Linux

Commands Lab

Report

1. What is Linux?
Linux is an open-source operating system known for its stability, security, and flexibility. It powers servers, desktops, mobile devices, embedded systems, and cloud infrastructure. Unlike proprietary systems, Linux allows users full control over how the system is customized and used.

2. The Linux Hierarchical File System

The Linux filesystem follows a hierarchical tree structure starting from the root directory `/`. All files and directories branch out from this point. Some important directories include:

- `/home` – Stores user home directories
- `/etc` – Configuration files
- `/bin` – Essential binaries
- `/usr` – User-installed programs
- `/var` – Logs and variable data

3. Importance of Linux Commands in Operating Systems

Linux commands allow users to interact directly with the system. They enable file management, process monitoring, system configuration, and automation. For developers and system administrators, mastering these commands is essential for productivity and system-level control.

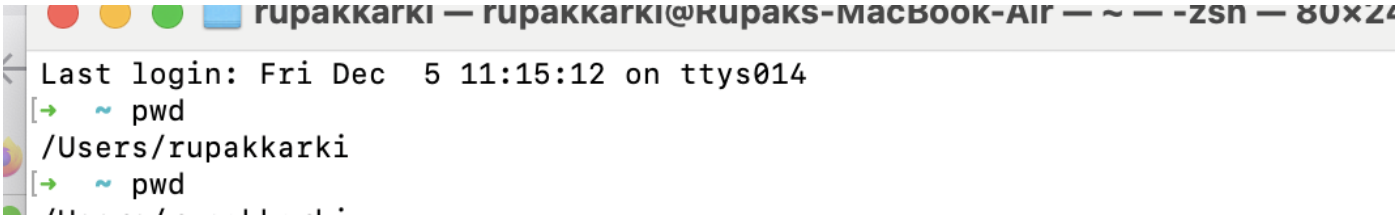
Commands

and Outputs

1. pwd

Command: `pwd`

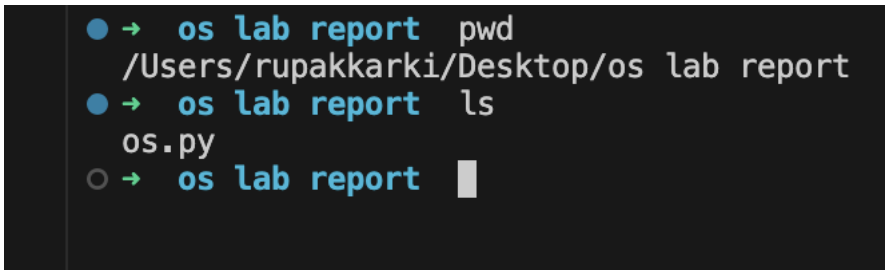
Explanation: Displays the absolute path of your current working directory.
Screenshot:



2. ls

Command: `ls`

Explanation: Lists all files and directories in the current location.
Screenshot:


os lab report pwd
/Users/rupakkarki/Desktop/os lab report
os lab report ls
os.py
os lab report

3. ls -a

Command: `ls -a`

Explanation: Shows all files including hidden ones starting with a dot (`.`).

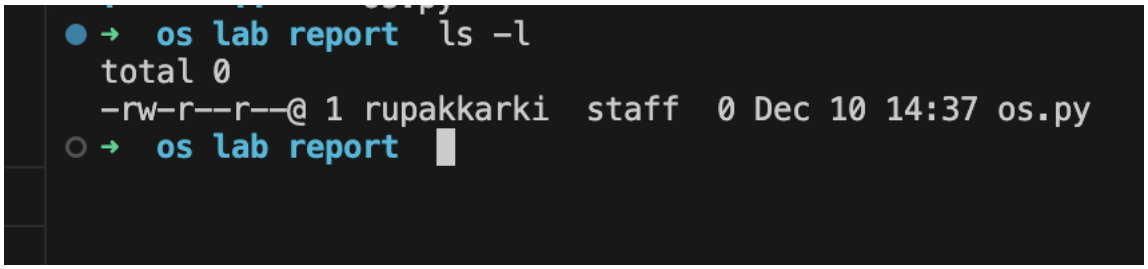
Screenshot:

4. ls -l

Command: *`ls -l`*

Explanation: *Displays detailed file information such as permissions, size, owner, and date.*

Screenshot:



5) ***cd***

Command Examples:

- *cd Documents*
- *cd ..*
- *cd /Users/yourname*
- ***Explanation:*** *Used to change directories.*
- ***Screenshot:***

6. mkdir

Command: *mkdir myFolder*

Explanation: *Creates a new directory.*

Screenshot:

7. rmdir

Command: *rmdir folderName* ***Explanation:***

Removes an

empty

directory. ***Screenshot:***

8. rm

Command: *rm file.txt* ***Explanation:***

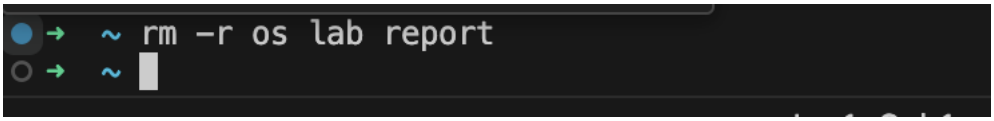
Deletes a file permanently.

9. rm -r

Command: *rm -r*

*folderName****Explanation:*** *Deletes a*

directory and all its contents.



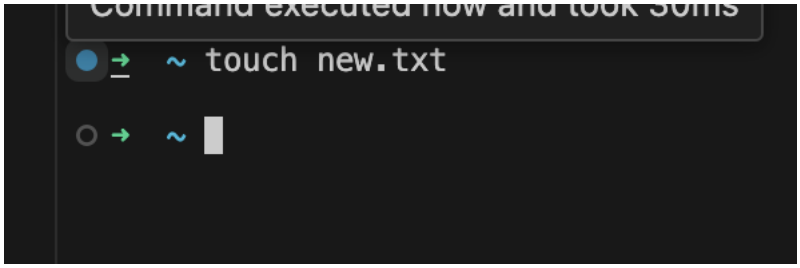
Screenshot:

10. touch

Command: *touch new.txt*

Explanation: *Creates an empty file if it*

does not exist.

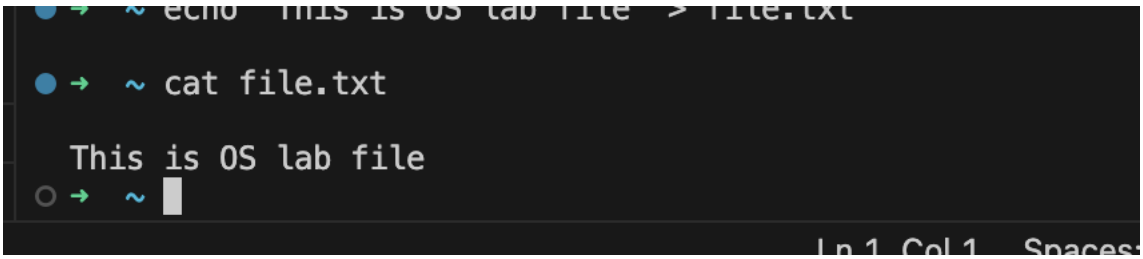


Screenshot:

11. cat

Command: *cat file.txt*

Explanation: *Displays the contents of a file.*



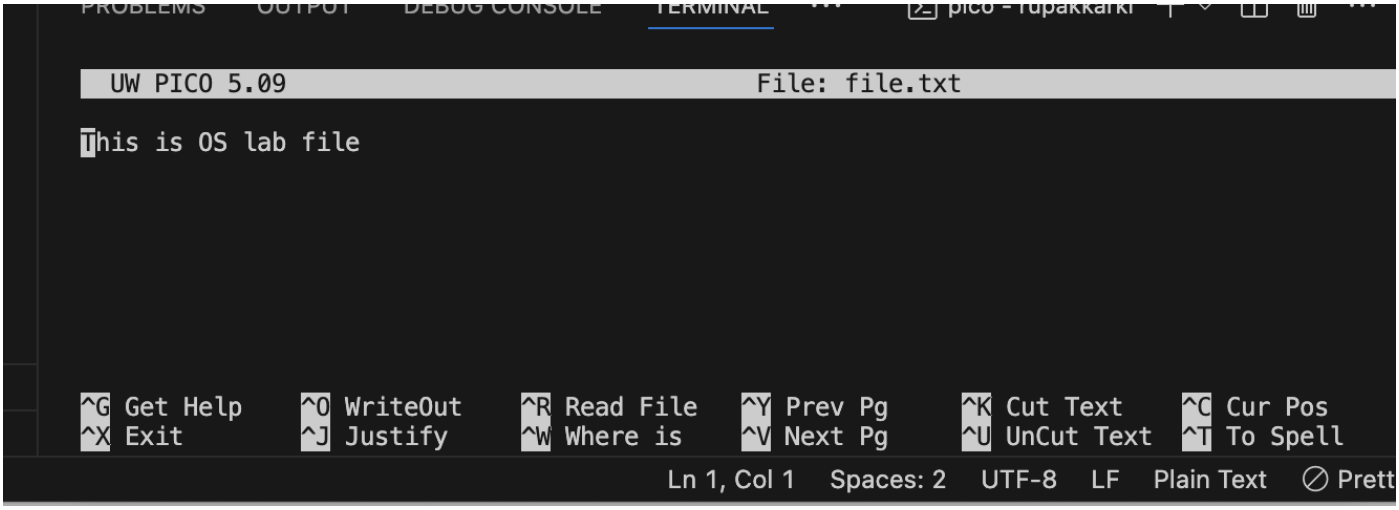
Screenshot:

12. nano / vi / jed

Command: *nano file.txt*

Explanation: *Opens a text editor inside the terminal.*

Screenshot:



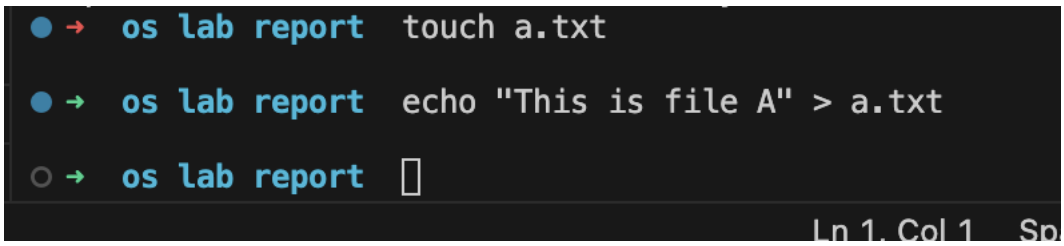
13. cp

Command: *cp a.txt b.txt*

Explanation: *Copies the contents of*

one file to another.

Screenshot:



14. mv

Command: *mv old.txt new.txt* **Explanation:**

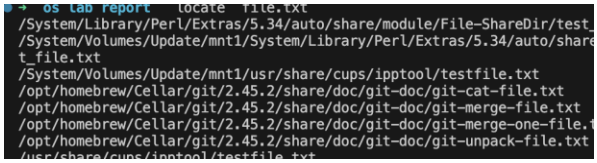
Moves or renames a file or folder. **Screenshot:**

15. locate

Command: *locate file.txt*

Explanation: *Quickly finds files by name using a system index.*

Screenshot:



16. echo

Command: *echo "Hello World"*

Explanation: *Prints text to the terminal.*

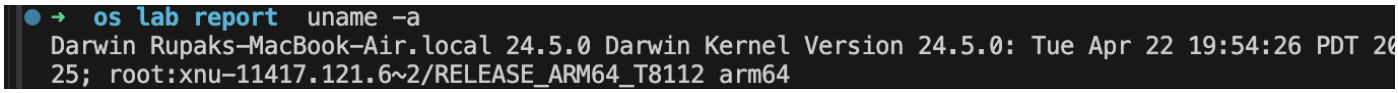
Screenshot:

17. uname -a

Command: *uname -a*

Explanation: *Shows full system information including kernel version.*

Screenshot:



18. df -h

Command: *df -h*

Explanation: *Displays disk usage in human-readable format.*

Screenshot:

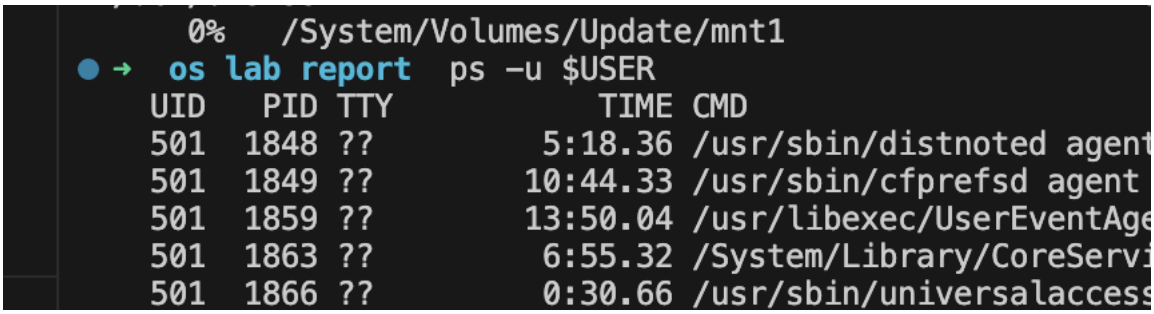
19. ps -u $USER

Command: *ps -u $USER*

Explanation: *Shows processes*

currently running under your user.

Screenshot:



20. top

Command: *top*

Explanation: *Displays real-time system resource usage.*

```
Processes: 406 total, 4 running, 402 sleeping, 2832 threads                    21:39:
Load Avg: 4.04, 3.31, 3.06  CPU usage: 9.51% user, 3.82% sys, 86.65% idle
SharedLibs: 344M resident, 84M data, 51M linkedit.
MemRegions: 0 total, 0B resident, 166M private, 875M shared.
PhysMem: 7559M used (1478M wired, 2208M compressor), 61M unused.
VM: 195T vsize, 5709M framework vsize, 3538768(0) swapins, 4493095(0) swapouts.
Networks: packets: 60033380/67G in, 50863408/11G out.
Disks: 96899378/2040G read, 40972793/587G written.

PID    COMMAND      %CPU TIME     #TH   #WQ  #PORT MEM    PURG   CMPRS  PGRP  PPID  STATE
1674   WindowServer 31.5 21:02:38 20    6    4802- 489M-  672K+  152M-  1674  1     sleeping
1690   coreaudiod   16.8 10:34:04 10    1    17677 32M    0B     19M    1690  1     sleeping
2192   corespeechd  10.5 06:39:25 12    4    324   30M    0B     16M    2192  1     sleepin
```

Screenshot:

21. chmod

COMMAND: CHMOD 755 SCRIPT.SH

EXPLANATION: CHANGES FILE PERMISSIONS.
SCREENSHOT: