**Lab Assignment 2**

**Operating System Lab**

**Part 1: Outputs of the following commands**

1. **pwd** - Prints the current working directory.
2. **cd** - Changes the directory.
3. **ls** - Lists files and directories.
4. **mkdir** - Creates a new directory.
5. **rm** - Removes a file.
6. **touch** - Creates an empty file.
7. **hostname** - Displays the system's hostname.
8. **cat** - Displays file contents.
9. **chmod** – Change access permissions

10. **echo** – Display message on screen

11. **grep** - Search file(s) for lines that match a given pattern.

12. **fgrep** – Searches for a given string

13. **mv** - Move or rename files or directories

14. **cp** – copy files or directories.

15. **more** – Displays file contents page by page

16. **less** - Similar to more but allows backward navigation.

17. **wc** - Counts words, lines, and characters in a file.

18. **awk** - Processes text files.

19. **sed** - Stream editor for filtering and transforming text.

20. **tail** - Displays the last lines of a file.

**Part 2 : Answers to Questions:**

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

By using the cd command

$ cd /path/to/directory

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

$ ls -l

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

$ mkdir dir1 dir2 dir3

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

$ rm file1.txt file2.txt

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

Yes

$ rm -r directory\_name

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

To copy file1 in current directory and name it file2

$ cp file1.txt file2.txt

To copy file to /destination/ without changing name

$ cp file.txt /destination/

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

$ mv oldname.txt newname.txt

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

$ mv file1.txt file2.txt /destination/

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

$ touch file1.txt file2.txt file3.txt

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

$ cat file1.txt file2.txt

1. **How to Create a file and add content in Linux Using `cat` Command**

$ cat > file.txt

Hello, this is a test file.

(Press Ctrl+D to save)

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

$ cat file1.txt >> file2.txt

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

We can use less or more commands along with cat for page by page display

$ cat largefile.txt | less

$ cat largefile.txt | more

1. **How to Merge Contents of Multiple Files Using `cat` Command**

$ cat file1.txt file2.txt > merged.txt

1. **How to use cat Command to Append to an Existing File**

$ cat >> file.txt

Additional text.

(Press Ctrl+D to save)

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

chmod is used to change file permissions.

chmod 777 gives full permission(read write and execute) to everyone(owner, group and others)

chmod 755 gives full permission to owner and read and execute to group and others

chmod +x makes file executable

chmod a+x adds execute permission to all users

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

$ grep -c "pattern" file.txt

1. **How to display the files that contains the given string/pattern.**

$ grep -l "pattern" \*.txt

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

$ grep -n "pattern" file.txt

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

$ grep "^pattern" file.txt

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

No. By default sort command sorts in ascending order. To sort in descending order we need to use -r

$ sort -r file.txt

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

By using a -k option.

$ sort -kCOLUMN\_NUMBER file.txt