

Date: 13/07/2020

Slot: L3 + L4

Reg. No.: 19BCE0977

Name: Swaranjana Nayak

EXPERIMENT 1

BASICS OF UNIX COMMANDS

AIM:

To write the basics of UNIX commands for file processing and working with directories.

WORKING WITH FILES

1. CREATING A FILE

DESCRIPTION:

This command is used to create a file

SYNTAX:

\$cat>filename

EXAMPLE:

\$cat>Demo

2. ADD COMMAND

DESCRIPTION:

This command is used to create a file

SYNTAX:

\$cat>>filename

EXAMPLE:

\$cat>>Demo

Adding contents

Now ready

^Z

[2] + Stopped

cat >> Expt_1

(Note: Ctrl + Z suspends the most recent foreground process)

3. VIEW COMMAND

DESCRIPTION:

This command is used to display contents a file

SYNTAX:

\$cat filename

EXAMPLE:

\$cat Demo

Adding contents

Now ready

```
swaranjana@swaranjana-virtual-machine:~$ pwd
/home/swaranjana
swaranjana@swaranjana-virtual-machine:~$ cd /home/swaranjana/Documents/OS_lab
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat>Expt_1
^Z
[1]+  Stopped                  cat > Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
^Z
[2]+  Stopped                  cat >> Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat>>Expt_1
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
now ready^Z
[3]+  Stopped                  cat >> Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```

4. COPY COMMAND

DESCRIPTION:

This command is used to copy one file to another file

SYNTAX:

\$cp <oldfilename> <newfilename>

EXAMPLE:

\$cp aaa bbb

5. MOVE COMMAND

DESCRIPTION:

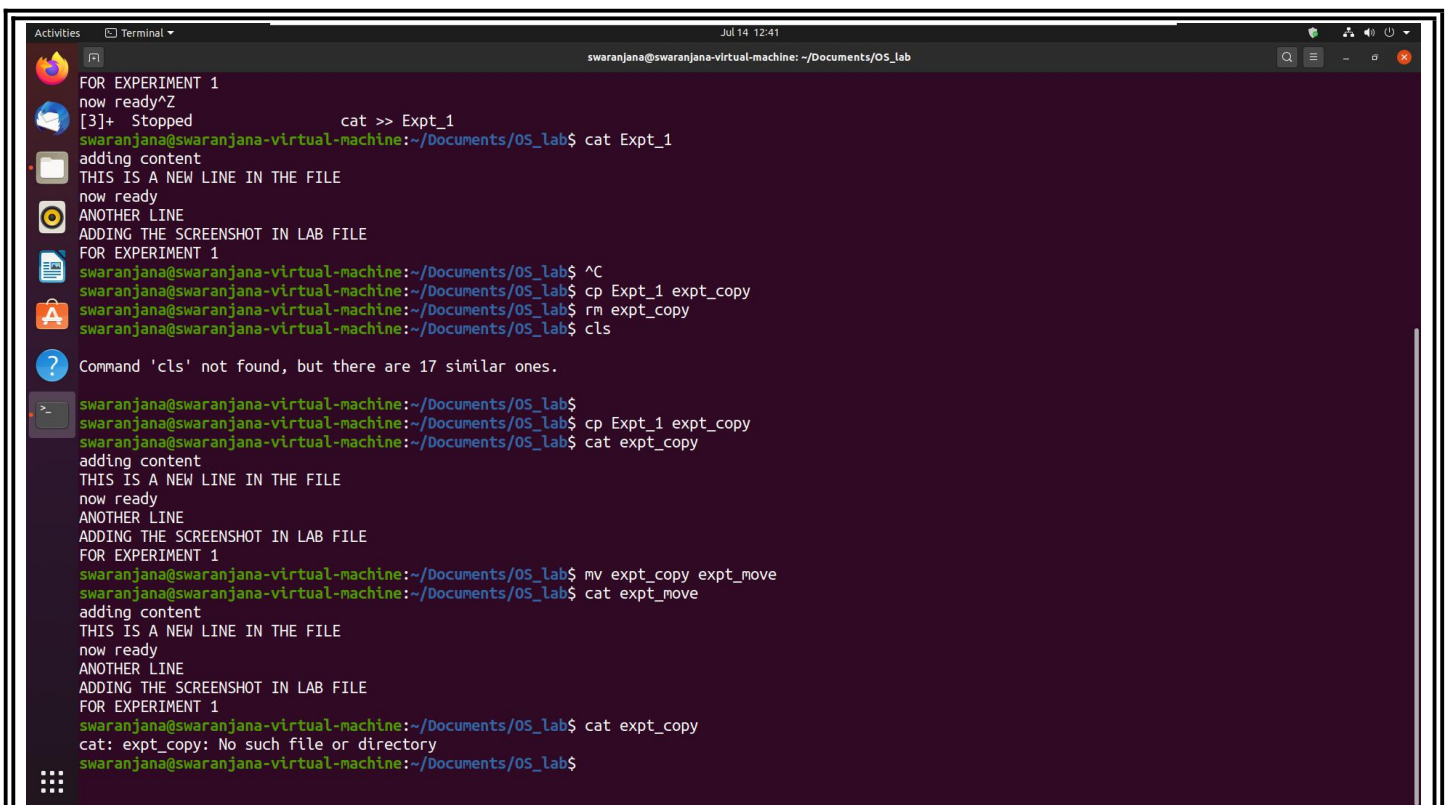
This command is used to move the file from one directory to another directory

SYNTAX:

\$mv <filename> <filename / directoryname>

EXAMPLE:

\$mv aaa bbb



```
Activities Terminal Jul 14 12:41 swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
FOR EXPERIMENT 1
now ready^Z
[3]+ Stopped cat >> Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ^C
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cp Expt_1 expt_copy
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ rm expt_copy
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cls
Command 'cls' not found, but there are 17 similar ones.
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cp Expt_1 expt_copy
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat expt_copy
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ mv expt_copy expt_move
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat expt_move
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat expt_copy
cat: expt_copy: No such file or directory
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```

6. LIST COMMAND

DESCRIPTION:

It is used to **print** contents of a directory, by default it lists contents of current working directory(**pwd**)

SYNTAX:

```
$ ls
```

EXAMPLE:

```
$ls
Demo aaa bbb
```

7. REMOVE COMMAND

DESCRIPTION:

This command is used to remove a file.

SYNTAX:

```
$rm <filename>
```

EXAMPLE:

```
$rm abc
```

(Note: 'clear' command is used to clear terminal screen)

```
swaranjana@swaranjana-virtual-machine:~$ pwd
/home/swaranjana
swaranjana@swaranjana-virtual-machine:~$ cd /home/swaranjana/Documents/OS_lab/
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat>hello
^Z
[1]+  Stopped                  cat > hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat>hello_world
^Z
[2]+  Stopped                  cat > hello_world
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls
Expt_1  expt_move  hello  hello_world
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ rm hello_world
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat hello_world
cat: hello_world: No such file or directory
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls
Expt_1  expt_move  hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```

8. MAN COMMAND

DESCRIPTION:

It is used to display the manual pages. The command is used to find details about other commands. Almost every command has their respective man pages, useful to get a quick overview of unknown command.

SYNTAX:

\$man commandName/ functionName

EXAMPLE:

\$man scanf

(displays the man page of scanf function in C)

```
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ man rm
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ man printf
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```

```
Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)
Player
Activities Terminal
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
User Commands
rm(1)
NAME
rm - remove files or directories
SYNOPSIS
rm [OPTION]... [FILE]...
DESCRIPTION
This manual page documents the GNU version of rm. rm removes each specified file. By default, it does not remove directories.
If the -I or --interactive=once option is given, and there are more than three files or the -r, -R, or --recursive are given, then rm prompts the user for whether to proceed with the entire operation. If the response is not affirmative, the entire command is aborted.
Otherwise, if a file is unwritable, standard input is a terminal, and the -f or --force option is not given, or the -i or --interactive=always option is given, rm prompts the user for whether to remove the file. If the response is not affirmative, the file is skipped.
OPTIONS
Remove (unlink) the FILE(s).
-f, --force
ignore nonexistent files and arguments, never prompt
-i
prompt before every removal
-I
prompt once before removing more than three files, or when removing recursively; less intrusive than -i, while still giving protection against most mistakes
Manual page rm(1) line 1 (press h for help or q to quit)
```

1. Man page of rm command

```
Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)
Player
Activities Terminal
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
User Commands
printf(1)
NAME
printf - format and print data
SYNOPSIS
printf FORMAT [ARGUMENT]...
printf OPTION
DESCRIPTION
Print ARGUMENT(s) according to FORMAT, or execute according to OPTION:
--help display this help and exit
--version
output version information and exit
FORMAT controls the output as in C printf. Interpreted sequences are:
\" double quote
\\ backslash
\a alert (BEL)
\b backspace
\c produce no further output
\e escape
Manual page printf(1) line 1 (press h for help or q to quit)
```

2. Man page of printf command

9. ECHO COMMAND

DESCRIPTION:

This command is used to display the text.

SYNTAX:

\$echo text/variable

EXAMPLE:

\$echo hello

10. WC COMMAND**DESCRIPTION:**

This command is used to display the number of lines, words and character.

SYNTAX:

wc - l filename

wc - w filename

wc - c filename

11. LIST COMMAND**DESCRIPTION:**

This command is used to list the current file in the directory.

SYNTAX:

\$ls filename

EXAMPLE:

\$ls aaa

ATTRIBUTES:

\$ls - l -> List of files in long format.

\$ls - u -> Display the files in the order of last access time.

\$ls - a -> It displays all the files and directories including hidden files.

\$ls - p -> Put slash after the directories.

\$ls - t -> Displays the file in order of modified time.

12. HEAD COMMAND**DESCRIPTION:**

This command is used to display the specified line in the specified file.

SYNTAX:

\$head ~count <filename>

13. TAIL COMMAND

DESCRIPTION:

This command is used to retrieve specified lines from given file in order we choose.

SYNTAX:

\$tail [+/- count] <filename>

EXAMPLE:

\$tail -3 book

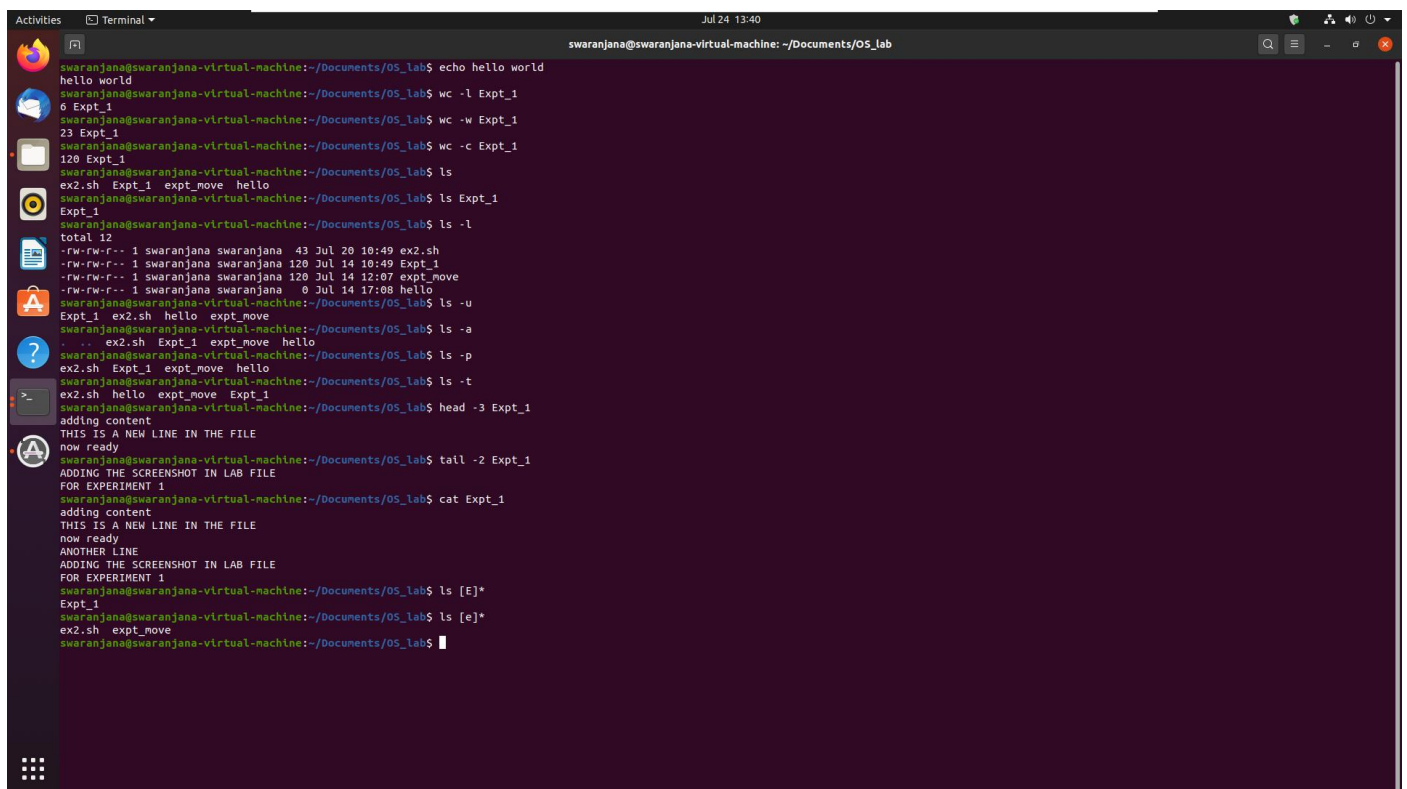
14. WILD CHAR COMMAND/PATTERN

DESCRIPTION:

It is used to display the file starting with specified character.

SYNTAX:

\$ls [alphabet]*



```
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ echo hello world
hello world
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ wc -l Expt_1
6 Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ wc -w Expt_1
23 Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ wc -c Expt_1
120 Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls
ex2.sh  Expt_1  expt_move  hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls Expt_1
Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls -l
total 12
-rw-rw-r-- 1 swaranjana swaranjana 43 Jul 20 10:49 ex2.sh
-rw-rw-r-- 1 swaranjana swaranjana 120 Jul 14 10:49 Expt_1
-rw-rw-r-- 1 swaranjana swaranjana 120 Jul 14 12:07 expt_move
-rw-rw-r-- 1 swaranjana swaranjana 0 Jul 14 17:08 hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls -u
Expt_1  ex2.sh  hello  expt_move
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls -a
.  ..  ex2.sh  Expt_1  expt_move  hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls -p
ex2.sh  Expt_1  expt_move  hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls -t
ex2.sh  hello  expt_move  Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ head -3 Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ tail -2 Expt_1
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ cat Expt_1
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls [E]*
Expt_1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls [e]*
ex2.sh  expt_move
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```

WORKING WITH DIRECTORIES

1. CREATE A DIRECTORY

DESCRIPTION:

This command is used to create a new directory.

SYNTAX:

`$mkdir directoryname`

EXAMPLE:

`$mkdir book`

2. CHANGE COMMAND

DESCRIPTION:

This command is used to change the new directory.

SYNTAX:

`$cd directoryname`

EXAMPLE:

`$cd flowers`

3. REMOVE DIRECTORY COMMAND

DESCRIPTION:

This command is used to remove a directory.

SYNTAX:

`$rm directoryname`

EXAMPLE:

`$rm fruits`

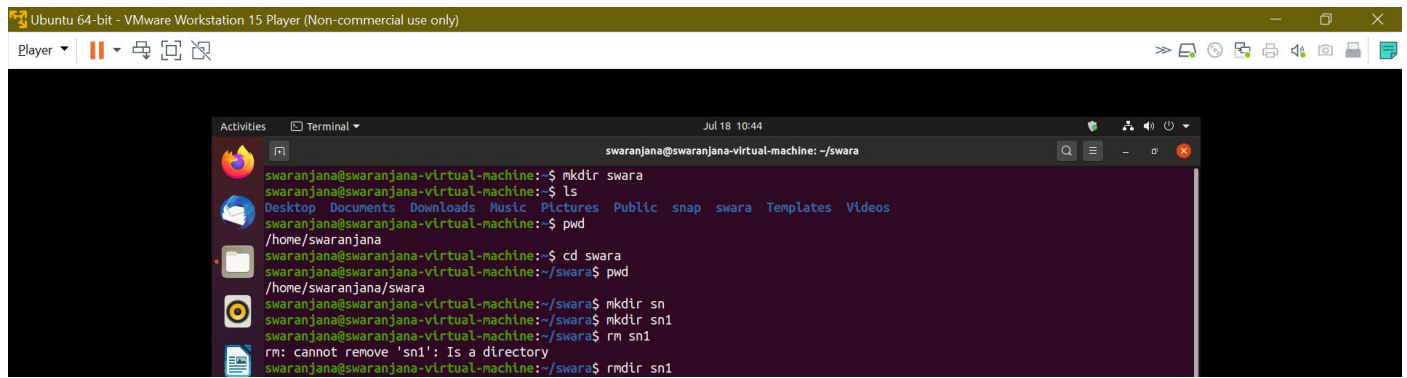
4. PATH COMMAND

DESCRIPTION:

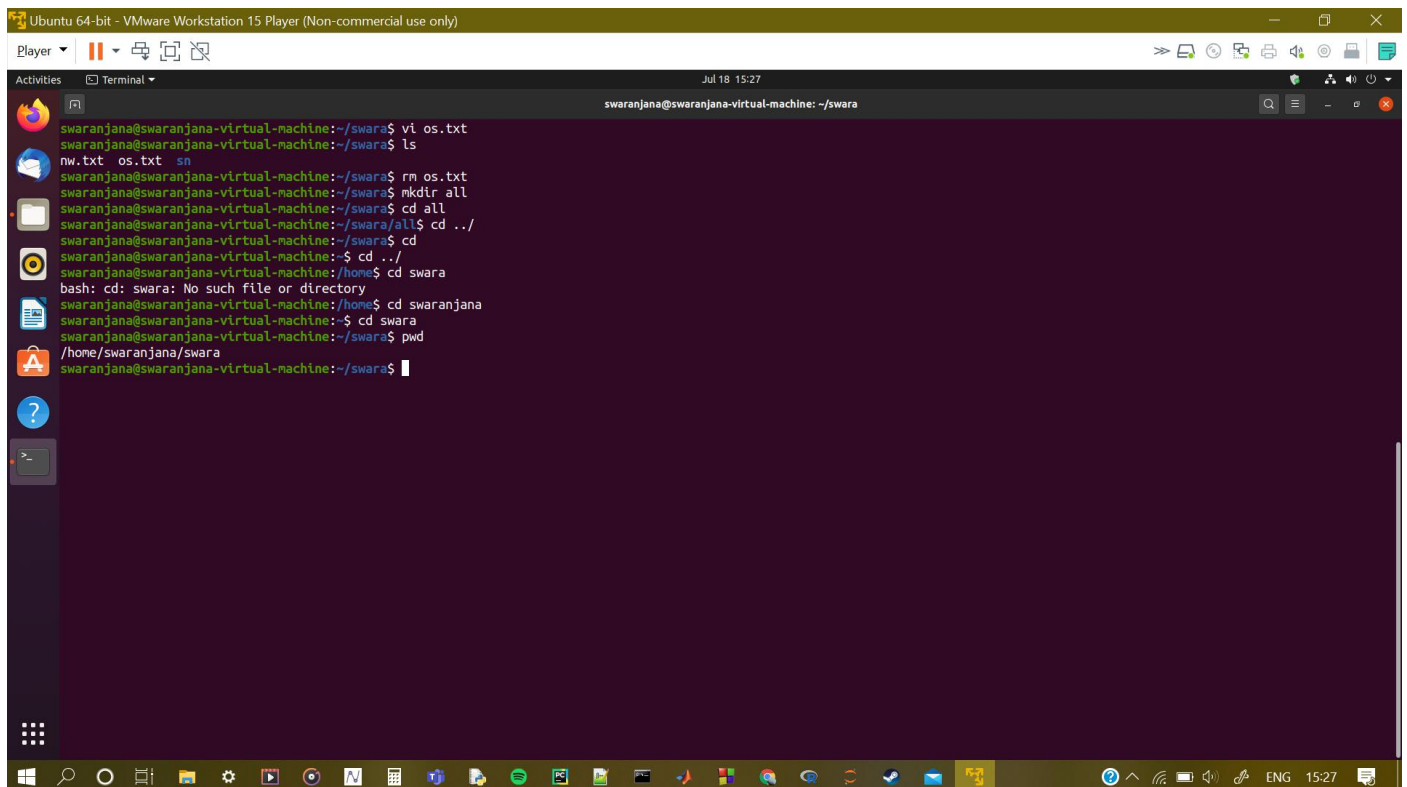
This command is used to display the path of the current file.

SYNTAX:

`$pwd`



```
swaranjana@swaranjana-virtual-machine: ~/swara
swaranjana@swaranjana-virtual-machine:~$ mkdir swara
swaranjana@swaranjana-virtual-machine:~$ ls
Desktop Documents Downloads Music Pictures Public snap swara Templates Videos
swaranjana@swaranjana-virtual-machine:~$ pwd
/home/swaranjana
swaranjana@swaranjana-virtual-machine:~$ cd swara
swaranjana@swaranjana-virtual-machine:~/swara$ pwd
/home/swaranjana/swara
swaranjana@swaranjana-virtual-machine:~/swara$ mkdir sn
swaranjana@swaranjana-virtual-machine:~/swara$ mkdir sn1
swaranjana@swaranjana-virtual-machine:~/swara$ rm sn1
rm: cannot remove 'sn1': Is a directory
swaranjana@swaranjana-virtual-machine:~/swara$ rmdir sn1
```



```
swaranjana@swaranjana-virtual-machine:~/swara$ vi os.txt
swaranjana@swaranjana-virtual-machine:~/swara$ ls
nw.txt os.txt sn
swaranjana@swaranjana-virtual-machine:~/swara$ rm os.txt
swaranjana@swaranjana-virtual-machine:~/swara$ mkdir all
swaranjana@swaranjana-virtual-machine:~/swara$ cd all
swaranjana@swaranjana-virtual-machine:~/swara/all$ cd ../
swaranjana@swaranjana-virtual-machine:~/swara$ cd
swaranjana@swaranjana-virtual-machine:~/swara$ cd ../
swaranjana@swaranjana-virtual-machine:~/swara$ cd swara
bash: cd: swara: No such file or directory
swaranjana@swaranjana-virtual-machine:~/swara$ cd swaranjana
swaranjana@swaranjana-virtual-machine:~/swara$ cd swara
swaranjana@swaranjana-virtual-machine:~/swara$ pwd
/home/swaranjana/swara
swaranjana@swaranjana-virtual-machine:~/swara$
```

5. GREP COMMAND

DESCRIPTION:

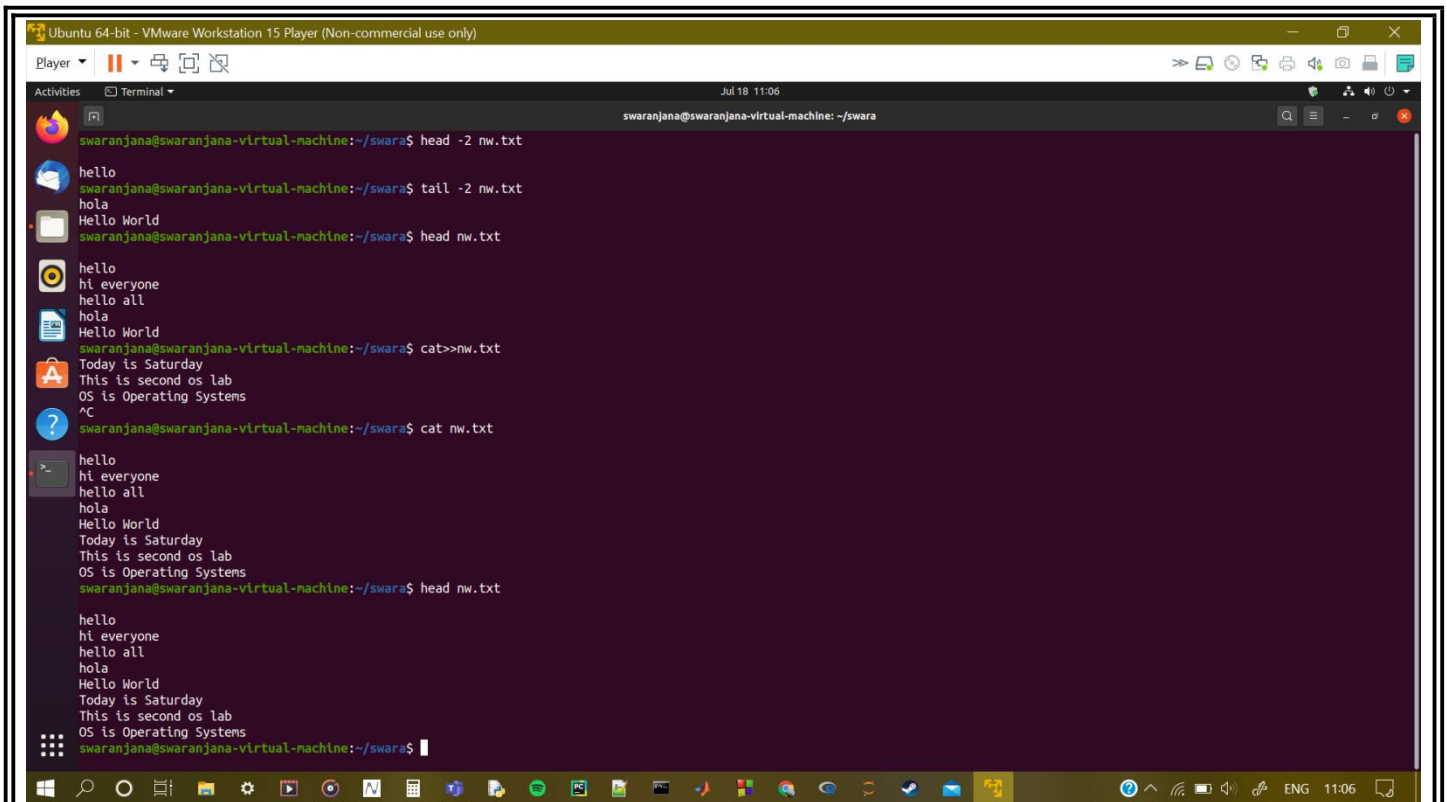
This command is used for certain kind of pattern matching.

SYNTAX:

\$grep string filename

EXAMPLE:

\$grep earth planet



```
swaranjana@swaranjana-virtual-machine: ~/swara$ head -2 nw.txt
hello
swaranjana@swaranjana-virtual-machine: ~/swara$ tail -2 nw.txt
hola
Hello World
swaranjana@swaranjana-virtual-machine: ~/swara$ head nw.txt
hello
hi everyone
hello all
hola
Hello World
swaranjana@swaranjana-virtual-machine: ~/swara$ cat >nw.txt
Today is Saturday
This is second os lab
OS is Operating Systems
^C
swaranjana@swaranjana-virtual-machine: ~/swara$ cat nw.txt
hello
hi everyone
hello all
hola
Hello World
Today is Saturday
This is second os lab
OS is Operating Systems
swaranjana@swaranjana-virtual-machine: ~/swara$ head nw.txt
hello
hi everyone
hello all
hola
Hello World
Today is Saturday
This is second os lab
OS is Operating Systems
swaranjana@swaranjana-virtual-machine: ~/swara$
```

7. DATE COMMAND

DESCRIPTION

This command is used to display the date in month, year, day, hours, minutes and seconds.

SYNTAX

\$date

8. WHO COMMAND

DESCRIPTION

This command is used to see who are the users connected to the server.

SYNTAX

\$who

9. CALENDER COMMAND

DESCRIPTION

This command is used to display the calendar with month and year.

SYNTAX

\$cal month year

EXAMPLE

\$cal 01 2011

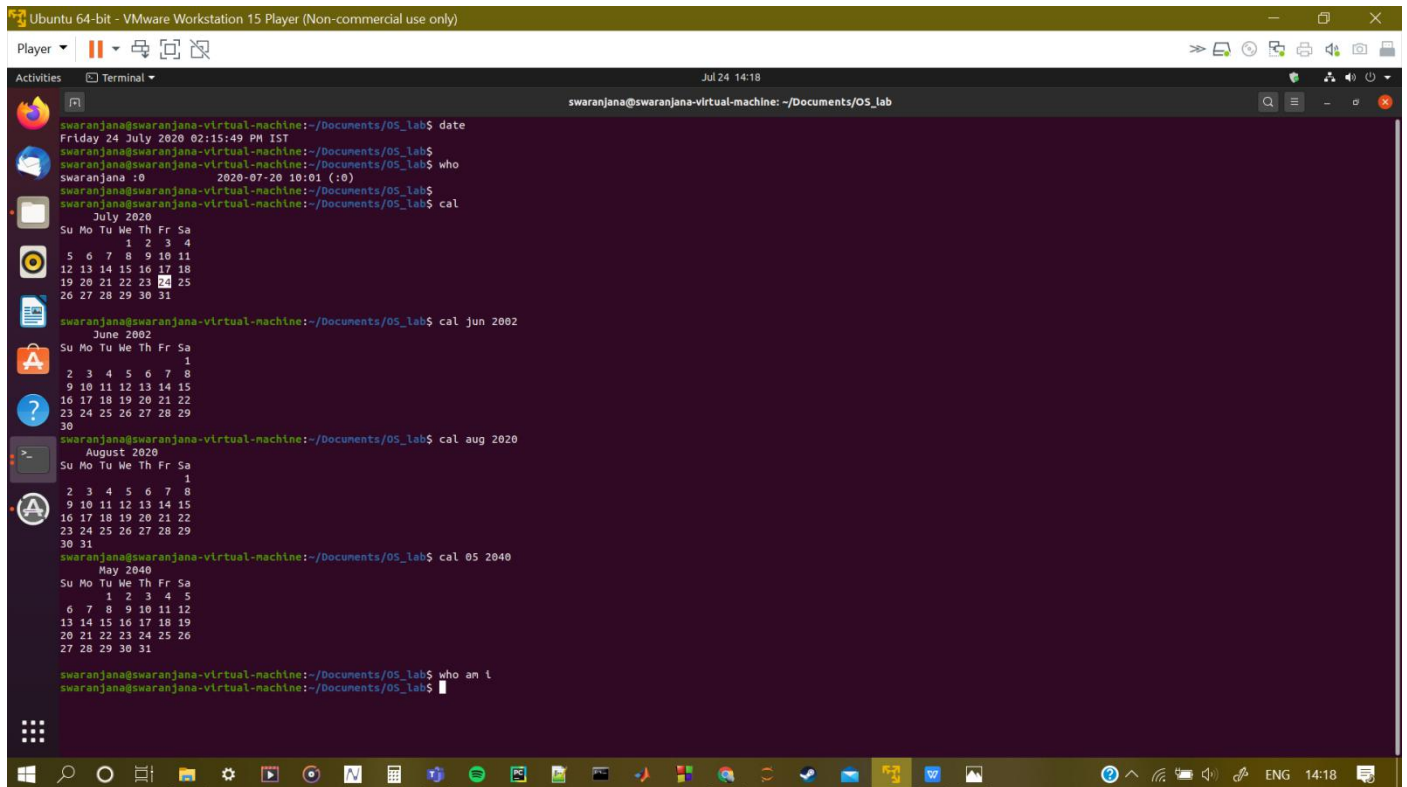
10. WHO AM I COMMAND

DESCRIPTION

This command is used to know the system number.

SYNTAX

\$who am I



```
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ date
Friday 24 July 2020 02:15:49 PM IST
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ who
swaranjana 2020-07-20 10:01 (-00)
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ cal
      July 2020
Su Mo Tu We Th Fr Sa
 1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ cal jun 2002
      June 2002
Su Mo Tu We Th Fr Sa
 1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ cal aug 2020
      August 2020
Su Mo Tu We Th Fr Sa
 1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ cal 05 2040
      May 2040
Su Mo Tu We Th Fr Sa
 1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ who am I
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$
```

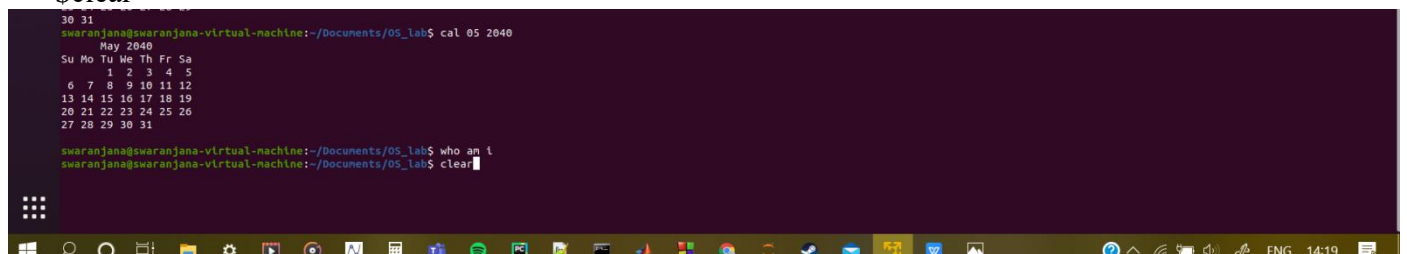
11. CLEAR COMMAND

DESCRIPTION

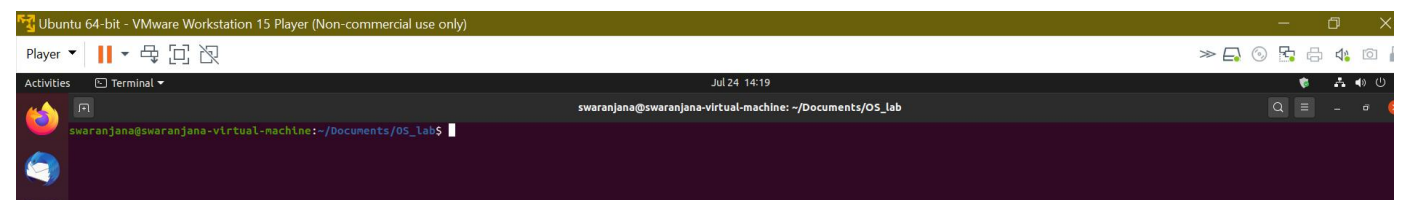
This command is used to clear the screen.

SYNTAX

\$clear



```
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ cal 05 2040
      May 2040
Su Mo Tu We Th Fr Sa
 1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ who am I
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ clear
```



```
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$
```

12. FILE COMMAND

DESCRIPTION

This command is used to display the contents of more than one file.

SYNTAX

\$more <file1> <file2>

EXAMPLE

\$more aaa bbb

The screenshot shows a VMware Workstation window titled "Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)". Inside the VM, a terminal window is open with the prompt "swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab".

```

swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ more Expt_1 hello
::::::::::::::::::
Expt_1
::::::::::::::::::
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
::::::::::::::::::
hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ more Expt_1 expt_2
::::::::::::::::::
Expt_1
::::::::::::::::::
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
more: stat of expt_2 failed: No such file or directory
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls
ex2.sh Expt_1 expt_move hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ more Expt_1 ex2.sh
::::::::::::::::::
Expt_1
::::::::::::::::::
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
ex2.sh
::::::::::::::::::
a=35
echo $a
readonly $a
a=45

```

13. SORT COMMAND

DESCRIPTION

This command is used to sort the contents of file in a predefined order.

SYNTAX

\$sort filename

EXAMPLE

\$sort name

ATTRIBUTES

- n -> Display the numerical value order.
- r -> Display the reverse order.

-m -> The case distinction is ignored.

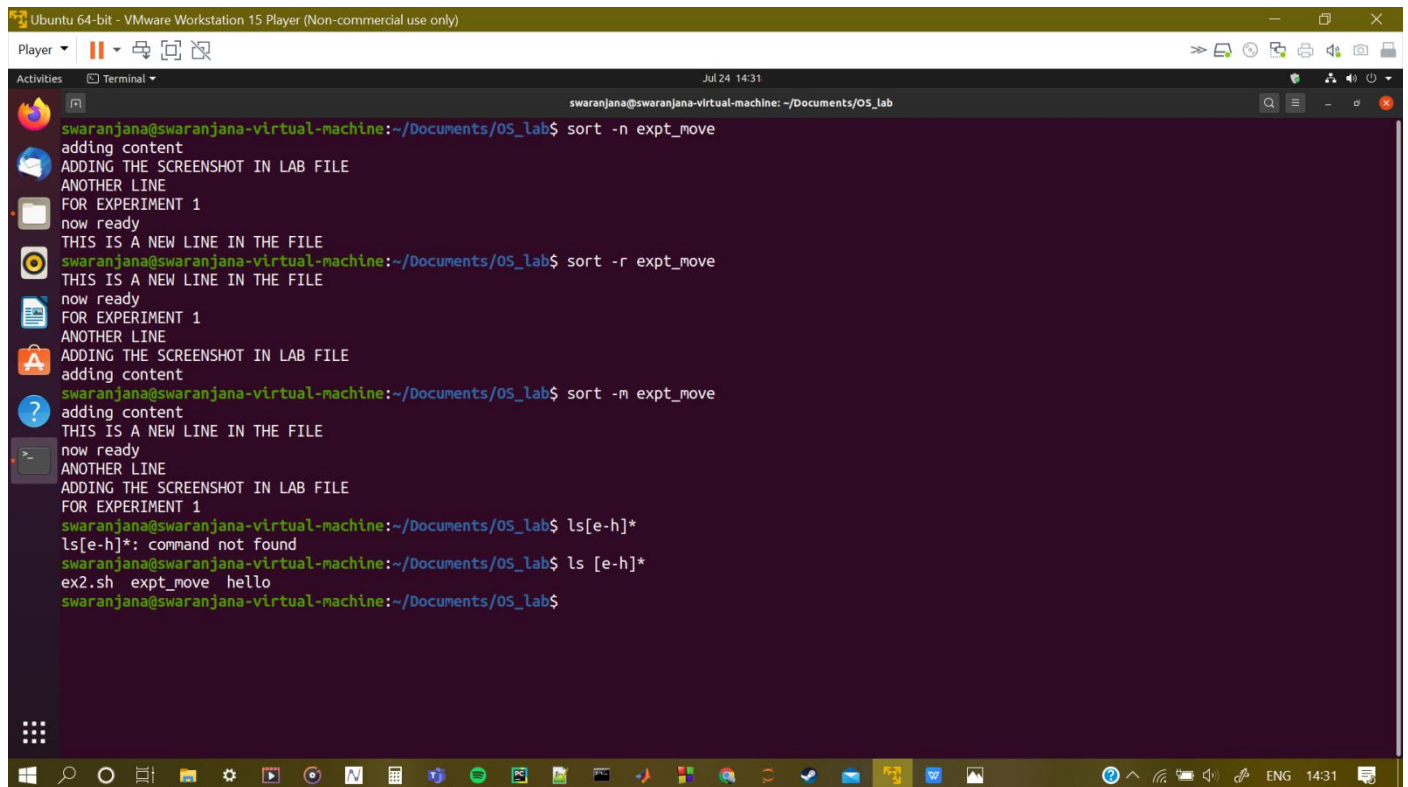
14. DISPLAY FILES IN A PATTERN

DESCRIPTION

It is used to display the file starting with a to m.

SYNTAX

`$ls[a-m]*`



```
Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)
Player
Activities Terminal
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ sort -n expt_move
adding content
ADDING THE SCREENSHOT IN LAB FILE
ANOTHER LINE
FOR EXPERIMENT 1
now ready
THIS IS A NEW LINE IN THE FILE
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ sort -r expt_move
THIS IS A NEW LINE IN THE FILE
now ready
FOR EXPERIMENT 1
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
adding content
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ sort -m expt_move
adding content
THIS IS A NEW LINE IN THE FILE
now ready
ANOTHER LINE
ADDING THE SCREENSHOT IN LAB FILE
FOR EXPERIMENT 1
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls[e-h]*
ls[e-h]*: command not found
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ ls [e-h]*
ex2.sh expt_move hello
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```

EXTRA COMMANDS

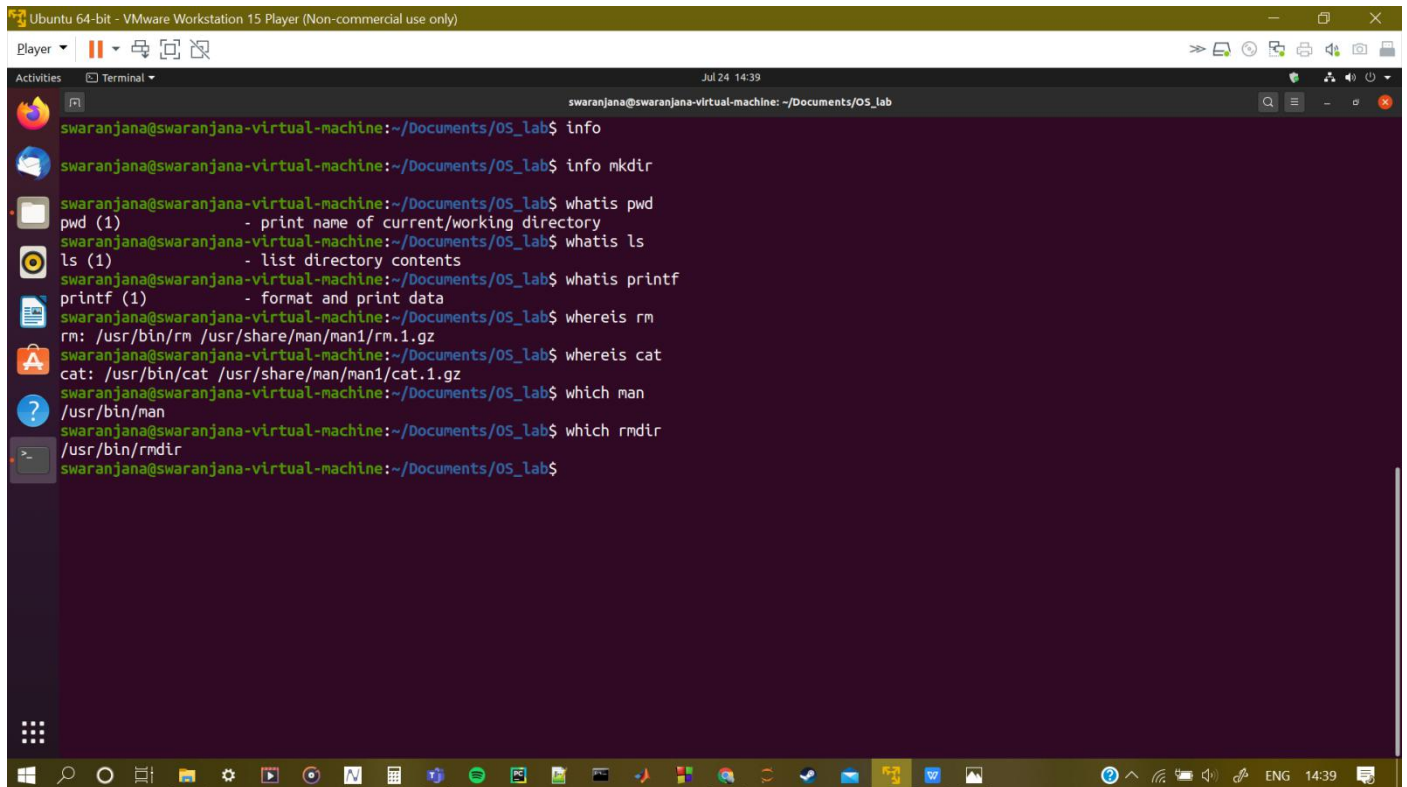
1. Command Name : **info**
Description : read info documents
Syntax : info (or) info commandName / functionName
Example : info scanf
2. Command Name : **whatis**
Description : search the whatis database for complete words
Syntax : whatis commandName / functionName
Example : whatis scanf
(searches a set of database files containing short descriptions of system commands for keywords and displays the result on the standard output.)
(scanf - input format conversion)
3. Command Name : **whereis**
Description : locate the binary, source and manual page files for a command / function
Syntax : whereis commandName
Example : whereis fopen
(fopen: /usr/share/man/man3/fopen.3.gz /usr/share/man/man3p/fopen.3p.gz)

4. Command Name : **which**

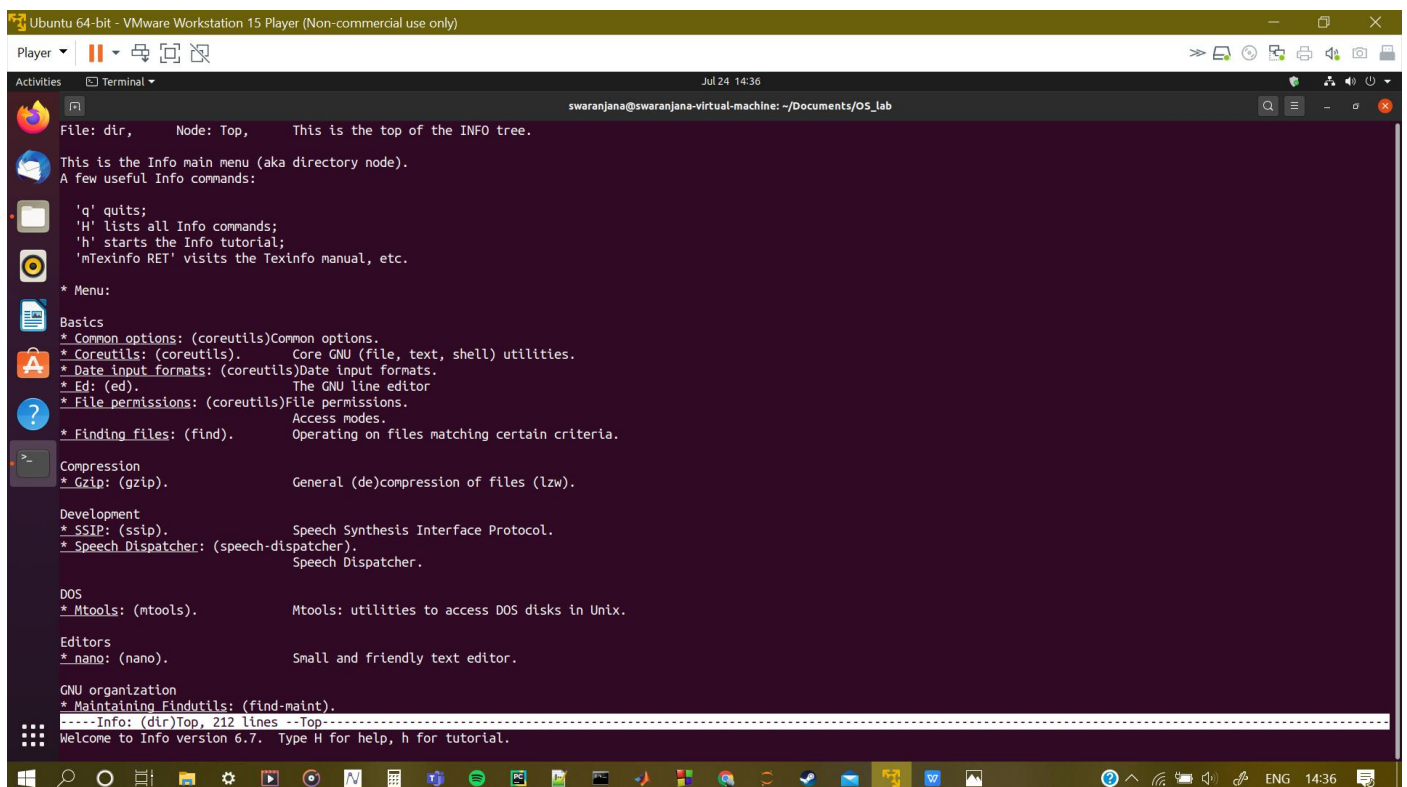
Description : shows the full path of commands (OS commands)

Syntax : which commandName1 [commandName2]

Example : which man
(/usr/bin/man)



```
Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)
Player
Activities Terminal
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ info
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ info mkdir
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ whatis pwd
pwd (1) - print name of current/working directory
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ whatis ls
ls (1) - list directory contents
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ whatis printf
printf (1) - format and print data
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ whereis rm
rm: /usr/bin/rm /usr/share/man/man1/rm.1.gz
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ whereis cat
cat: /usr/bin/cat /usr/share/man/man1/cat.1.gz
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ which man
/usr/bin/man
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$ which rmdir
/usr/bin/rmdir
swaranjana@swaranjana-virtual-machine:~/Documents/OS_lab$
```



```
Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)
Player
Activities Terminal
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
File: dir, Node: Top, This is the top of the INFO tree.
This is the Info main menu (aka directory node).
A few useful Info commands:
'q' quits;
'H' lists all Info commands;
'h' starts the Info tutorial;
'mTexinfo RET' visits the Texinfo manual, etc.
* Menu:
Basics
* Common options: (coreutils)Common options.
* Coreutils: (coreutils). Core GNU (file, text, shell) utilities.
* Date input formats: (coreutils)Date input formats.
* Ed: (ed). The GNU line editor
* File permissions: (coreutils)File permissions.
Access modes.
* Finding files: (find). Operating on files matching certain criteria.
Compression
* Gzip: (gzip). General (de)compression of files (lzw).
Development
* SSIP: (ssip). Speech Synthesis Interface Protocol.
* Speech Dispatcher: (speech-dispatcher). Speech Dispatcher.
DOS
* Mtools: (mtools). Mtools: utilities to access DOS disks in Unix.
Editors
* nano: (nano). Small and friendly text editor.
GNU organization
* Maintaining Findutils: (find-maint).
-----Info: (dir)Top, 212 lines --Top-----
Welcome to Info version 6.7. Type H for help, h for tutorial.
```

```
Player ▾ | [Icons] | Jul 24 14:38 | swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab
Activities | Terminal ▾
Next: mkfifo invocation, Prev: ln invocation, Up: Special file types
12.3 'mkdir': Make directories
=====
'mkdir' creates directories with the specified names. Synopsis:
    mkdir [OPTION]... NAME...
'mkdir' creates each directory NAME in the order given. It reports
an error if NAME already exists, unless the '-p' option is given and
NAME is a directory.
The program accepts the following options. Also see *note Common
options::.
'-m MODE'
'--mode=MODE'
    Set the file permission bits of created directories to MODE, which
    uses the same syntax as in 'chmod' and uses 'a=rwx' (read, write
    and execute allowed for everyone) for the point of the departure.
    *Note File permissions::.
Normally the directory has the desired file mode bits at the moment
it is created. As a GNU extension, MODE may also mention special
mode bits, but in this case there may be a temporary window during
which the directory exists but its special mode bits are incorrect.
*Note Directory Setuid and Setgid::, for how the set-user-ID and
set-group-ID bits of directories are inherited unless overridden in
this way.
'-p'
'--parents'
    Make any missing parent directories for each argument, setting
    their file permission bits to the unmask modified by 'u+rwx'. Ignore
    existing parent directories, and do not change their file
    permission bits.
-----Info: (coreutils)mkdir invocation, 65 lines --Top-----
Welcome to Info version 6.7. Type H for help, h for tutorial.
```

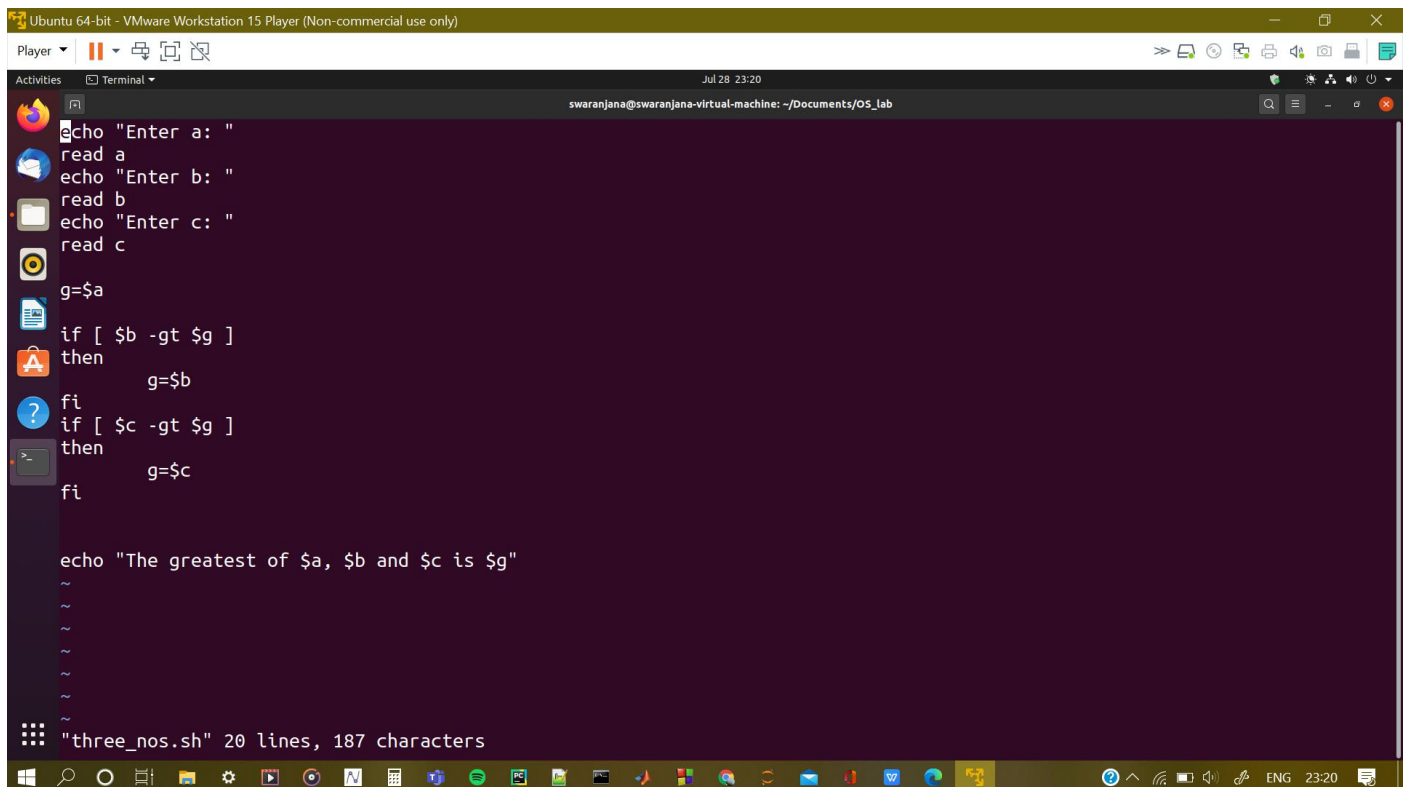
RESULT

Thus the basics of UNIX commands are studied and executed successfully.

2A. Write a program to write the greatest of three numbers.

Code:

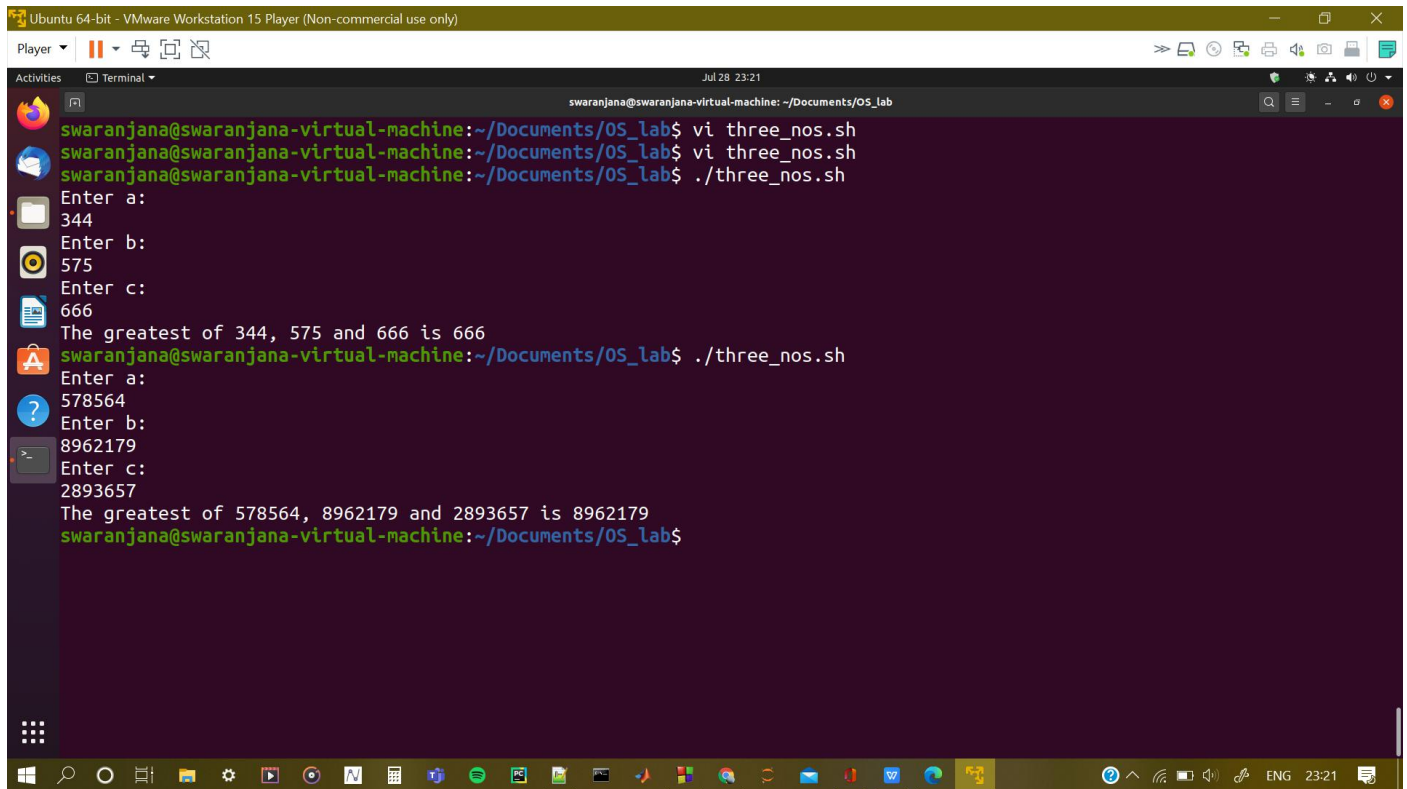
```
echo "Enter a: "  
read a  
echo "Enter b: "  
read b  
echo "Enter c: "  
read c  
  
g=$a  
  
if [ $b -gt $g ]  
then  
    g=$b  
fi  
if [ $c -gt $g ]  
then  
    g=$c  
fi  
  
echo "The greatest of $a, $b and $c is $g"
```



The screenshot shows a terminal window titled "Ubuntu 64-bit - VMware Workstation 15 Player (Non-commercial use only)". The terminal displays the execution of a script named "three_nos.sh". The script prompts the user to enter three numbers (a, b, and c). In this instance, the user enters 10, 20, and 30. The script then compares these values and outputs "The greatest of 10, 20 and 30 is 30". The terminal status bar at the bottom indicates the script is 20 lines long and 187 characters.

```
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab  
$ ./three_nos.sh  
Enter a: 10  
Enter b: 20  
Enter c: 30  
The greatest of 10, 20 and 30 is 30  
$  
"three_nos.sh" 20 lines, 187 characters
```

Output:



```
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ vi three_nos.sh
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ ./three_nos.sh
Enter a:
344
Enter b:
575
Enter c:
666
The greatest of 344, 575 and 666 is 666
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$ ./three_nos.sh
Enter a:
578564
Enter b:
8962179
Enter c:
2893657
The greatest of 578564, 8962179 and 2893657 is 8962179
swaranjana@swaranjana-virtual-machine: ~/Documents/OS_lab$
```

2B. Write a program to check whether a given year is a leap year or not.

Code:

```
echo "Enter the year: "
read yr

if [ `expr $yr % 100` -eq 0 ]
then
    if [ `expr $yr % 400` -eq 0 ]
    then
        echo "The year $yr is a leap year."
    else
        echo "The year $yr is not a leap year."
    fi
elif [ `expr $yr % 4` -eq 0 ]
then
    echo "The year $yr is a leap year."
else
    echo "The year $yr is not a leap year."
fi
```

