

ASSIGNMENT 2

AIM: Study of Vi editor, Linux Shells and Commands.

Linux command for File and Directory Management.

Theory:

--- VI Editor (*Visual Editor*) ---

The Vi editor is a powerful text editor available by default on Unix-based systems. It is widely used for editing configuration files, writing code, and creating shell script.

Vi operates in three modes:

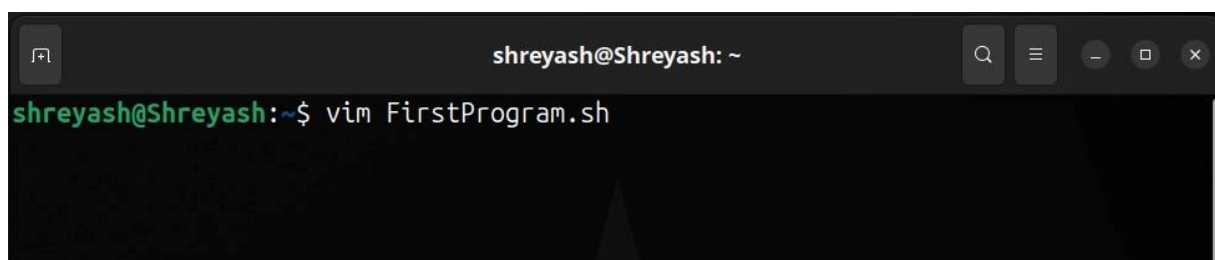
1. Normal mode: This is default mode where you can move around the file and use commands.
2. Insert mode: Use to insert or modify text. Press `I` to enter insert mode from normal mode.
3. Command mode: Used to save, exits, search, and perform advance editing. Access it by pressing `:` in normal mode.

Common commands:

Action	Command
Enter insert mode	<code>I</code>
Save the file	<code>:w</code>
Quit the editor	<code>:q</code>
Save and quit	<code>:wq</code>
Force quit without save	<code>:q!</code>

For example,

1. Create a file with `.sh` as (vim FirstProgram.sh)

A screenshot of a terminal window with a dark background. The title bar at the top shows 'shreyash@Shreyash: ~' and standard window control buttons. The terminal prompt is 'shreyash@Shreyash:~\$'. The command 'vim FirstProgram.sh' has been entered and is highlighted in green. The rest of the terminal area is currently empty.

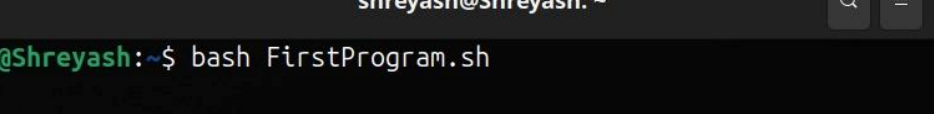
2. Write the program using the insert mode and save it with command as :wq

A screenshot of a terminal window titled "shreyash@Shreyash: ~". The terminal displays a shell script that prompts the user to enter two numbers, calculates their sum using the `expr` command, and prints the result. A large, faint watermark of a crown is visible in the background of the terminal. The script code is as follows:

```
clear  
echo -n "Enter First number"  
read num1  
echo -n "Enter second number"  
read num2  
sum = `expr $num1 + $num2`  
echo "The addition of $num1 and $num2 is $sum"
```

The prompt character at the bottom left is `:wq`. The terminal interface includes standard window controls (minimize, maximize, close) and a search icon in the top right corner.

3. After using command `bash filename.sh` we can run the program and see the output.



```
shreyash@Shreyash: ~  
shreyash@Shreyash:~$ bash FirstProgram.sh  
Enter First number15  
Enter second number13  
FirstProgram.sh: line 6: 28: command not found  
The addition of 15 and 13 is
```

--- Linux Shell ---

A Linux shell is a command-line interface that allows users to interact with the Linux operating system. It act as a bridge between the user and the kernel, interpreting and executing commands entered by the user.

❖ Types Of Shell:

Shell	Command	Description
Bash	Bash	Most widely used shell.
Bourne	Sh	Original Unix shell
Csh	csH	Syntax similar to C language
Korn shell	ksh	Combined feature of C and bourne shell

❖ Basic Feature Of Shell

- Command execution
- Scripting and automation
- Pipeline creation
- Command history

❖ Shell Scripting

Shell also support writing shell script. Shell scripting is commonly used for automation, such as backups, updates, and system maintenance.

--- **50 Linux Command** ---

Sr. No.	Command	Meaning	Description	Example Usage
1	ls	List Directory Contents	List all files and folders in the current directory	ls -l
2	cd	Change Directory	Moves from one directory to another	cd Documents
3	mkdir	Make Directory	Creates a new folder or directory	mkdir new_folder
4	cp	Copy	Copies files of folders	cp file.txt backup
5	rm	Remove	Delete files or directory	rm file.txt
6	cat	Concatenate	Display content of file	cat file.txt
7	grep	Global Regular Expression Print	Searches text pattern in file	Grep "data" file.txt
8	man	Manual	Display help manual for commands	man ls
9	echo	-	Prints a line of text	echo Hello
10	sudo	Super user do	Execute a command as superuser	sudo apt update

11	chmod	Change mode	Changes file/directory permission	chmod 777 file.sh
12	ping	-	Checks network connectivity with another system	ping google.com
13	kill	-	Terminate a running process	Kill 1234
14	type	-	Shows command is built in or external	type ls
15	apt-get	Advance package tool	Install, update, remove packages	S\sudo apt-get install vim
16	pwd	Print working directory	Display the full path of current directory	pwd
17	touch	-	Creates an empty file	touch newfile.txt
18	mv	Move	Moves or rename the file/directory	mv file.txt newfile.txt
19	clear	-	Clears the terminal screen	clear
20	history	-	Shows previous used commands	History
21	df	Disk free	Shows disk usage	df-h
22	du	Disk usage	Estimate file usage	du-sh *
23	top	-	Display active process	top
24	ps	-	Display information about current process	ps aux
25	whoami	-	Display current username	whoami

26	uname	-	Display system information	uname -a
27	head	-	Display first line of file	head -n 10 file.txt
28	tail	-	Display last line of file	Tail -n 10 file.txt
29	wc	Word Count	Counts words, lines, characters in a file	wc file.txt
30	sort	-	Sort line in text files	Sort file.txt
31	uniq	-	Filters duplicate lines	uniq file.txt
32	find	-	Searches file and directory	find.-name"file.txt"
33	locate	-	Finds file using index database	locate file.txt
34	alias	-	Create command shortcut	alias 11="ls-la"
35	unalias	-	Remove an alias	unalias 11
36	xargs	-	Builds and executes command line from input	cat files.txt xargs rm
37	cut	-	Removes sections from each line of file	cut -d ","-f1 file.csv
38	tar	-	Archives files in tarball	tar -cvf archive.tar file1 file2
39	zip	-	Compresses file into .zip format	zip archive.zip file.txt
40	unzip	-	Extracts zip files	unzip archive.zip
41	scp	Secure copy	Copies files securely over SSH	scp file.txt user@server:/path/
42	wget	-	Downloads files from internet	wget https://example.com/file.zip

43	curl	-	Transfer data from server	curl https://example.com
44	service	-	Manages system services	service apache2 start
45	systemctl	-	Controls the systemd system and services	systemctl restart nginx
46	mount	-	Mounts storage devices	mount /dev/sdb1 /mnt
47	umount	-	Unmounts storage devices	umount /mnt
48	crontab	-	Schedules recurring tasks	crontab -e
49	date	-	Displays current date and time	date
50	cal	-	Displays calendar	cal

Conclusion : Hence studied about the Vi editor and also Linux shell along with 50 Linux commands.