

Subject Title: Operating Systems Lab**EXPERIMENT No: 3****TITLE: Basic Shell script for File operation**

Aim: Implement and demonstrate a shell script on file operations

Learning Outcome: 1. To understand the shell script for file operation
2. To demonstrate the shell script for file operation

Hardware/Software:

This experiment is performed using Ubuntu OS in a virtualized environment within Windows 11. The software used is:

- VMware Workstation 17 Player (Free Virtualization Tool)
- Ubuntu 22.04.1 LTS ISO file
- VMware Tools installed on the virtual machine

Theory:

The shell acts as an interface between the user and the OS services. It accepts human-readable commands from the user and converts them into a language that the kernel can understand. The shell can be accessed using the terminal.

Shell accepts the command as input from the user and executes it. A shell can also take inputs as a file and execute them in case of executing a bunch of commands routinely. This helps to avoid the repetitive work of typing each command in the terminal. This file containing a bunch of commands is known as a shell script and is saved with the extension of .sh.

Command	Description
echo	Display the line of text/string passed to it as an argument
read	Read the value passed and assign it to the variable
touch	Create empty file
cat	Concatenate / Add data to file / Display data of the file
wc	Display file's word, line, character count
sort	Sort the contents of the file in a particular manner
tr	Translates data from input and writes to output Here, cat \$file tr [:lower:] [:upper:] cat \$ file – provides the input as content of the file tr [:lower:] [:upper:] – displays the lowercase characters to uppercase
head -n	Display first n lines
grep	Search the file for a particular pattern of characters, and display all lines that contain that pattern.
mv -f	mv prompts for confirmation overwriting the destination file if a file is write-protected. The -f option overrides this minor protection and overwrites the

	destination file forcefully and deletes the source file
cut -c	Cut -c stands for cut by column and gives the nth character of each line where n is the entered position
rm	Remove the file

By default, the .sh file may not have executable permission. Hence, using the command `chmod +x filename`, the file is given executable permission.

CTRL + D is used as a shortcut to give End of File “eof” input.

The file operations performed are:

- Create file
- Enter the content of the file
- Display the content of the file
- Display the number of lines, words and characters in the file
- Sort the content of the file
- Transform the content of the files from lowercase to uppercase
- Search in the file
- Rename the file
- Delete the file