

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)



A screenshot of a terminal window titled "Terminal - coder@887c430e5f63: ~". The window has a standard OS X-style title bar with icons for minimizing, maximizing, and closing. The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main terminal area shows the command "coder@887c430e5f63:~\$ whoami" followed by the output "coder". Below the command and output, there is a blank line where the user can type their next command. The background of the terminal window is black, and the text is white.

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



Terminal - coder@887c430e5f63: ~

File Edit View Terminal Tabs Help

```
coder@887c430e5f63:~$ groups
coder sudo
coder@887c430e5f63:~$ █
```

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)]



Terminal - coder@887c430e5f63: ~

File Edit View Terminal Tabs Help

```
coder@887c430e5f63:~$ pwd
/home/coder
coder@887c430e5f63:~$ █
```

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

```
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ ls -l
total 27
drwxrwxrwx  3 nobody nogroup  6144 Dec 26 23:45 coursera
drwxr-xr-x  2 nobody nogroup  6144 Dec 17 04:25 coursera-ro
drwxr-xr-x  3 coder  coder    3 Jun 26 2023 data
drwxr-xr-x  2 coder  coder    6 Jun 26 2023 Desktop
drwxr-xr-x  2 coder  coder    4 Jun 26 2023 Desktop.save
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Documents
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Downloads
drwxr-xr-x  2 coder  coder   13 Jun 26 2023 install
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Music
drwxr-xr-x 20 coder  coder   21 Jun 26 2023 node_modules
drwxr-xr-x  9 coder  coder   20 Jun 26 2023 noVNC
-rw-r--r--  1 coder  coder    75 Jun 26 2023 package.json
-rw-r--r--  1 coder  coder  11316 Jun 26 2023 package-lock.json
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Pictures
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Public
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Templates
drwxr-xr-x  2 coder  coder    2 Dec 26 23:45 Videos
-rw-r--r--  1 coder  coder    60 Dec 26 23:45 wm.log
-rwxr-xr-x  1 coder  coder   308 Jun 26 2023 wm_startup.sh
drwxr-xr-x  2 coder  coder    2 Jun 26 2023 workspace
-rwxr-xr-x  1 coder  coder   314 Jun 26 2023 wrapper_process.sh
coder@887c430e5f63:~$
```

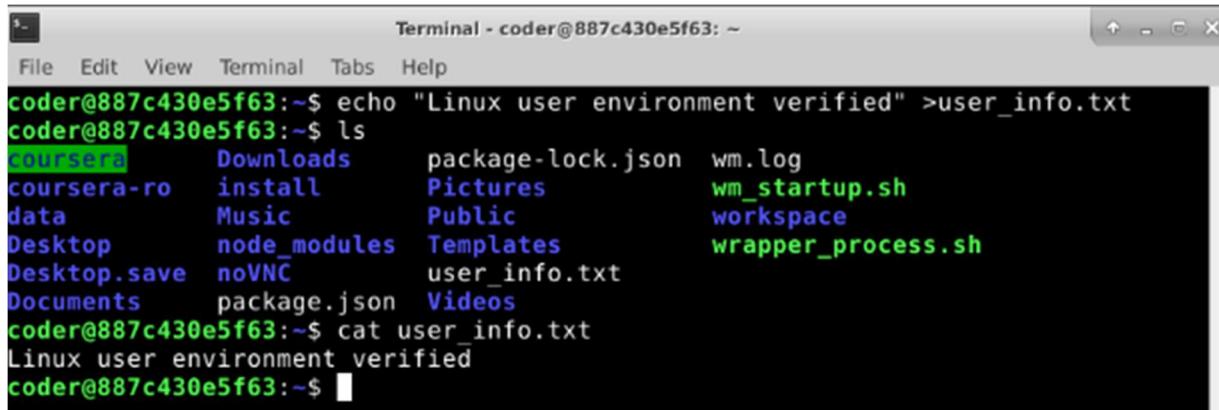
3. Environment Confirmation File

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)

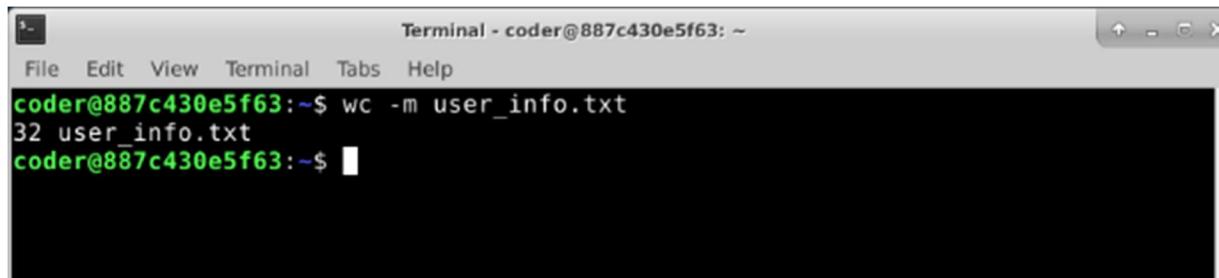


```
Terminal - coder@887c430e5f63: ~
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ echo "Linux user environment verified" >user_info.txt
coder@887c430e5f63:~$ ls
coursera    Downloads    package-lock.json  wm.log
coursera-ro  install     Pictures        wm_startup.sh
data         Music       Public          workspace
Desktop     node_modules Templates      wrapper_process.sh
Desktop.save noVNC      user_info.txt
Documents   package.json Videos
coder@887c430e5f63:~$ cat user_info.txt
Linux user environment verified
coder@887c430e5f63:~$
```

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)



```
Terminal - coder@887c430e5f63: ~
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ wc -m user_info.txt
32 user_info.txt
coder@887c430e5f63:~$
```

5. Learning the Tools

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

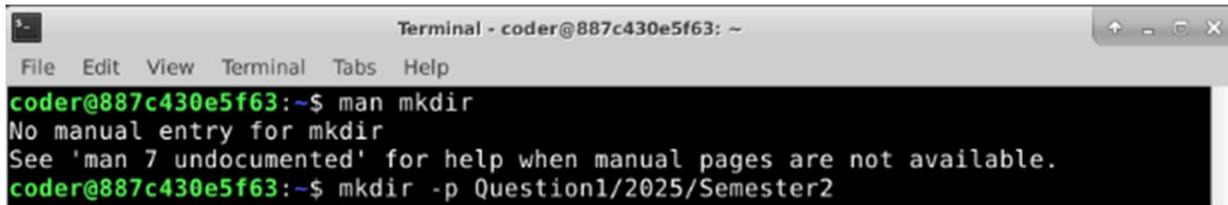
man mkdir

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.



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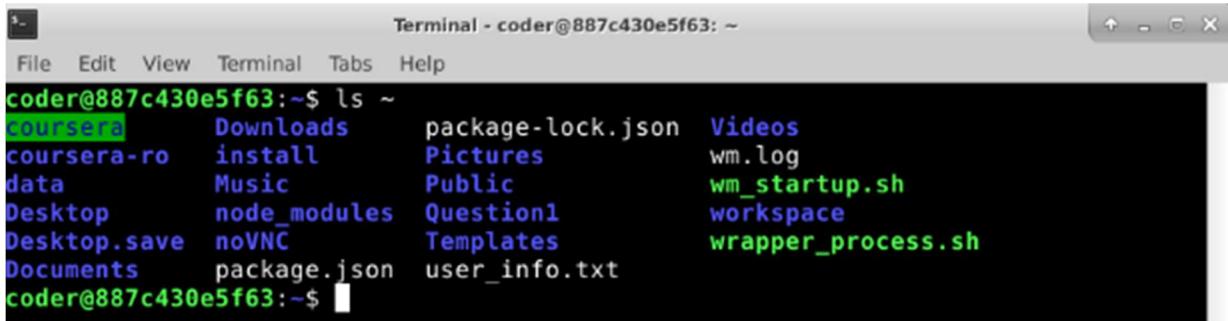
```
coder@887c430e5f63:~$ man mkdir
No manual entry for mkdir
See 'man 7 undocumented' for help when manual pages are not available.
coder@887c430e5f63:~$ mkdir -p Question1/2025/Semester2
```

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.



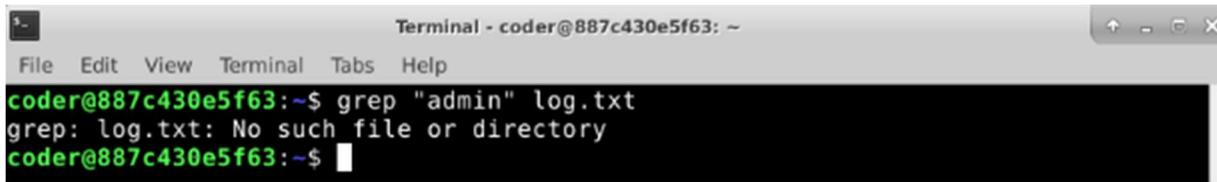
A screenshot of a terminal window titled "Terminal - coder@887c430e5f63: ~". The window has a standard OS X-style title bar with icons for close, minimize, and maximize. The menu bar includes "File", "Edit", "View", "Terminal", "Tabs", and "Help". The main terminal area shows the following command and its output:

```
coder@887c430e5f63:~$ ls ~
coursera    Downloads      package-lock.json  Videos
coursera-ro  install       Pictures          wm.log
data         Music          Public           wm_startup.sh
Desktop     node_modules   Question1        workspace
Desktop.save noVNC         Templates        wrapper_process.sh
Documents   package.json   user_info.txt
coder@887c430e5f63:~$
```

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)



```
Terminal - coder@887c430e5f63: ~
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ grep "admin" log.txt
grep: log.txt: No such file or directory
coder@887c430e5f63:~$
```

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))

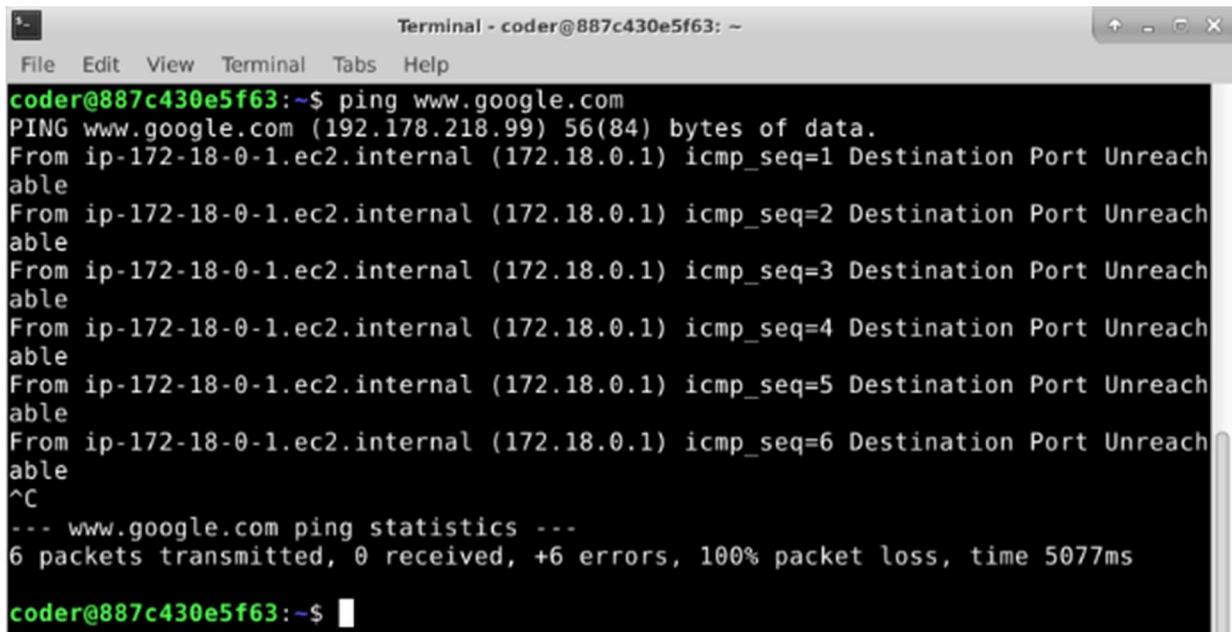


```
Terminal - coder@887c430e5f63: ~
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ uname -r
6.5.0-1024-aws
coder@887c430e5f63:~$
```

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)



```
Terminal - coder@887c430e5f63: ~
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ ping www.google.com
PING www.google.com (192.178.218.99) 56(84) bytes of data.
From ip-172-18-0-1.ec2.internal (172.18.0.1) icmp_seq=1 Destination Port Unreachable
From ip-172-18-0-1.ec2.internal (172.18.0.1) icmp_seq=2 Destination Port Unreachable
From ip-172-18-0-1.ec2.internal (172.18.0.1) icmp_seq=3 Destination Port Unreachable
From ip-172-18-0-1.ec2.internal (172.18.0.1) icmp_seq=4 Destination Port Unreachable
From ip-172-18-0-1.ec2.internal (172.18.0.1) icmp_seq=5 Destination Port Unreachable
From ip-172-18-0-1.ec2.internal (172.18.0.1) icmp_seq=6 Destination Port Unreachable
^C
--- www.google.com ping statistics ---
6 packets transmitted, 0 received, +6 errors, 100% packet loss, time 5077ms

coder@887c430e5f63:~$
```

10. System Health Awareness

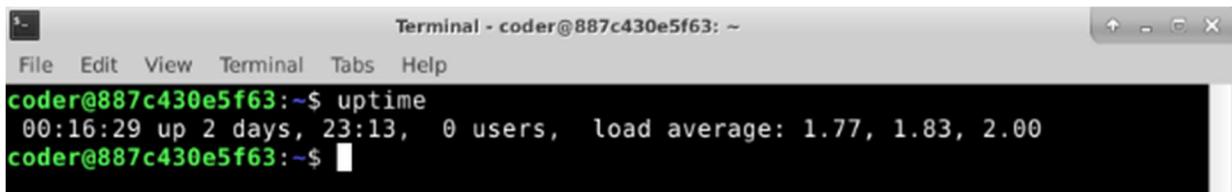
Display the command used to check system uptime and briefly explain its output (uptime duration, number of users, load average).

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.



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```
Terminal - coder@887c430e5f63: ~
File Edit View Terminal Tabs Help
coder@887c430e5f63:~$ uptime
00:16:29 up 2 days, 23:13, 0 users, load average: 1.77, 1.83, 2.00
coder@887c430e5f63:~$ █
```