Question 1 (2024eb03003):

You have just joined IxD Systems as a junior systems engineer. On your first day, the Linux administrator asks you to perform a basic environment verification on the lab machine using your own login account.

1. User Identity Verification

Display your currently logged-in username and all groups your user account belongs to.

Your name or login ID must appear in the output.

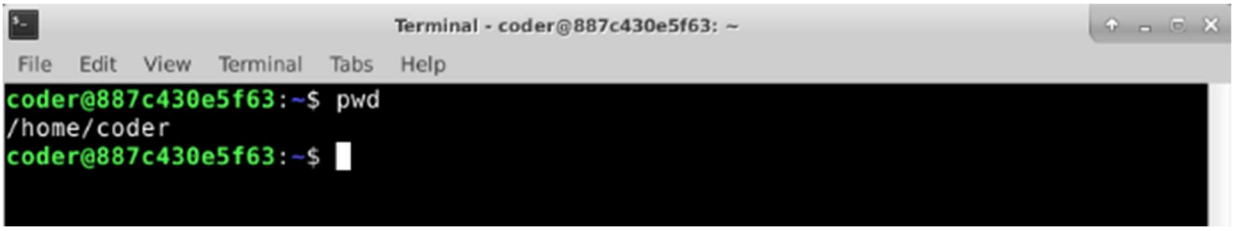
whoami (prints the current username, as I logged in through coder ID, so my login ID will appear in the output is showing as coder)

groups (prints all groups coder user belongs to, including primary group and any supplementary groups)

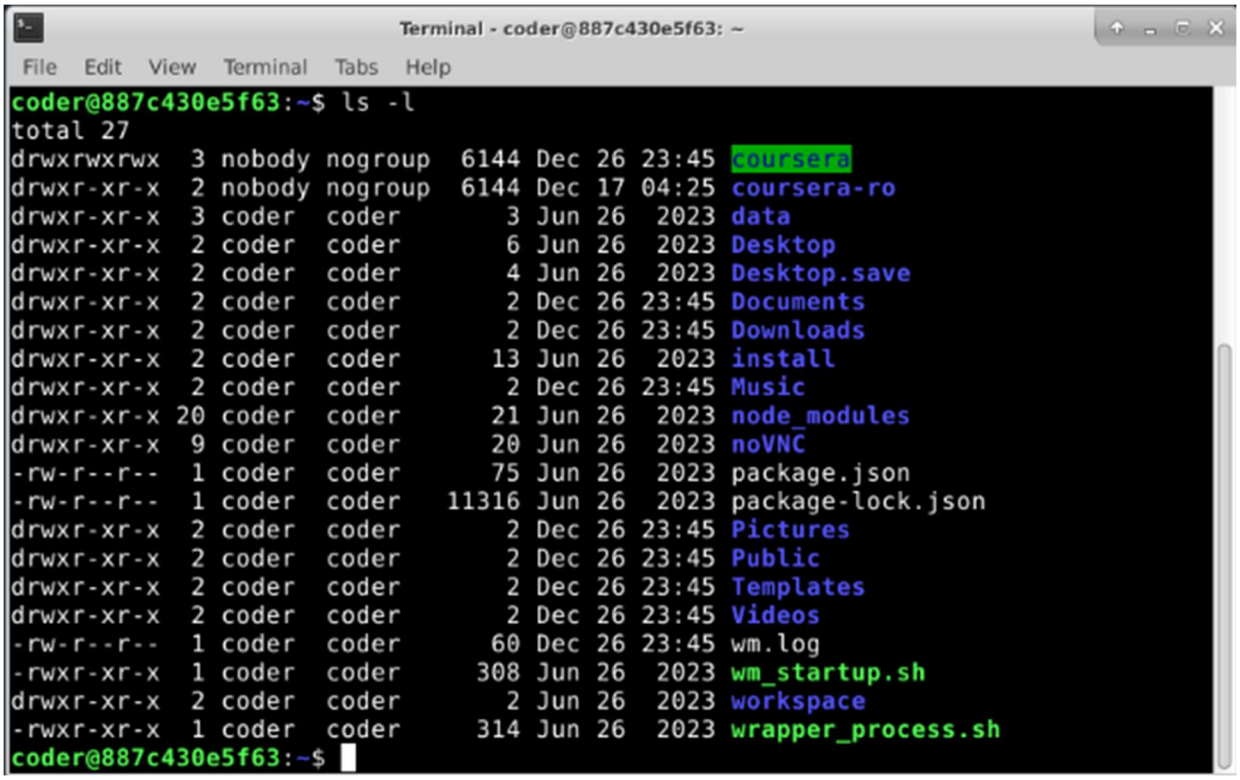
2. Workspace Validation

Display the current working directory and list all files and directories in that location using long format listing.

pwd [prints the current working directory (workspace path)]



ls -l (lists all files and directories in long format (permissions, owner, group, size, timestamps) in that directory)



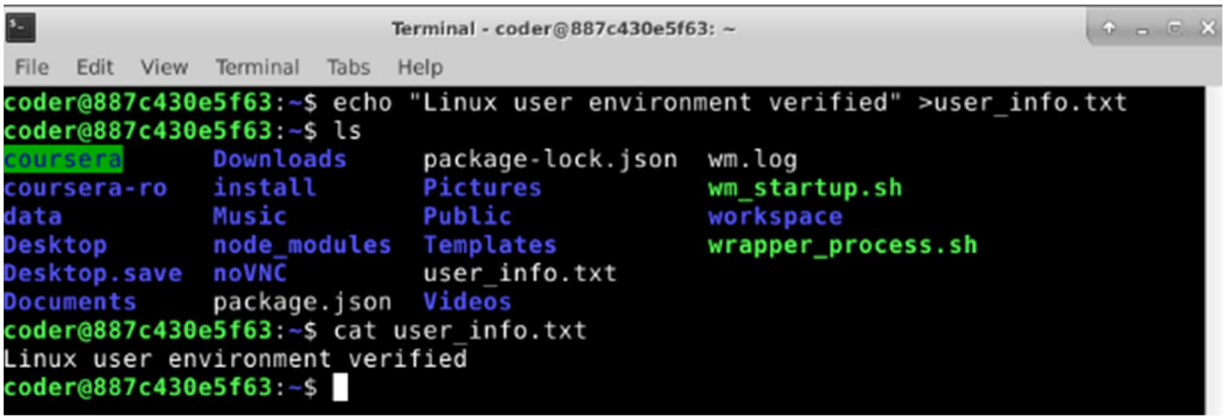
3. Environment Confirmation File

Create a file named user_info.txt and write the line:

"Linux user environment verified"

echo "Linux user environment verified" > user_info.txt (This command creates user_info.txt if it does not exist and writes exactly that line into it.)

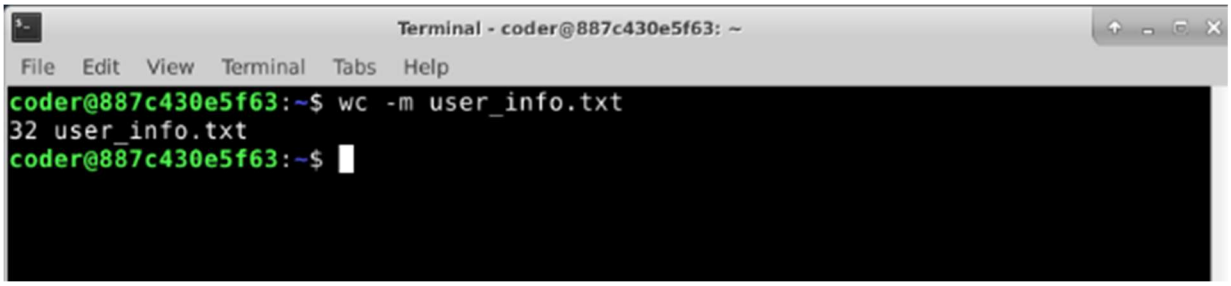
cat user_info.txt (This confirms redirection the output into user_info.txt file)



4. File Integrity Check

Display the number of characters present in user_info.txt.

wc -m user_info.txt (This command prints the number of characters in user_info.txt, followed by the filename)



5. Learning the Tools

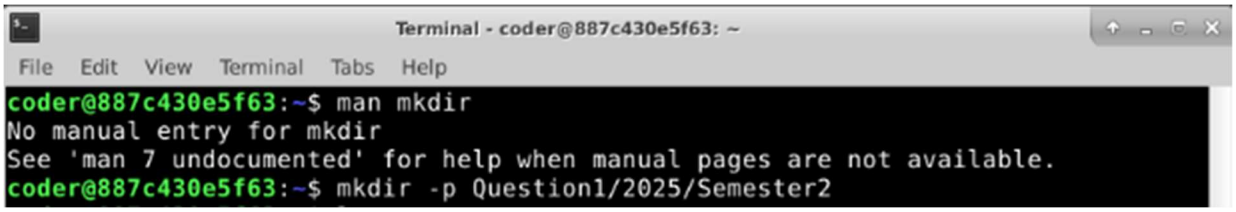
Access the manual page of the mkdir command. Identify one useful option and briefly explain what it does.

man mkdir

A useful option is -p (or --parents).
This option tells mkdir to create parent directories as needed and not error if they already exist.
For example:

mkdir -p Question1/2025/Semester2

This command creates Question1, then 2025, then Semester2 in one command, even if some of them do not exist yet.

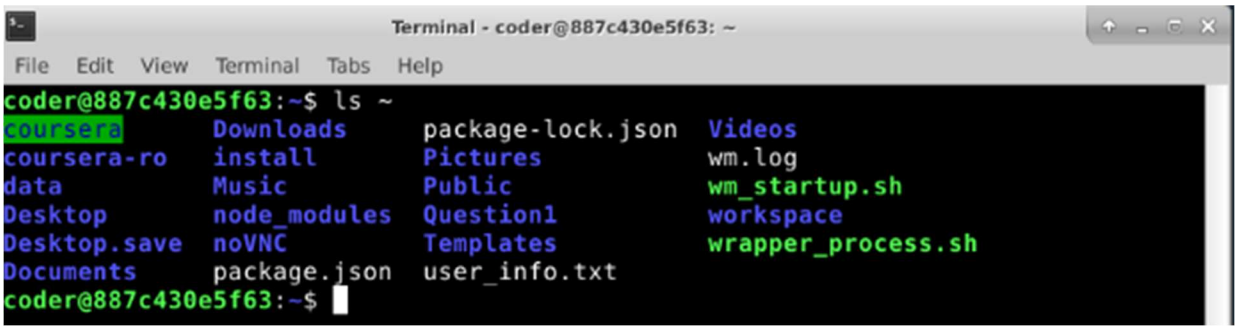


6. Home Directory Inspection

List the contents of your home directory sorted alphabetically.

ls ~

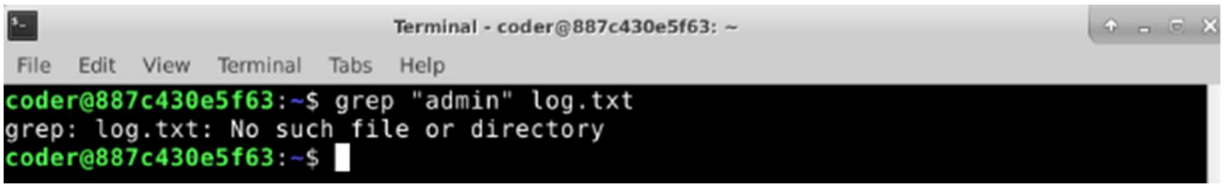
The **ls** command sorts entries alphabetically by name by default, so this will list all files and directories in the home directory in alphabetical order.



7. Log Investigation

Search for the word "admin" inside a file named log.txt and display only the matching lines.

grep "admin" log.txt (This command scans log.txt and outputs every line that contains the word admin)



8. System Information Check

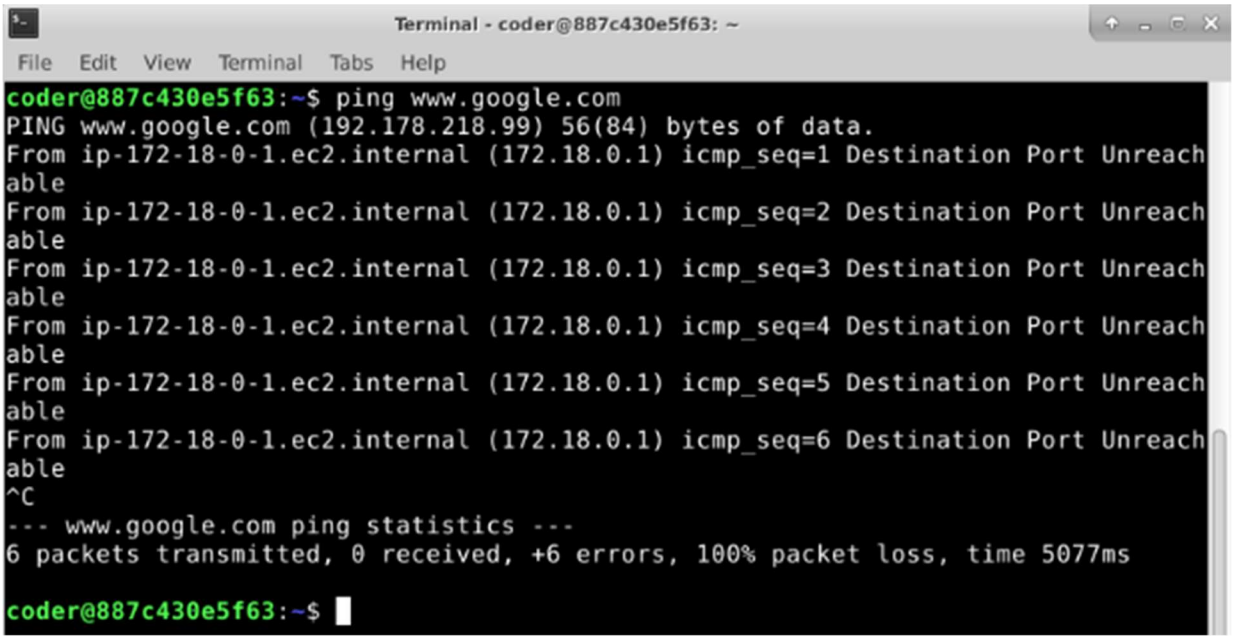
Display the Linux kernel version currently running.

uname -r (This command prints the kernel release version of the Linux system that is currently running (for example, 6.5.0-1024-aws)

9. Network Connectivity Test

Verify network connectivity by sending ICMP packets to www.google.com.

ping www.google.com (This command sends ICMP echo request packets to www.google.com and shows replies, round-trip times, and packet loss, confirming network connectivity if responses are received)



10. System Health Awareness

Display the command used to check system uptime and briefly explain its output (uptime duration, number of users, load average).

uptime

Typical output looks like:

00:16:29 up 2 days, 23:13, 0 users, load average: 1.77, 1.83, 2.00

- Uptime duration: up 2 days, 23:13 shows how long the system has been running since the last reboot.
- Number of users: 0 users is how many user sessions are currently logged in.
- Load average: 1.77, 1.83, 2.00 are the average system loads over the last 1, 5, and 15 minutes, indicating how busy the CPU has been.