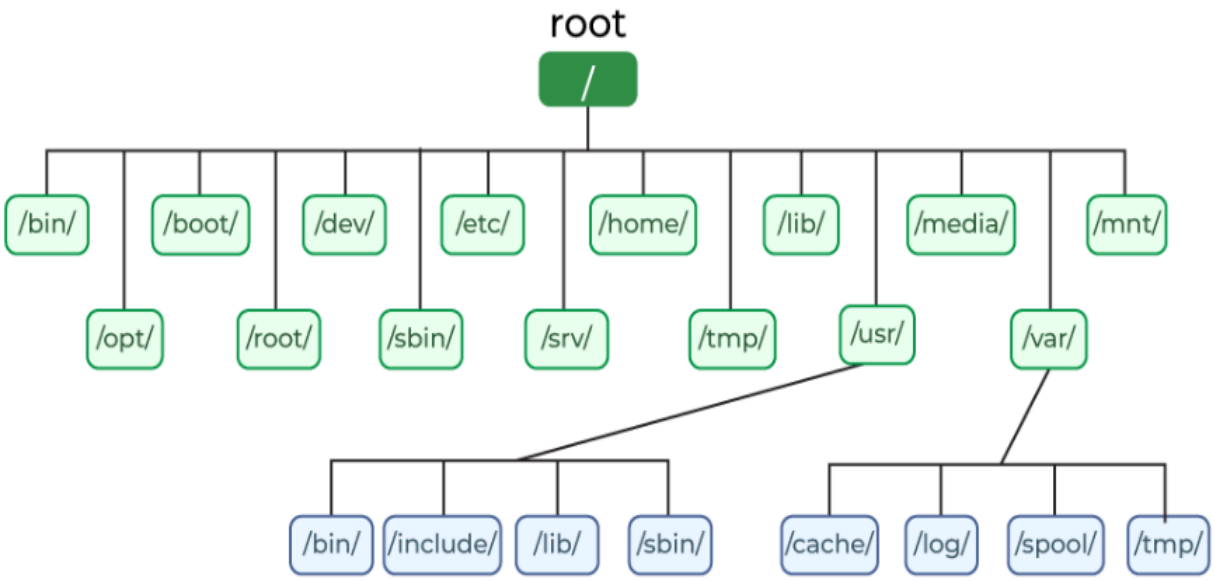
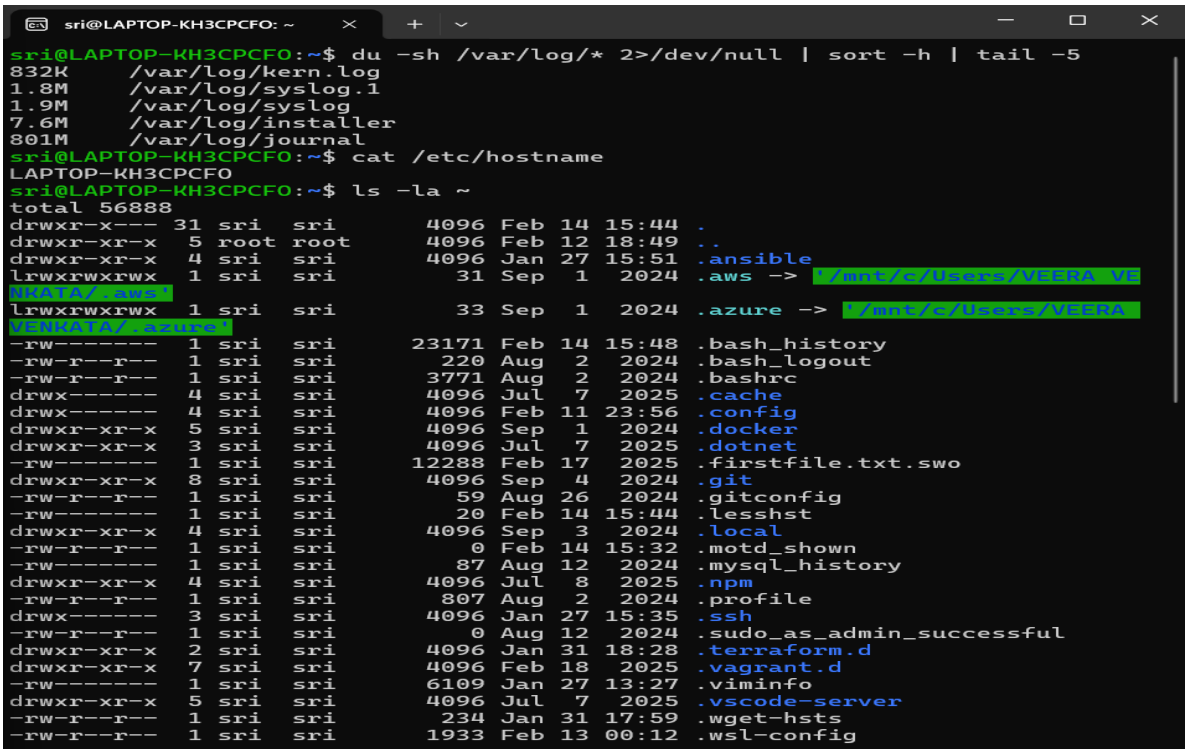
Day 7/90 – Linux File System Hierarchy & Scenario-Based Practice.

Today's goal is to understand where things live in Linux and practice troubleshooting like a DevOps engineer.

Part 1: Linux File System Hierarchy.
Document the purpose of these essential directories:
Core Directories (Must Know):
/ (root) - The starting point of everything
/home - User home directories
/root - Root user's home directory
/etc - Configuration files
/var/log - Log files (very important for DevOps!)
/tmp - Temporary files
Additional Directories (Good to Know):
/bin - Essential command binaries
/usr/bin - User command binaries
/opt - Optional/third-party applications.





Part 2: Scenario-Based Practice.

Solved scenario: understanding how to approach scenarios.

Example scenario : Check if a service is running.

Question: How do you check if the nginx service is running ?

1. Check service status : systemctl status nginx
   Why this command? To see what service is active, failed, or stopped.

2. If service is not found, list all service : systemctl list-units –type=service
   Why this command? To see what service exist on the system.

3. check if service is enabled on boot : systemctl is-enabled nginx.

   Why this command? To know if it will start automatically after reboot

What i learned: Always check status first, then investigate based on what you see.

Scenario 1: Service Not starting.

- A web application service called 'myapp' failed to start after a server reboot.What commands would you run to diagnose the issue?Write at least 4 commands in order.

  1.systemctl status myapp (Why: Check if active, failed,or stopped)
  2. journalctl –u myapp –n 50 (Why : Read recent logs to find error messages)
  3. systemctl is-enabled myapp (Why: Verify if it starts on boot.)
  4. systemctl list-units –type=service (Why: Confirm service exists and is recognized)

- Scenario 2 : High CPU Usage.
  Your manager reports that the application server is slow.You SSH into the server. What commands would you run to identify ?which process is using high CPU?
  1. Use a command tat shows live CPU usage : top .
  2. Look for processes sorted by CPU percentage : ps aux –sort=-%cpu | head –10
  3. Easier interactive monitoring : htop.
  4. Note the PID(process ID) of the top process.

- Scenario 3 : Finding Docker service Logs.
  A developer asks: "Where are the logs for the 'docker' service?"The service is managed by systemd.What commands would you use?

  1. systemctl status docker (why : confirm service state)

  2. journalctl –u docker –n 50 (why : view last 50 log lines)

  3.journalctl -u docker –f : (why: follow logs in real-time)

- Scenario 4 : Permission Denied Script

  A script at /home/user/backup.sh is not executing.When you run it: ./backup.sh

You get: "Permission denied" ? What commands would you use to fix this?

1. `Check current permissions` : ls –l /home/user/backup.sh (Look for –rw-r--r—notice no 'x' = not executable.

2. check for execute permission. chmod +x /home/user/backup.sh :

3. verify it worked : ls –l /home/user/backup.sh (Look for : -rwx-xr-x)

4. Try running it : ./backup.sh