

Lab3:

The main idea of this assignment is to provide hands on experience on the following topics

Grep

Pipe

redirection

read

command Line arguments

head,tail,tr

1. Create a file “poem.txt” with the following lines

We have not wings, we cannot soar;
But we have feet to scale and climb
By slow degrees, by more and more,
The cloudy summits of our time.

The mighty pyramids of stone
That wedge-like cleave the desert airs,
When nearer seen and better known,
Are but gigantic flights of stairs.

The distant mountains, that uprear
Their solid bastions of the skies,
Are crossed by pathways that appear
As we to higher levels rise.

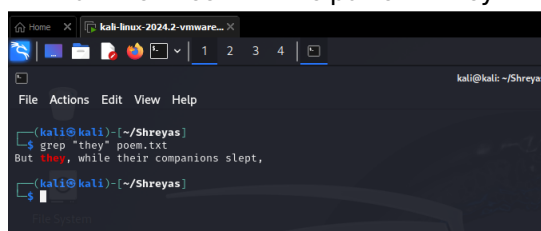
The heights by great men reached and kept
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night.

END

Henry Wadsworth Longfellow (1807–1882) was an American poet and educator.

Do the following task using grep command

- a. Print all the lines with the pattern “they”



```
kali@kali: ~/Shreyas
$ grep "they" poem.txt
But they, while their companions slept,
```

- b. Print all the lines other than pattern “They”

```
kali@kali: ~/Shreyas
File Actions Edit View Help
(kali@kali)-[~/Shreyas]
$ grep "they" poem.txt
But they, while their companions slept,
(kali@kali)-[~/Shreyas]
$ grep "They" poem.txt
(kali@kali)-[~/Shreyas]
$ gedit poem.txt
```

- c. Print all the lines starts with “w”

```
(kali@kali)-[~/Shreyas]
$ grep '^w' poem.txt
```

- d. Print the next lines after the pattern “stone” matches

Hint: man grep

```
File Actions Edit View Help
(kali@kali)-[~]
$ cd Shreyas
(kali@kali)-[~/Shreyas]
$ grep -A 1 "stone" poem.txt
The mighty pyramids of stone
That wedge-like cleave the desert airs,
```

- e. Print the 2 lines above the pattern “stone” matches

Hint: man grep

```
(kali@kali)-[~/Shreyas]
$ grep -B 2 "stone" poem.txt
By slow degrees, by more and more,
The cloudy summits of our time.
The mighty pyramids of stone
```

- f. Search the pattern with exact match

```
(kali@kali)-[~/Shreyas]
$ grep -o "stone" poem.txt
stone
```

2. Explore variations of grep command

- a. ngrep
- b. pgrep
- c. zgrep
- d. egrep

3. Write a shell script to get the pattern and filenames from the user and check whether the pattern is present or not.

```
1 #!/usr/bin/bash
2
3 read -p "Enter the pattern:" pattern
4 read -p "Enter the filename : " filename
5
6 grep "$pattern" "$filename"
```

```
(kali㉿kali)-[~/Shreyas]
$ ./pattern.sh
Enter the pattern:they
Enter the filename :poem.txt
But they, while their companions slept,
```

4. Rewrite the above shell script using command line arguments. (pass the pattern and file through command line arguments)
5. Write a shell script to count total number of regular files in the current working directory.

```
1 #!/usr/bin/bash
2
3 file_count=$(find . -maxdepth 1 -type f | wc -l)
4 echo "Total number of regular files: $file_count"
5
```

```
(kali㉿kali)-[~/Shreyas]
$ chmod +x c_files.sh

(kali㉿kali)-[~/Shreyas]
$ ./c_files.sh
Total number of regular files: 10
```

6. pipe
 - a) Pick the line from 3 to 5.

```
(kali㉿kali)-[~/Shreyas]
$ sed -n '3,5p' poem.txt
By slow degrees, by more and more,
The cloudy summits of our time.
The mighty pyramids of stone
```

- b) List the top 5 largest files in a directory and display their sizes

```
(kali㉿kali)-[~/Shreyas]
$ ls -ls | head -n 6
total 40
drwxrwxr-x 2 kali kali 4096 Aug  6 06:11 as1
drwxrwxr-x 3 kali kali 4096 Aug  5 10:17 bv
drwxrwxr-x 4 kali kali 4096 Aug  6 06:32 CYS
-rw-rw-r-- 1 kali kali  667 Aug 21 23:07 poem.txt
-rw-rw-r-- 1 kali kali  168 Aug 10 13:34 file.txt
```

- c) Print the last 2 modified file details

```
(kali㉿kali)-[~/Shreyas]
$ ls -lt | head -n 3
total 40
-rwxrwxr-x 1 kali kali  117 Aug 23 10:08 c_files.sh
-rwxrwxr-x 1 kali kali  123 Aug 23 10:03 pattern.sh
```

7. Redirection
 - a) Convert uppercase into lowercase characters

```

(kali@kali)-[~/Shreyas]
$ tr 'A-Z' 'a-z' < input.txt > output.txt

(kali@kali)-[~/Shreyas]
$ cat output.txttttt
cat: output.txttttt: No such file or directory

(kali@kali)-[~/Shreyas]
$ cat output.txt
this is a test file
it contains uppercase and some lowercase letters

```

- b) List the contents of your current directory, including the ownership and permissions, and redirect the output to a file called contents.txt within your home directory.

```

(kali@kali)-[~/Shreyas]
$ cat ~/content.txt
total 48
drwxrwxr-x 2 kali kali 4096 Aug  6 06:11 as1
drwxrwxr-x 3 kali kali 4096 Aug  5 10:17 bv
-rwxrwxr-x 1 kali kali  117 Aug 23 10:08 c_files.sh
drwxrwxr-x 4 kali kali 4096 Aug  6 06:32 CYS
-rw-rw-r-- 1 kali kali  168 Aug 10 13:34 file.txt
-rwxrw-r-- 1 kali kali   92 Aug  6 09:03 hobbies.sh
-rw-rw-r-- 1 kali kali   70 Aug 23 10:16 input.txt
-rw-rw-r-- 1 kali kali   70 Aug 23 10:17 output.txt
-rwxrwxr-x 1 kali kali  123 Aug 23 10:03 pattern.sh
-rw-rw-r-- 1 kali kali  667 Aug 21 23:07 poem.txt
-rw-rw-r-- 1 kali kali    0 Aug  5 10:06 prog1
-rw-rw-r-- 1 kali kali    0 Aug 24  2023 program.txt
-rw-rw-r-- 1 kali kali   32 Aug 14 05:52 python1.py
-rw-rw-r-- 1 kali kali    0 Aug  8 13:13 test
-rw-rw-r-- 1 kali kali   16 Aug  9 11:21 test.txt

```

- c) Rewrite the shell script (3) using <<

```

1 #!/usr/bin/bash
2
3 cat <<EOF | while read -r line; do
4     if [[ -z "$pattern" ]]; then
5         pattern="$line"
6     else
7         filename="$line"
8     fi
9 done
10 EOF
11 "Enter the pattern:"
12 "Enter the filename:"
13
14 # Now run grep with the pattern and filename
15 grep "$pattern" "$filename"
16

```

“You don't have to see the whole staircase, just take the first step.”

— Martin Luther King Jr.