**LAB ASSSIGNMENT – 2**

**Part 1- Output of the following commands**

1. **pwd** – Print Working Directory
   * **Output:** Displays the current directory path.
   * Example: arduino
2. **cd** – Change Directory
   * **Output:** No output (changes the directory).
   * Example: cd /home/user will take you to the /home/user directory.
3. **ls** – List Directory Contents
   * **Output:** Lists the files and directories in the current directory.
4. **mkdir** – Make Directory
   * **Output:** No output (creates a new directory).
   * Example: mkdir new\_folder will create a directory named new\_folder.
5. **rm** – Remove Files or Directories
   * **Output:** No output if successful (removes files or directories).
   * Example: rm file1.txt will remove the file file1.txt.
6. **touch** – Create a New File or Update Timestamp of a File
   * **Output:** No output (creates an empty file or updates the timestamp).
   * Example: touch newfile.txt will create a new, empty file named newfile.txt.
7. **hostname** – Display or Set the System's Hostname
   * **Output:** Displays the system’s hostname.
   * Example: perl
8. **cat** – Concatenate and Display Files
   * **Output:** Displays the contents of a file.
   * Example: cat file1.txt will output the content of file1.txt.
9. **chmod** – Change File Permissions
   * **Output:** No output if successful (modifies file permissions).
   * Example: chmod 755 file1.sh will change the permissions of file1.sh.
10. **echo** – Display a Message or Output Text
    * **Output:** Displays the given text.
    * Example: echo "Hello, World!" will output:
11. **grep** – Search Text Using Patterns
    * **Output:** Lines of text that match a given pattern.
    * Example: grep "hello" file.txt will output any lines in file.txt containing "hello".
12. **fgrep** – Fixed-String Search (Similar to grep, but searches for fixed strings)
    * **Output:** Lines containing the exact fixed string.
    * Example: fgrep "hello" file.txt will output lines that contain the exact string "hello".
13. **mv** – Move or Rename Files/Directories
    * **Output:** No output if successful (moves or renames files).
    * Example: mv oldfile.txt newfile.txt will rename oldfile.txt to newfile.txt.
14. **cp** – Copy Files or Directories
    * **Output:** No output if successful (copies files).
    * Example: cp file1.txt file2.txt will copy file1.txt to file2.txt.
15. **more** – View File Content Page by Page
    * **Output:** Displays file contents page by page.
    * Example: more file.txt will display the contents of file.txt one page at a time.
16. **less** – View File Content with Navigation (Similar to more, but allows more control)
    * **Output:** Displays file contents, and allows scrolling up and down.
    * Example: less file.txt lets you scroll through file.txt.
17. **wc** – Word Count (Counts lines, words, and characters)
    * **Output:** Displays the number of lines, words, and characters.
    * Example: wc file.txt might output:
18. **awk** – Pattern Scanning and Processing Language
    * **Output:** Depends on the script or pattern used. It's commonly used to print specific fields from a file.
    * Example: awk {print $1}file.txt will output the first field of each line in file.txt.
19. **sed** – Stream Editor (for modifying text in a file or input)
    * **Output:** Depends on the command. It typically modifies text based on patterns.
    * Example: sed 's/old/new/' file.txt will replace the first occurrence of "old" with "new" on each line in file.txt.
20. **tail** – Display the Last Part of a File
    * **Output:** Displays the last 10 lines by default.
    * Example: tail file.txt will display the last 10 lines of file.txt.

**Part 2: Answers to the following questions**

**1. How to navigate to a Specific Directory?**

Use the cd command to change to a specific directory: cd /path/to/directory

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

Use the -l option with ls to see detailed information: ls -l

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

Use the -p option with mkdir to create multiple directories at once: mkdir -p dir1 dir2 dir3

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

Use the rm command followed by the list of files: rm file1 file2 file3

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

Yes, use the -r option to remove directories recursively: rm -r directory\_name

**6. How Do You Copy Files and Directories in Linux?**

Use cp for files, and cp -r for directories:

cp file.txt /path/to/destination

cp -r dir1 /path/to/destination

**7. How to Rename a file in Linux Using mv Command?**

Use mv to rename a file: mv oldname.txt newname.txt

**8. How to Move Multiple files in Linux Using mv Command?**

Use mv followed by the files and destination: mv file1 file2 file3 /path/to/destination/

**9. How to Create Multiple Empty Files by Using Touch Command in Linux?**

Use touch followed by the file names: touch file1.txt file2.txt file3.txt

**10. How to View the Content of Multiple Files in Linux?**

Use cat to display the contents of multiple files: cat file1.txt file2.txt

**11. How to Create a file and add content in Linux Using cat Command?**

Use cat followed by the redirection operator > to create a file and add content: cat > newfile.txt

**12. How to Append the Contents of One File to the End of Another File using cat command?**

Use the >> redirection operator to append content:

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?**

Pipe the output of cat to less or more to view it page by page: cat largefile.txt | less

**14. How to Merge Contents of Multiple Files Using cat Command?**

Use cat to concatenate multiple files: cat file1.txt file2.txt > mergedfile.txt

**15. How to use cat Command to Append to an Existing File?**

Use the >> operator to append: cat additionalfile.txt >> existingfile.txt

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

chmod 777: Gives read, write, and execute permissions to everyone.

chmod 777 file.txt

chmod 755: Gives read, write, and execute permissions to the owner, and read/execute to others.

chmod 755 file.txt

chmod +x: Adds execute permission to the file.

chmod +x file.sh

chmod a+x: Adds execute permission for all users (owner, group, others).

chmod a+x script.sh

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

Use grep -c to count the matching lines: grep -c "pattern" file.txt

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

Use grep -l to list files containing the pattern: grep -l "pattern" \*

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

Use grep -n to show line numbers: grep -n "pattern" file.txt

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

Use ^ to match lines that start with a pattern: grep "^pattern" 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. Use -r for descending order: sort -r file.txt

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

Use -k to specify the column to sort by (e.g., column 2): sort -k 2 file.txt