Navigation and File Operations:

ls: The ls command lists files and directories in the current directory. It provides details such as permissions, ownership, size, and timestamps.

cd: The cd command is used to change the current working directory. You can move to a specified directory using cd <directory>.

mkdir: The mkdir command creates a new directory. For example, mkdir new_directory creates a new directory named "new_directory".

rm: The rm command removes or deletes files or directories. For files, you can use rm filename. To remove a directory, you typically use rm -r directory (be careful, as this is irreversible).

rmdir: The rmdir command removes empty directories. It is used when you want to delete a directory only if it is empty: rmdir empty_directory.

touch: The touch command creates an empty file if it doesn't exist or updates the modification time of an existing file. For example, touch newfile.txt creates a new empty file "newfile.txt".

cp: The cp command copies files or directories. For example, cp file1.txt file2.txt copies the contents of file1.txt into file2.txt.

mv: The mv command moves files or directories from one location to another. It can also be used to rename files: mv oldfile.txt newfile.txt renames oldfile.txt to newfile.txt.

diff: The diff command compares the contents of two files line by line and shows the differences between them: diff file1.txt file2.txt.

grep: The grep command is used for searching text patterns in files. It prints lines that match a given pattern: grep "pattern" filename.

head: The head command displays the first few lines of a file. By default, it shows the first 10 lines: head filename.

tail: The tail command displays the last few lines of a file. By default, it shows the last 10 lines: tail filename.

more: The more command displays the contents of a file one screen at a time, allowing you to scroll through the output. Press Enter for each new line.

less: The less command is similar to more but more versatile. It allows you to scroll up and down, search, and navigate through the file. Use q to exit.

awk: The awk command is a powerful text-processing tool. It scans input files for specified patterns and performs specified actions: awk '/pattern/ { action }' filename.

sed: The sed command is a stream editor used to perform basic text transformations. It is often used for search and replace operations: sed 's/old/new/g' filename.

Process Usage:

df: The df command displays the amount of disk space available on the file system. It shows the total, used, and available space on each mounted filesystem: df -h.

du: The du command shows disk usage of files and directories. It displays the size of the directory and its subdirectories: du -sh directory.

top: The top command provides a dynamic, real-time view of system processes. It shows CPU and memory usage, as well as other important details: top.

ps: The ps command displays information about active processes. You can see a snapshot of currently running processes: ps aux.

File Management:

chmod: The chmod command changes the permissions of a file or directory. It allows you to specify who can read, write, and execute the file: chmod permissions filename.

chown: The chown command changes the ownership of a file or directory. You can change the owner and group of the file: chown user:group filename.

ls/cd/mkdir/rm/rmdir/touch/cp/mv/touch

1. List the contents of the current directory.
2. Navigate into the “Computation” directory.
3. List the contents of the current directory.
4. Create a directory “Linux” within “Computation” directory using relative path.
5. Create a directory in new location by using absolute path.
6. Go back to the desktop by using absolute path. (cd /mnt/c/Users/MANOJ/Desktop)
7. List all files and directories recursively.
8. List all files and directories including hidden ones.
9. List files and directories in long format. (ls -l)
10. List the files in reverse order. (ls -r)
11. Copy a file using relative path.
12. Copy a file from current directory to the desktop by using absolute path.
13. Create the file with specific time stamp in from the current directory in the desktop by using absolute path. (touch -t 202402291904 /mnt/c/Users/MANOJ/Desktop/example.txt)
14. List the contents of the desktop from current directory by using absolute path. (ls /mnt/c/Users/MANOJ/Desktop)
15. Print the working directory. Pwd

diff/grep/head/tail/more/less/awk

16. Use a grep command to search “Dark matter” on the file hw2.txt. (grep dark matter hw2.txt
17. Display the password for a specific username that is stored in a certain file. (grep manoja450 personal.txt)

18. List the letters that contains the word ‘a’. (grep -o '\w*a\w*' hw2.txt)
19. Save the output to a file. (grep -o '\w*a\w*' hw2.txt > output1.txt)

20. Make a file that contains the list of states of United States of America.
21. See the content of such created file by using cat command.
22. Get the name of last ten states by using tail command. (tail listofstates.txt)
23. Get the name of last ten states by using tail command and store that output by creating a file. (tail -n 10 listofstates.txt > lastSTATES.txt)
24. Get the name of first ten states by using head command and store that output by creating a file (head -n 10 listofstates.txt > firststates.txt)
25. Get the name of last 3 states. (tail -n 3 listofstates.txt) or (tail 3 listofstates.txt)
26. Get the name of first 3 states (head -n 3 listofstates.txt) or (head 3 listofstates.txt)
27. Get the name of list of the states from a specified line until end. (tail +2 listofstates.txt) or tail +45 listofstates.txt

28. Create a file and write the names of Countries in descending order on the basis of land area.

29. Use tail command to get the eight smallest countries of the world and save the output in a certain file. (tail -n 8 listofcountries.txt > smallestcountries.txt)

30. Use head command to list the eight largest countries of the world and save the output to a specified file. (head -n 8 listofcountries.txt > largest.txt)

31. Know the number of bytes of a file. (stat -c %s listofcountries.txt)

32. Print the **last** 50 bytes of a file by using tail command. (tail -c 50 listofcountries.txt) OR tail -c -50 listofcountries.txt)

33. Display the result starting from 100th byte of a file. (tail -c +100 listofcountries.txt)

34. Create a file with the list of Nobel prize winners in Physics.

35. Display the last 5 smallest countries and last 10 Nobel prize winners. (tail -n -5 Nobelprizewinners.txt listofcountries.txt)
36. Move listofcountries.txt to Desktop. (mv listofcountries.txt /mnt/c/Users/MANOJ/Desktop)

37. Display the last 10 smallest countries and last 10 Nobel prize winners without file name(header) using **absolute path** (tail -q -n 10 Nobelprizewinners.txt /mnt/c/Users/MANOJ/Desktop/listofcountries.txt).
38. Copy a file (cp /mnt/c/Users/MANOJ/Desktop/Computation/Nobelprizewinners.txt /mnt/c/Users/MANOJ/Desktop/Computation/Linux/None/Nobelprizewinnerscopy.txt) using absolute path.
39. Create a log file, add some contents and use tail -f command to monitor the growth of log file. *I made changes to that log file and used tail -f to monitor the updates. I think this type of command is useful for tracking or monitoring updates of data in the experiments. (Not sure)*
40. Use tail command with pipe to sort last 10 Nobel prize winners in reverse order. (tail -n 10 Nobelprizewinners.txt | sort -r)

41. Get the grades of last three students from grade list and store that on a certain file. (tail -n 3 /mnt/c/Users/MANOJ/Desktop/GRADES.csv > lastgrades.csv)

42. Copy GRADES.csv file from desktop to the current working directory using absolute path. (cp /mnt/c/Users/MANOJ/Desktop/GRADES.csv /mnt/c/Users/MANOJ/Desktop/Computation)
43. Get the grades of first three students from grade list and store that on a certain file. (head -n 4 /mnt/c/Users/MANOJ/Desktop/GRADES.csv > lastgrades.csv)

44. Get the grades of second 10 students (from 10 to 20). (head -n 20 GRADES.csv | tail -10)

45. Get the grades of students by using less command. (less GRADES.csv)

46. Display the grades with Serial number /line number. (less -N GRADES.csv)

47. Use more command to the Grades of students in the terminal (which is the large file). (more GRADES.csv)

48. See the Grades of first five students. (more -5 GRADES.csv)

49. Display grades of 10 students per screen. (more -10 GRADES.csv)

50. Print the grades of the students whose middle term grade are greater than 90. (awk -F, '$7 >90 { print }' GRADES.csv).
51. Print the grades of students whose final term grades is greater that 80. (awk -F, '$11 > 80 { print }' GRADES.csv)
52. Calculate and display the total grades of all students. (awk -F, '{ total += $13 } END { print "Total grades:", total }' GRADES.csv)
53. After that calculate the average grade of the class. (awk -F, '{ total += $13; count++ } END { avg = total / count; printf "Total grades: %.2f\n", total; printf "Average grade: %.2f\n", avg }' GRADES.csv)
54. Display the attendance of students with their student id. (awk -F ',' '{print $1, $4}' GRADES.csv)
55. Display their final grades. (awk -F ',' '{print $1, $13}' GRADES.csv)

sed/man/echo/

56. Create a file that contains the describes the United States of America.
57. Replace " United States of America " with "U. S. A" in usa.txt and print to standard output. (sed 's/United States of America/U.S.A/' usa.txt)
58. Replace the second occurrence of U.S.A with United States of America in the line . (***sed 's/United States of America/U.S.A/2' usa.txt***)
59. Replace "U.S.A" with "UNITED STATES" starting from the second occurrence onwards in **each line** of the usa.txt file. (sed 's/U.S.A/United States/2g' usa.txt)
60. Delete line containing Washington D.C. (sed '/Washington D.C./d' usa.txt)
61. Display the 10^{th} to 50^{th} largest countries of the world. (sed -n '10,50p' listofcountries.txt)
62. Replace China by Chinaa in the third line. (sed '3 s/China/Chinaaa/' listofcountries.txt)
63. Replace the ***first occurrence*** of U.S.A in fourth line with UNITED STATES.(sed '4s/U.S.A/UNITED STATES/' usa.txt}
64. Replace the ***all occurrence*** of U.S.A in the fourth line with UNITED STATES. (sed '4s/U.S.A/UNITED STATES/g' usa.txt)
65. Replace the first occurrence of U.S.A in the second line and duplicate the line after replacing. (sed '2s/U.S.A/UNITED STATES/p' usa.txt)
66. Replace the all occurrence of U.S.A in the second line and duplicate the line after replacing sed '2s/U.S.A/UNITED STATES/gp' usa.txt

67. Print lines 5 to 6 of usa.txt. (sed -n '5,6p' usa.txt)
68. Replace all occurrence of U.S.A by UNITED STATES from 1 to 3rd lines. (sed '1,3 s/U.S.A/UNITED STATES/g' usa.txt)
69. Delete the second line of the usa.txt. (sed '2d' usa.txt)
70. Delete the last line of the usa.txt. (sed '$d' usa.txt)
71. Delete the second line to the last line. (sed '2,$d' usa.txt)
72. Insert one blank line after each line.(sed G usa.txt)
73. Delete blank lines. (sed '/^$/d' usa.txt)
74. View the content expect second and third line. (sed '2,3p' usa.txt)
75. Print 7th line of a file. (sed -n '7'p usa.txt)

76. View the manual for mkdir command. (man mkdir)
77. Know the description of ls command. (man -f ls)
78. Print Hi to the terminal. (echo "Hi")
79. Store output to a variable. var= $(echo"Hi")
80. Display the contents of the variable. (echo $var)
81. Display the error message" File not found". (echo "File not found")
82. Store that on specific file. (echo "File not found" > file.txt)

Process usage (df(disc free),du(Disk Usage),top,ps)

83. Display disk space usage for all filesystems. (df)
84. Display in human readable format. (df -h)
85. Display disk space usage of a specific directory. (df -h /mnt/c/Users/MANOJ/Desktop/Computation)
86. Display the file system type. (df -T)
87. Display all available options. (df –help)
88. Display disk usage of files and directories in the current directory. (du)
89. Display in human readable format. (du -h)
90. Show disk usage for a specific directory. (du -h /mnt/c/Users/MANOJ/Desktop/Computation/Practice/)
91. Show the disk usage by the GRADES.CSV file. (du -h GRADES.csv)
92. Print the all files including directories. (du -a -h /mnt/c/Users/MANOJ/Desktop/Computation/)
93. Display the total size . (du -c -h /mnt/c/Users/MANOJ/Desktop/Computation/)
94. Obtain the disk usage summary of a specific directory in human readable format. (du -sh /mnt/c/Users/MANOJ/Desktop/Computation)
95. View the timestamp of last modification of files and directories. du --time -h /mnt/c/Users/MANOJ/Desktop/Computation
96. List top 8 large files within the directory. (find /mnt/c/Users/MANOJ/Desktop/Computation -type f -exec du -h {} + | sort -rh | head -n 10)
97. Show the list of processes sorted by CPU usage, system summary information, and overall system statistics. (top)
98. Sort processes by memory usage. (top -o %MEM)
99. Sort Processes by CPU usage. (top -o %CPU)
100. Kill a certain process. (top -p processID) e.g (top -p 46)
101. Display top output in human readable format. (top -h)
102. Exit top command after 8 repetition. (top -n 8)

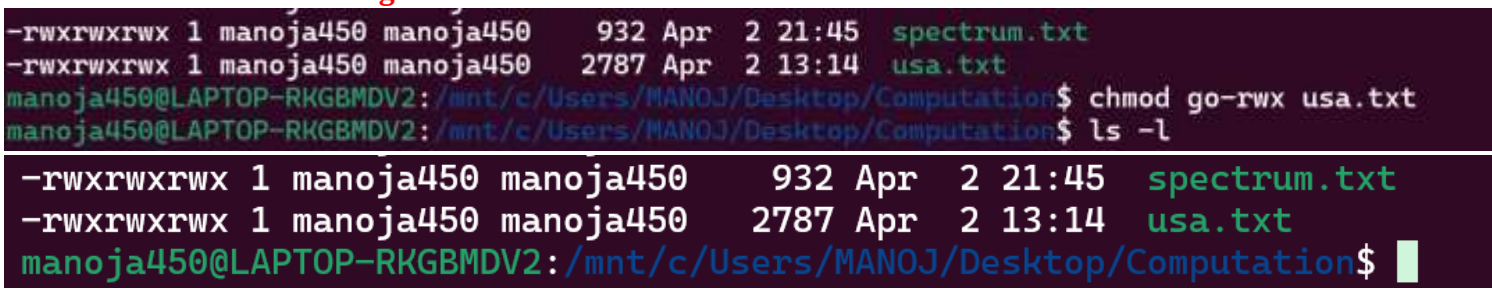
103. Run top for 5 iterations and save the output to the specific file. (top -b -n 5 > myfile34.txt)

104. Display all processes. ps -e

105. Display full format listing. Ps -ef
106. Display processes for user manoja450: ps -u manoja450
107. Display processes usage and sort by CPU Usage: ps -u manoja450 --sort=-%cpu

FILE MANAGEMENT (chmod,chown)

108. Check the read write permissions all files within the current working directory. (ls -l)
109. I tried to change the permission, but it's not changing. I did it multiple times, but it's not working. I have no idea what is wrong.



110. Check the ownership of a certain file and directory. (ls -l usa.txt) (ls -l Linux)
111. List users.(getent passwd)
112. chown nobody usa.txt Error message: chown: changing ownership of 'usa.txt': Operation not permitted