

### 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.

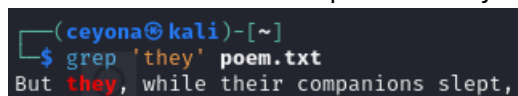
The heights by great men reached and kept  
Were not attained by sudden flight,  
But they, while their companions slept,  
Were toiling upward in the night.

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”



```
(ceyona@kali)-[~]  
$ grep 'they' poem.txt  
But they, while their companions slept,
```

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

```
(ceyona@kali)-[~]
$ grep -v 'They' poem.txt
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.
```

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

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

- d. Print the next lines after the pattern “stone” matches  
Hint: man grep

```
(ceyona@kali)-[~]
$ 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

```
(ceyona@kali)-[~]
$ 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

```
(ceyona@kali)-[~]
$ grep -w 'stone' poem.txt
The mighty pyramids of stone
```

2. Explore variations of grep command
  - a. ngrep – network grep
  - b. pgrep – look up, signal or wait for processes based on name and other attributes.
  - c. zgrep – search possibly compressed files for a regular expression
  - d. egrep - print lines that match patterns
3. Write a shell script to get the pattern and filenames from the user and check whether the pattern is present or not.

```
(ceyona@kali)-[~]
$ bash search_pattern.sh
Enter pattern to search for:
They
Enter filenames to search:
poem.txt
{[@]} doesnot exist
```

4. Rewrite the above shell script using command line arguments. ( pass the pattern and file through command line arguments)

```
#!/usr/bin/bash
if [ "$#" -lt 2 ]; then
    echo " Usage: $0 pattern filename [filename ... ]"
    exit 1
fi

pattern=$1
shift
filenames=("$@")

for file in "${filename[@]}"
do
    if [[ -f $file ]]; then
        if grep -q "$pattern" "$file"; then
            echo "Pattern '$pattern' found in $file"
        else
            echo "Pattern '$pattern' not found in $file"
        fi
    else
        echo "$file doesnot exist"
    fi
done
```

```
(ceyona@kali)-[~]
$ bash search_pattern.sh they poem.txt
{[@]} doesnot exist
```

5. Write a shell script to count total number of regular files in the current working directory.

```
#!/usr/bin/bash
file_count=$(find . -maxdepth 1 -type f | wc -l)
echo "Total number of regular files in the current directory: $file_count"
```

6. pipe

- a) Pick the line from 3 to 5.

```
(ceyona@kali)-[~]
$ 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

```
(ceyona@kali)-[~]
$ find . -type f -exec du -h {} + | sort -rh | head -n 5
1.4M  ./cache/gstreamer-1.0/registry.x86_64.bin
1.3M  ./cache/mesa_shader_cache/index
240K  ./local/share/Trash/files/Screenshot_2024-09-01_23_47_02.png
216K  ./Pictures/Screenshot_2024-09-01_23_52_11.png
52K   ./cache/zcompdump
```

- c) Print the last 2 modified file details

```
(ceyona@kali)-[~]
$ ls -lt | head -n 3
total 56
-rwxrwxr-x 1 ceyona ceyona 417 Sep  1 23:56 count.sh
drwxr-xr-x 2 ceyona ceyona 4096 Sep  1 23:52 Pictures
```

7. Redirection

- a) Convert uppercase into lowercase characters

```

(ceyona@kali)-[~]
$ tr 'A-Z' 'a-z' < sample.txt > sample1

(ceyona@kali)-[~]
$ cat sample1
hello
how are you

(ceyona@kali)-[~]
$ cat sample.txt
HeLL0
HOw are YOU

```

- 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.

```

(ceyona@kali)-[~]
$ ls -l
total 64
-rw-rw-r-- 1 ceyona ceyona  0 Aug  7 20:20 202308281840
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Desktop
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Documents
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Downloads
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Music
drwxr-xr-x 2 ceyona ceyona 4096 Sep  1 23:52 Pictures
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Public
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Templates
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Videos
-rwxrwxr-x 1 ceyona ceyona  417 Sep  1 23:56 count.sh
drwxrwxr-x 6 ceyona ceyona 4096 Aug 17 19:06 cys
-rw-rw-r-- 1 ceyona ceyona  93 Aug  7 21:40 hobbies.sh
-rw-rw-r-- 1 ceyona ceyona   0 Aug  7 20:23 pl.py
-rw-rw-r-- 1 ceyona ceyona 684 Sep  1 22:17 poem.txt
-rw-rw-r-- 1 ceyona ceyona   0 Aug  5 2023 sl
-rw-rw-r-- 1 ceyona ceyona  20 Sep  2 00:01 sample.txt
-rw-rw-r-- 1 ceyona ceyona  20 Sep  2 00:02 sample1
-rw-rw-r-- 1 ceyona ceyona 394 Sep  1 23:51 search_pattern.sh
drwxrwxr-x 2 ceyona ceyona 4096 Aug 23 21:11 work

(ceyona@kali)-[~]
$ ls -l > ~/content.txt

(ceyona@kali)-[~]
$ cd

(ceyona@kali)-[~]
$ cat content.txt
total 64
-rw-rw-r-- 1 ceyona ceyona  0 Aug  7 20:20 202308281840
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Desktop
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Documents
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Downloads
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Music
drwxr-xr-x 2 ceyona ceyona 4096 Sep  1 23:52 Pictures
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Public
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Templates
drwxr-xr-x 2 ceyona ceyona 4096 Aug  5 21:01 Videos
-rw-rw-r-- 1 ceyona ceyona  0 Sep  2 00:05 content.txt
-rwxrwxr-x 1 ceyona ceyona  417 Sep  1 23:56 count.sh
drwxrwxr-x 6 ceyona ceyona 4096 Aug 17 19:06 cys
-rw-rw-r-- 1 ceyona ceyona  93 Aug  7 21:40 hobbies.sh
-rw-rw-r-- 1 ceyona ceyona   0 Aug  7 20:23 pl.py

```

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

```
#!/bin/bash
read -p "Enter the pattern to search for: " pattern

echo "Enter filenames to search:"
read -a filenames

for file in "${filename[@]}"
do
    if [[ -f $file ]]; then
        grep "$pattern" "$file" <<EOF
        "Pattern '$pattern' found in $file"
        EOF
    else
        if [ $? -eq 0 ]; then
            echo "Pattern '$pattern' found in $file"
        else
            echo "Pattern '$pattern' not found in $file"
        fi
    fi
    echo "$file doesnot exist."
fi
done
```

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

— **Martin Luther King Jr.**