**POOJA KIRAN KUMAR JAIN A1 – 18**

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| | **Experiment No : 2** **Date : 2nd February 2025** |
| | |
| **Title** | **Basic Linux Commands** |
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| **Aim** | To Study and practice basic Linux commands |
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| **Hardware Requirement** | Personal Computer |
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| **Software Requirement** | Linux Operating System(Ubuntu 20.04) , Shell-Interpreter |
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| **Theory** | Linux is an operating system's kernel. Linux is a UNIX clone, created by Linus Torvalds from Scratch. Linux is free and open-source, that means that by simply changing anything in Linux and redistribute it in your own name! There are several Linux Distributions, commonly called "distros".<br>• Ubuntu Linux<br>• Red Hat Enterprise Linux<br>• Linux Mint<br>• Debian<br>• Fedora<br>Linux is Mainly used in servers. About 90% of the internet is powered by Linux servers. This is because Linux is fast, secure, and free! The main problem of using Windows servers are their cost. This is solved by using Linux servers. The OS that runs in about 80% of the smartphones in the world, Android, is also made from the Linux kernel. Most of the viruses in the world run on Windows, but not on Linux!<br><br>**Linux Shell or "Terminal"**<br>A shell is a program that receives commands from the user and gives it to the OS to process, and it shows the output. Linux's shell is its main part. Its distros come in GUI (graphical user interface), but basically, Linux has a CLI (command line interface. The basic commands are executed in the shell of Linux.<br>To open the terminal, press Ctrl+Alt+T in Ubuntu, or press Alt+F2, type in gnome-terminal, and press enter.<br><br>**Linux Commands**<br>The Linux command is a utility of the Linux operating system. All basic and advanced tasks can be done by executing commands. *Commands in Linux are* ***case-sensitive***. |

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| **Basic Commands** | **Following are Linux Basic Commands**<br>• ls • wc • mv • find<br>• mkdir • pwd • cp • more<br>• cd • clear • cat • less<br>• rmdir • man • head • history<br>• rm • chmod • tail • touch |
| | **Explain command with Options and Screen shot of command execution** |
| **Output** | Ls |
| | Lists directory contents.<br>• -l : Long listing format (permissions, owner, size, etc.)<br>• -a : Show hidden files (starting with .)<br>• -h : Human-readable file sizes |
| | |
| | wc |
| | Word, line, character, and byte count.<br>• -l : Line count<br>• -w : Word count<br>• -c : Byte count |
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| | mv |
| | Movesr renames files/directories.<br>• mv file.txt /path/to/new/location/<br>• mv oldname.txt newname.txt |
| | |
| | find |
| | Searches for files in a directory hierarchy.<br>• -name : Search by name<br>• -type : Search by type (f for file, d for directory)<br>• -size : Search by size |
| | |
| | mkdir |
| | Creates directories.<br>• -p : Create parent directories as needed |
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| | pwd |
| | Prints the current working directory. |
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| | cp |
| | Copies files or directories.<br>• -r : Recursive copy (for directories)<br>• -i : Interactive, prompts before overwrite |
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| | more |
| | Paginates output, one screen at a time. |
| | |
| | cd |
| | Changes directories.<br>• cd /path/to/directory<br>• cd .. (move up one directory) |
| | |
| | clear |
| | Clears the terminal screen. |
| | |
| | cat |
| | Concatenates and displays file contents. |
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| | less |
| | Similar to more but with more navigation options (scroll up/down). |
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| | rmdir |
| | Removes empty directories. |
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| | man |
| | Displays the manual for commands. |
| | |
| | history |
| | Shows command history. |
| | |
| | head |
| | Displays the first few lines of a file.<br>• -n : Specify number of lines |
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| | rm |
| | Removes files or directories.<br>• -r : Recursive remove (for directories)<br>• -f : Force remove (no prompt) |

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| | touch |
| | Creates an empty file or updates the timestamp. |
| | |
| | chmod |
| | Changes file permissions.<br>• +x : Add execute permission<br>• -rwx : Remove specific permissions |
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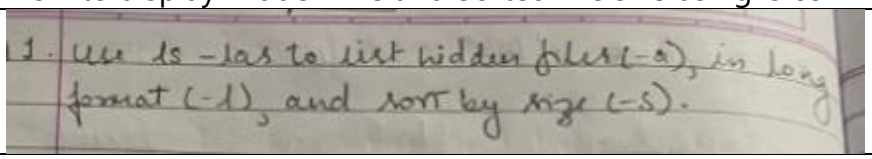
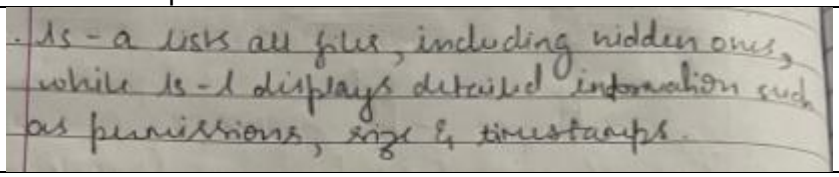
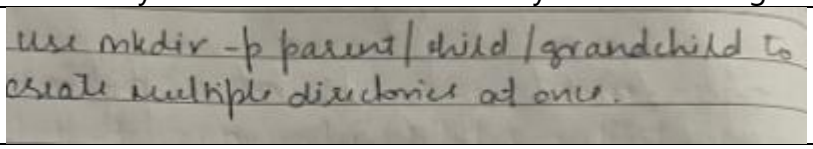
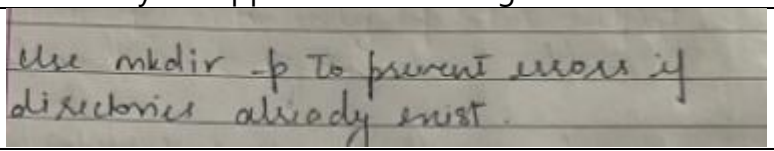
| | tail |
| | Displays the last few lines of a file.<br>• -n : Specify number of lines<br>• -f : Follow the file (real-time updates) |
| | |
| | **Screenshots of command execution in separate document.** |
| | |
| **Questions to be solved** | |
| **Q1.** | How to display Hidden File and Sorted File size using ls command |
| **Ans** |  |
| | |
| **Q2.** | What is Purpose of ls -a and ls -l command |
| **Ans** |  |
| | |
| **Q3.** | How can you create a nested directory structure using mkdir? |
| **Ans** |  |
| | |
| **Q4.** | How can you suppress error messages in mkdir? |
| **Ans** |  |
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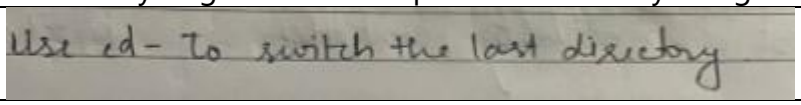
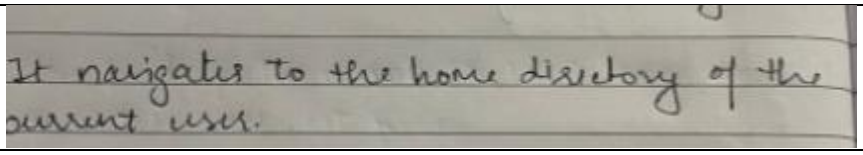
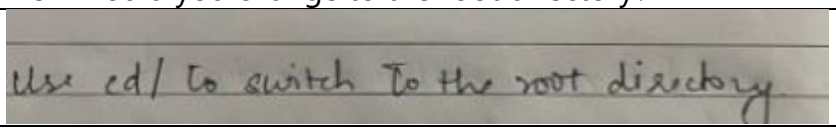
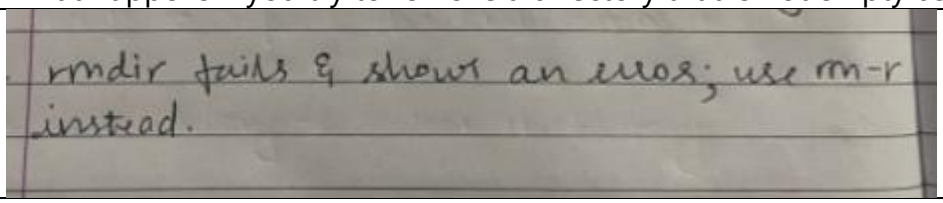
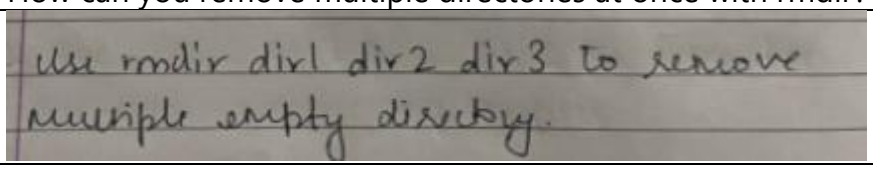
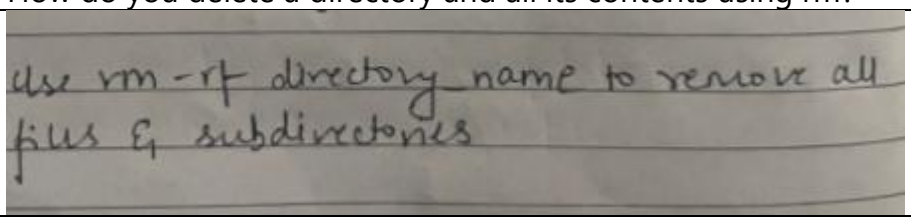
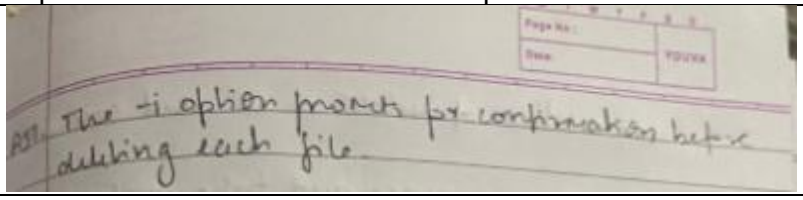
| **Q5.** | How can you go back to the previous directory using cd? |
| **Ans** |  Use cd - To switch the last directory |
| | |
| **Q6.** | What is the use of cd ~? |
| **Ans** |  It navigates to the home directory of the current user. |
| | |
| **Q7.** | How would you change to the root directory? |
| **Ans** |  Use cd / to switch To the root directory |
| | |
| **Q8.** | What happens if you try to remove a directory that is not empty using rmdir? |
| **Ans** |  rmdir fails & shows an error; use rm -r instead. |
| | |
| **Q9.** | How can you remove multiple directories at once with rmdir? |
| **Ans** |  Use rmdir dir1 dir2 dir3 to remove multiple empty directory. |
| | |
| **Q10.** | How do you delete a directory and all its contents using rm? |
| **Ans** |  Use rm -rf directory_name to remove all files & subdirectories |
| | |
| **Q11.** | Explain the function of the rm -i option. |
| **Ans** |  Ans The -i option prompts for confirmation before deleting each file. |
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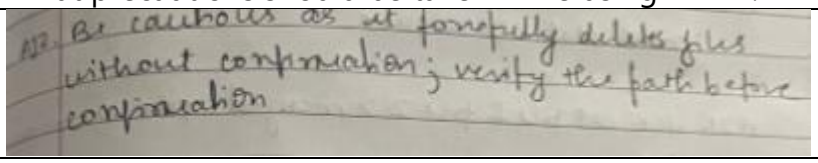
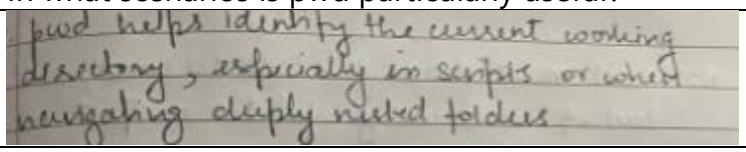
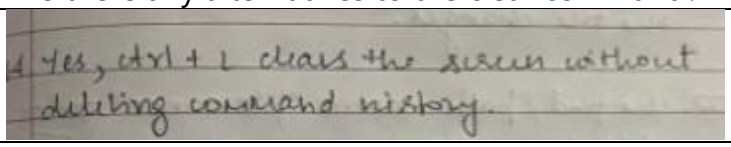
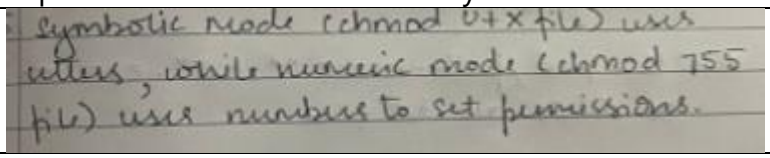
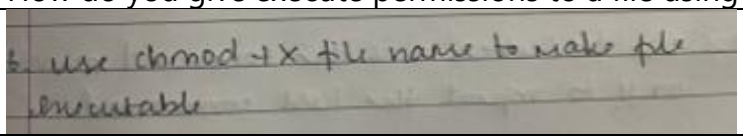
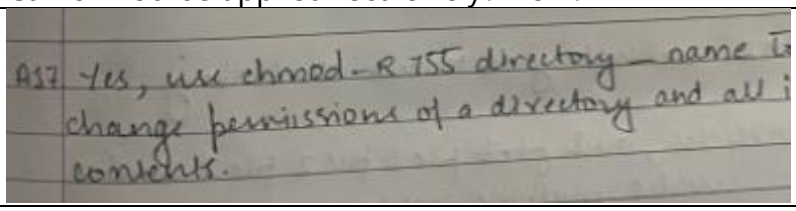
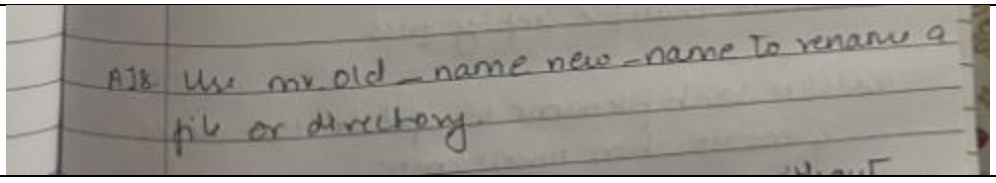
| Q12. | What precautions should be taken while using rm -rf? |
| **Ans** |  |
| | |
| Q13. | In what scenarios is pwd particularly useful? |
| **Ans** |  |
| | |
| Q14. | Are there any alternatives to the clear command? |
| **Ans** |  |
| | |
| Q15. | Explain the difference between symbolic and numeric modes in chmod. |
| **Ans** |  |
| | |
| Q16. | How do you give execute permissions to a file using chmod? |
| **Ans** |  |
| | |
| Q17. | Can chmod be applied recursively? How? |
| **Ans** |  |
| | |
| Q18. | How is mv used to rename files or directories? |
| **Ans** |  |
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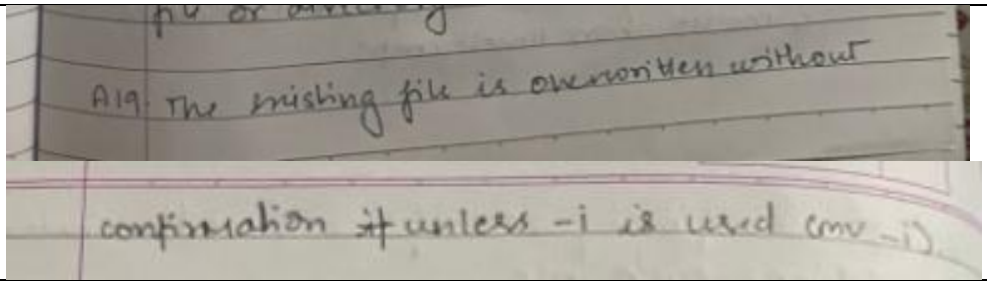
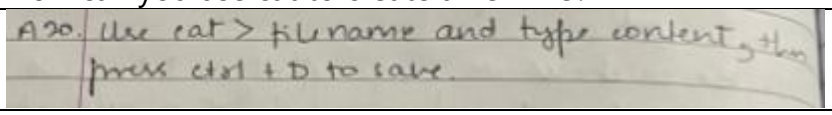
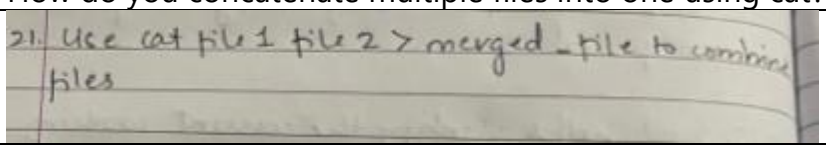
| Q19. | What happens if you use mv to move a file to a directory that already contains a file with the same name? |
| **Ans** |   |
| | |
| Q20. | How can you use cat to create a new file? |
| **Ans** |   |
| | |
| Q21. | How do you concatenate multiple files into one using cat? |
| **Ans** |   |
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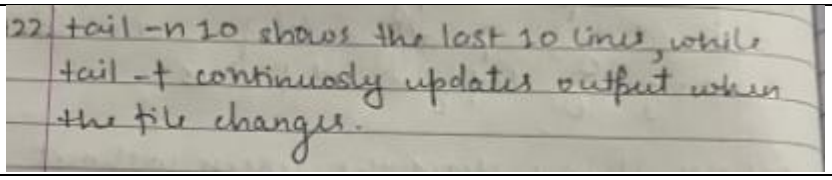
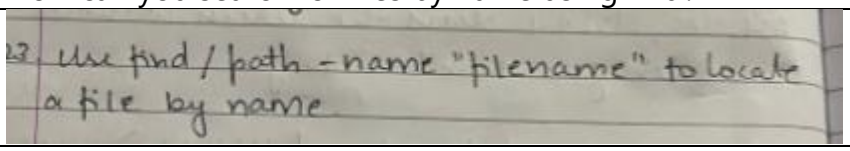
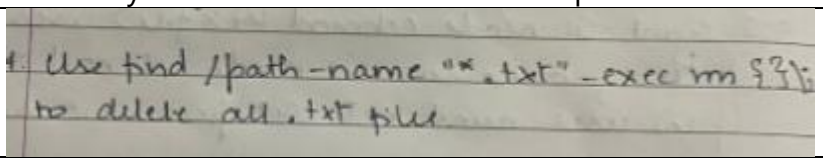
| Q22. | What is the difference between tail -n and tail -f? |
| **Ans** |   |
| | |
| Q23. | How can you search for files by name using find? |
| **Ans** |   |
| | |
| Q24. | How do you combine find with -exec to perform actions on the files found? |
| **Ans** |   |
| | |
| Q25. | How can you re-execute a command from the history list? |

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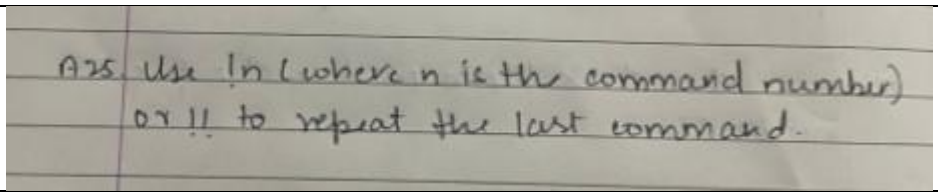
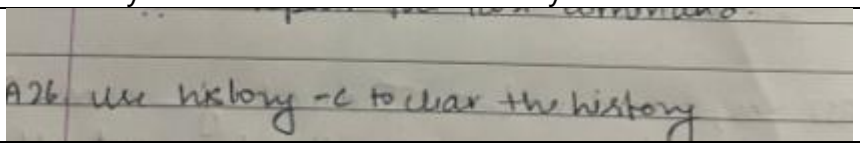
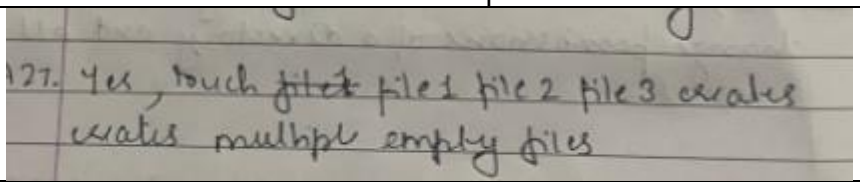
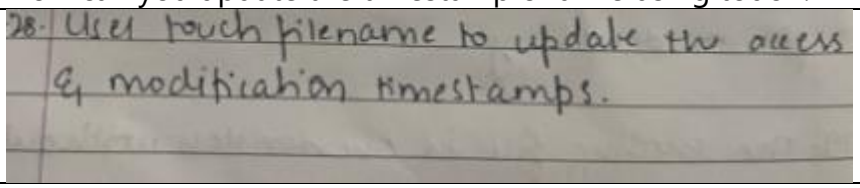
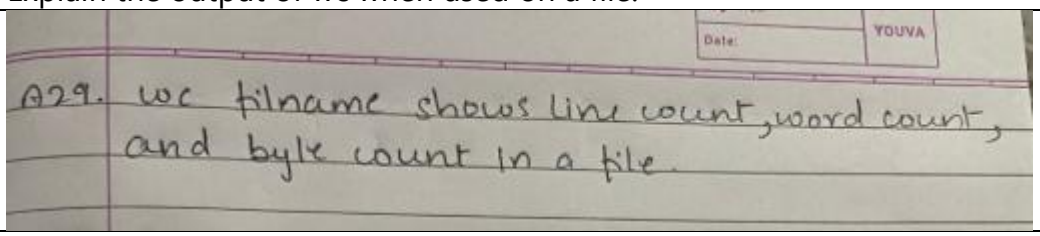
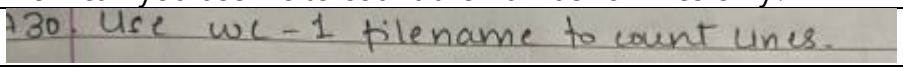
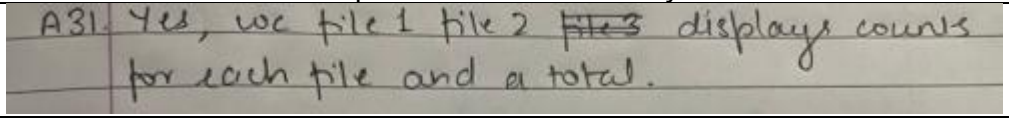
| **Ans** |   |
| | |
| Q26. | How do you clear the command history? |
| **Ans** |   |
| | |
| Q27. | Can touch be used to create multiple files at once? |
| **Ans** |   |
| | |
| Q28. | How can you update the timestamp of a file using touch? |
| **Ans** |   |
| | |
| Q29. | Explain the output of wc when used on a file. |
| **Ans** |   |
| | |
| Q30. | How can you use wc to count the number of lines only? |
| **Ans** |   |
| | |
| Q31. | Can wc be used on multiple files simultaneously? |
| **Ans** |   |
| | |
| **Conclusion** | **Therefore, many of the basic commands used in Linux were understood** |
| | **and successfully implemented on the WSL.** |

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| | **Commands learnt:**<br>• **ls** • **wc** • **mv** • **find**<br>• **mkdir** • **pwd** • **cp** • **more**<br>• **cd** • **clear** • **cat** • **less**<br>• **rmdir** • **man** • **head** • **history**<br>• **rm** • **chmod** • **tail** • **touch** |
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