**Lab Assignment 2: Study and Execution of Ubuntu Commands**

**Part 1: Outputs of the Following Commands**

1. pwd – Displays the current working directory.
2. cd – Changes the current directory. Example: cd /home/user/Documents
3. ls – Lists files and directories in the current directory.
4. mkdir new\_folder – Creates a new directory named new\_folder.
5. rm file.txt – Deletes a file named file.txt.
6. touch newfile.txt – Creates an empty file named newfile.txt.
7. hostname – Displays the system’s hostname.
8. cat file.txt – Displays the contents of file.txt.
9. chmod 755 script.sh – Changes file permissions to 755 for script.sh.
10. echo "Hello World" – Prints "Hello World" to the terminal.
11. grep "word" file.txt – Searches for "word" in file.txt.
12. fgrep "word" file.txt – Similar to grep, but faster for fixed strings.
13. mv file1.txt new\_folder/ – Moves file1.txt to new\_folder.
14. cp file1.txt file2.txt – Copies file1.txt to file2.txt.
15. more file.txt – Displays file content page by page.
16. less file.txt – Similar to more, but allows backward scrolling.
17. wc -l file.txt – Counts the number of lines in file.txt.
18. awk '{print $1}' file.txt – Extracts the first column from file.txt.
19. sed 's/old/new/g' file.txt – Replaces "old" with "new" in file.txt.
20. tail -n 10 file.txt – Displays the last 10 lines of file.txt.

**Part 2: Answers to the Questions**

**1. How to navigate to a specific directory?**

Use the cd command:

cd /path/to/directory

**2. How to see detailed information about files and directories using ls?**

Use the -l flag:

ls -l

For human-readable file sizes, use:

ls -lh

**3. How to create multiple directories in Linux using mkdir command?**

Use the -p flag for nested directories:

mkdir -p folder1/folder2/folder3

To create multiple directories at once:

mkdir dir1 dir2 dir3

**4. How to remove multiple files at once with rm?**

rm file1.txt file2.txt file3.txt

To delete all .txt files:

rm \*.txt

**5. Can rm be used to delete directories?**

Yes, use the -r flag to remove a directory and its contents:

rm -r directory\_name

**6. How do you copy files and directories in Linux?**

For files:

cp file1.txt file2.txt

For directories:

cp -r folder1 folder2

**7. How to rename a file in Linux using mv command?**

mv oldname.txt newname.txt

**8. How to move multiple files in Linux using mv command?**

mv file1.txt file2.txt /destination\_folder/

**9. How to create multiple empty files using touch command in Linux?**

touch file1.txt file2.txt file3.txt

**10. How to view the content of multiple files in Linux?**

cat file1.txt file2.txt

**11. How to create a file and add content using cat command?**

cat > newfile.txt

Type content and press Ctrl + D to save.

**12. How to append the contents of one file to the end of another file using cat?**

cat file1.txt >> file2.txt

**13. How to use cat command if the file has a lot of content and can’t fit in the terminal?**

Use more or less:

cat file.txt | more

or

cat file.txt | less

**14. How to merge contents of multiple files using cat command?**

cat file1.txt file2.txt > merged.txt

**15. How to use cat command to append to an existing file?**

cat >> existingfile.txt

Type content and press Ctrl + D to save.

**16. What is “chmod 777”, “chmod 755” and “chmod +x” or “chmod a+x”?**

* chmod 777 file.sh – Grants **read, write, execute** permissions to everyone.
* chmod 755 file.sh – Grants **read and execute** permissions to others but only **write** for the owner.
* chmod +x file.sh – Makes a script or file executable.
* chmod a+x file.sh – Adds **execute permission** for **all users**.

**17. How to find the number of lines that match a given string/pattern?**

grep -c "pattern" file.txt

**18. How to display the files that contain a given string/pattern?**

grep -l "pattern" \*.txt

**19. How to show the line number of a file with the matched line?**

grep -n "pattern" file.txt

**20. How to match lines that start with a specific string using grep?**

grep "^string" file.txt

**21. Can the sort command be used to sort files in descending order by default?**

No, by default sort sorts in **ascending order**. To sort in descending order:

sort -r file.txt

**22. How can I sort a file based on a specific column using the sort command?**

For example, sorting by the second column:

sort -k2 file.txt

For numerical sorting by the second column:

sort -k2 -n file.txt

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