CERTIFICATE

*This is to certify that Mr./Ms. ……. **Hemil…Chovatiya............*** *with enrolment no.* ***..........200303108003.................*** *has successfully completed* ***his****/her laboratory experiments in the* ***…..Operating System Laboratory (203105203)……*** *from the department of* ***........Information Technology(4ITA1)…............*** *during the academic year* ***........2021-2022.........***

Date of Submission: .... Staff In charge: ....

Head of Department: ....

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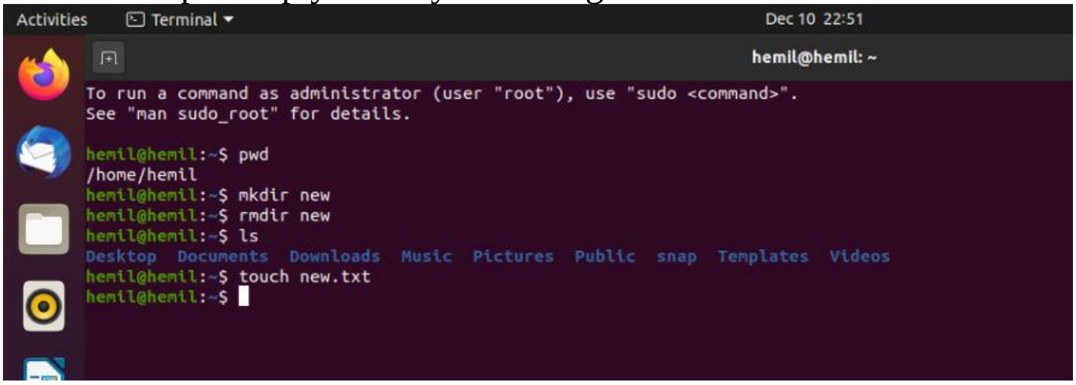
PRACTICAL 1

AIM: Study basics command of Linux.

Linux Basic Commands:

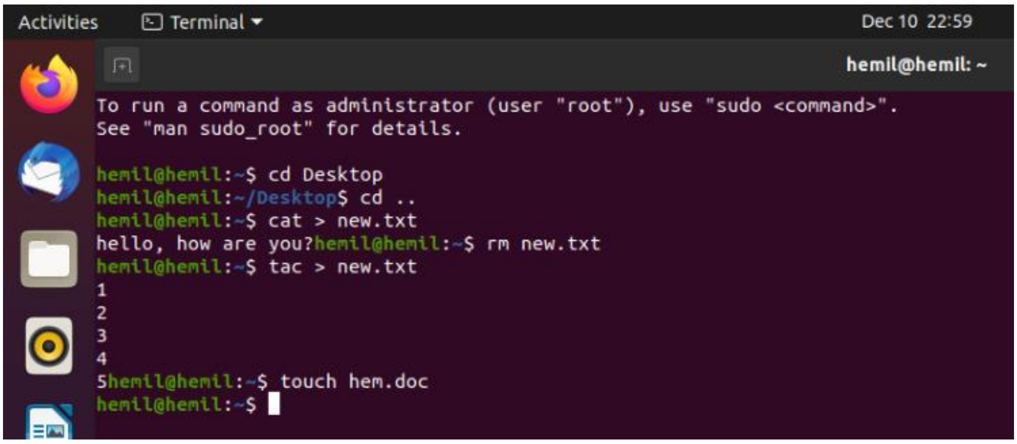
1. pwd Command: The pwd command is used to display the location of the current working directory.
2. mkdir Command: The mkdir command is used to create a new directory under any directory.
3. rmdir Command: The rmdir command is used to delete a directory.
4. ls Command: The ls command is used to display a list of content of a directory.
5. touch Command: The touch command is used to create empty files. We can create multiple empty files by executing it once.



```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hemil@hemil:~$ pwd
/home/hemil
hemil@hemil:~$ mkdir new
hemil@hemil:~$ rmdir new
hemil@hemil:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  snap  Templates  Videos
hemil@hemil:~$ touch new.txt
hemil@hemil:~$ 
```

6. cd Command: The cd command is used to change the current directory.
7. cat Command: The cat command is a multi-purpose utility in the Linux system. It can be used to create a file, display content of the file, copy the content of one file to another file, and more.
8. rm Command: The rm command is used to remove a file.
9. tac Command: The tac command is the reverse of cat command, as its name specified. It displays the file content in reverse order (from the last line).
10. cd .. command: This command is used to go Back to previous main folder.



```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hemil@hemil:~$ cd Desktop
hemil@hemil:~/Desktop$ cd ..
hemil@hemil:~$ cat > new.txt
hello, how are you?hemil@hemil:~$ rm new.txt
hemil@hemil:~$ tac > new.txt
1
2
3
4
5hemil@hemil:~$ touch hem.doc
hemil@hemil:~$ 
```

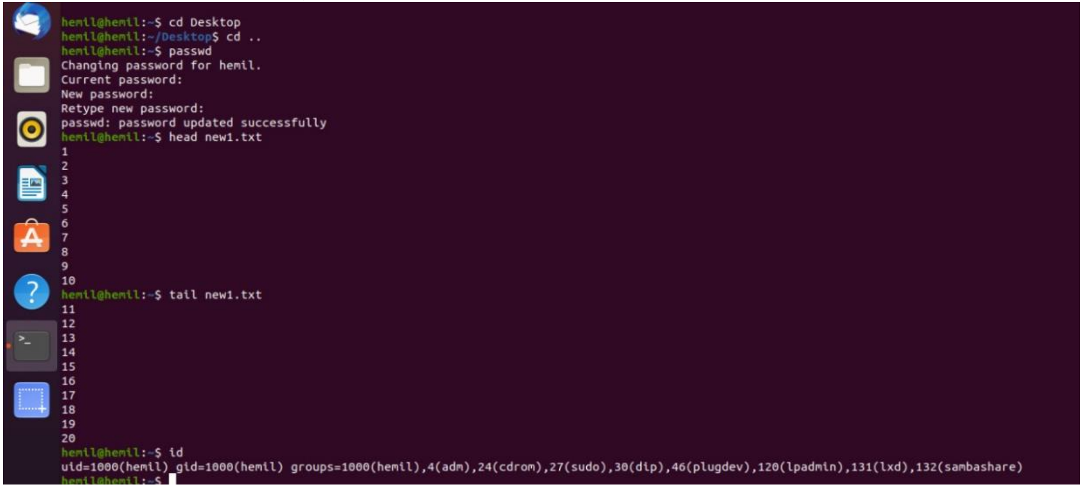
11. head Command: The head command is used to display the content of a file. It displays the first 10 lines of a file.

12. tail Command: The tail command is similar to the head command. The difference between both commands is that it displays the last ten lines of the file content. It is useful for reading the error message.

13. passwd Command: The passwd command is used to create and change the password for a user.

14. id Command: The id command is used to display the user ID (UID) and group ID (GID).

15. su Command: The su command provides administrative access to another user. In other words, it allows access of the Linux shell to another user.



```
hemil@hemil:~$ cd Desktop
hemil@hemil:~/Desktop$ cd ..
hemil@hemil:~$ passwd
Changing password for hemil.
Current password:
New password:
Retype new password:
passwd: password updated successfully
hemil@hemil:~$ head new1.txt
1
2
3
4
5
6
7
8
9
10
hemil@hemil:~$ tail new1.txt
11
12
13
14
15
16
17
18
19
20
hemil@hemil:~$ id
uid=1000(hemil) gid=1000(hemil) groups=1000(hemil),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),120(lpadmin),131(lxd),132(sambashare)
hemil@hemil:~$
```

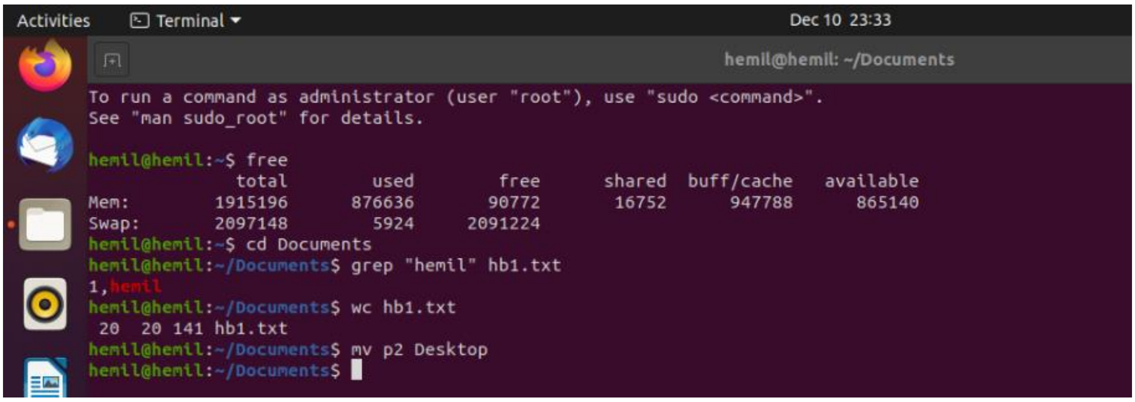
16. Free command: It gives information about used and unused memory usage and swap memory of a system

17. grep command: to perform text searches for a defined criteria of words or strings

18.wc command: It is used to find out number of lines, word count, byte and characters count in the files specified in the file arguments.

19.mv command: mv is used to move one or more files or directories from one place to another in a file system.

20. PING command:it is used to check the network connectivity between host and server/host



```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hemil@hemil:~$ free
              total        used        free      shared  buff/cache   available
Mem:        1915196      876636       90772       16752      947788      865140
Swap:       2097148        5924     2091224
hemil@hemil:~$ cd Documents
hemil@hemil:~/Documents$ grep "hemil" hb1.txt
1,hemil
hemil@hemil:~/Documents$ wc hb1.txt
 20  20 141 hb1.txt
hemil@hemil:~/Documents$ mv p2 Desktop
hemil@hemil:~/Documents$
```

PRACTICAL 2

AIM: Study the basics of shell programming.

THEORY:

1. What is the shell script?

A Shell provides you with an interface to the Unix system. It gathers input from you and executes programs based on that input. When a program finish executing, it displays that program's output.

Shell is an environment in which we can run our commands, programs, and shell scripts. There are different flavours of a shell, just as there are different flavours of operating systems. Each flavour of shell has its own set of recognized commands and functions.

2. Type of shell script.

In Unix, there are two major types of shells −
- Bourne shell − If you are using a Bourne-type shell, the $ character is the default prompt.
- C shell − If you are using a C-type shell, the % character is the default prompt.

The Bourne Shell has the following subcategories −
- Bourne shell (sh)
- Korn shell (ksh)
- Bourne Again shell (bash)
- POSIX shell (sh)

The different C-type shells follow –
- C shell (csh)
- TENEX/TOPS C shell (tcsh)

3. Creating shell files.

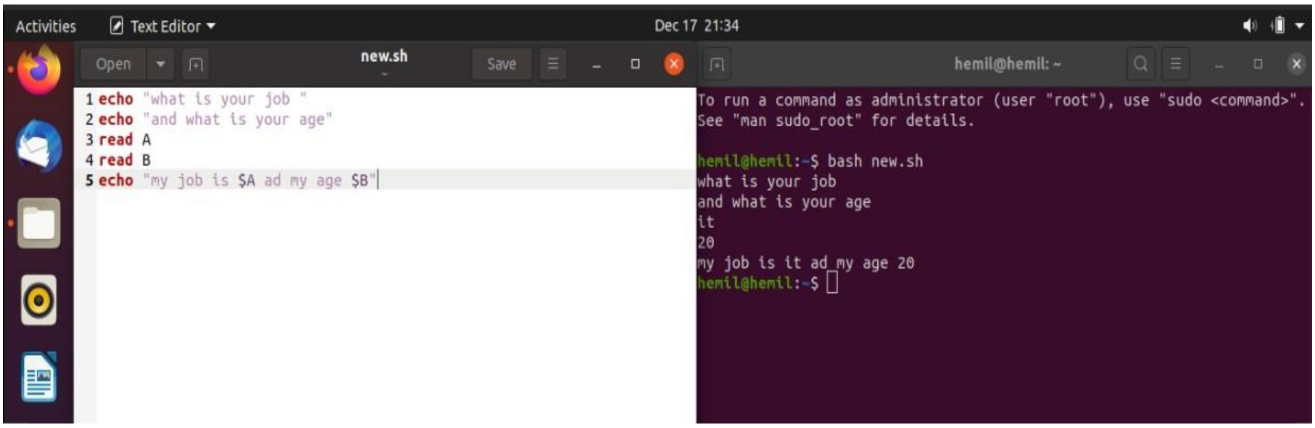
1. Start the script with **#! /bin/sh**
2. Write some code.
3. Save the script file as **filename.sh**
4. For executing the script type bash filename.sh

Command: #/bin/sh

4. touch command: It is used to create a file without any content. The file created using touch command is empty. This command can be used when the user doesn't have data to store at the time of file creation.
Syntax: touch_ filename.txt

5. cat command: It is used to create the file with content.
Syntax: cat > filename.txt

6. Text editor: Bash will execute as a different process. This way, changes that occur while the file is being executed cannot affect your shell.
Ex: bash _ filename.sh



```
echo "what is your job "
echo "and what is your age"
read A
read B
echo "my job is $A ad my age $B"
```

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hemil@hemil:~$ bash new.sh
what is your job
and what is your age
it
20
my job is it ad my age 20
hemil@hemil:~$
```

PRACTICAL 3

AIM: Write a Shell script to print given numbers sum of all digits

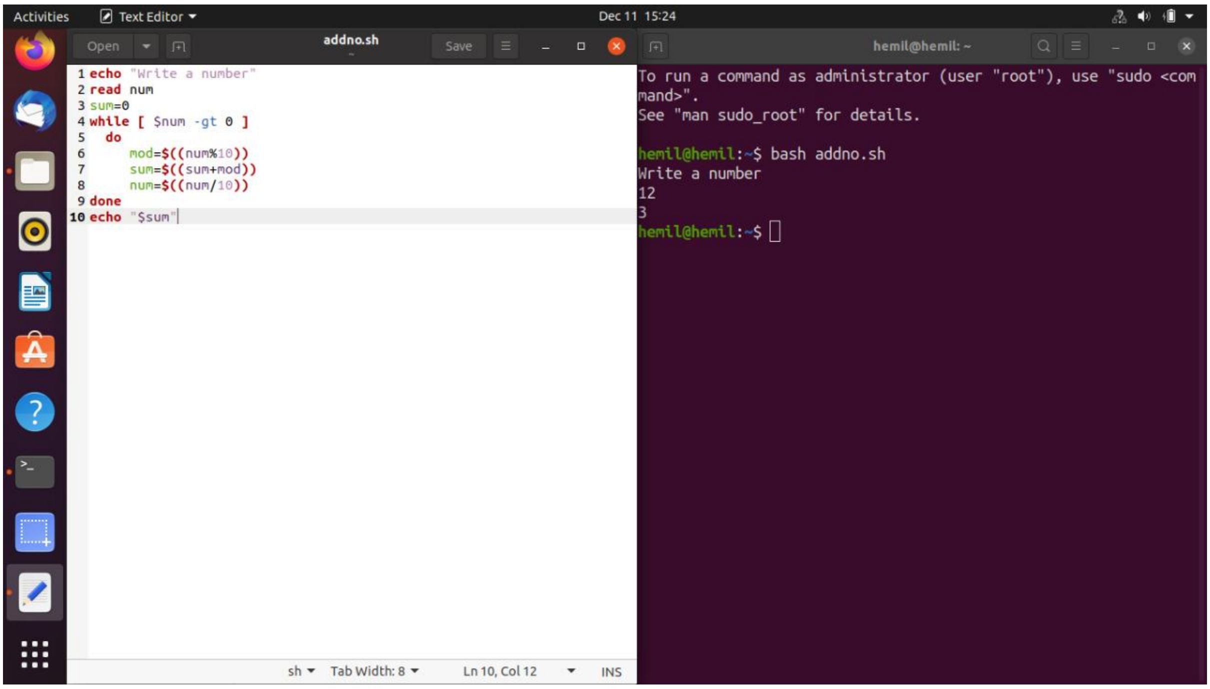
Algorithm:

General Algorithm for sum of digits in a given number:

1. Get the number as input
2. Declare a variable to store the sum and set it to 0
3. Repeat the next two steps till the number is not 0
4. Get the rightmost digit of the number with help of the remainder '%' operator by dividing it by 10 and add it to sum.
5. Divide the number by 10 with help of '/' operator to remove the rightmost digit.
6. Print or return the sum

Code :

Output:

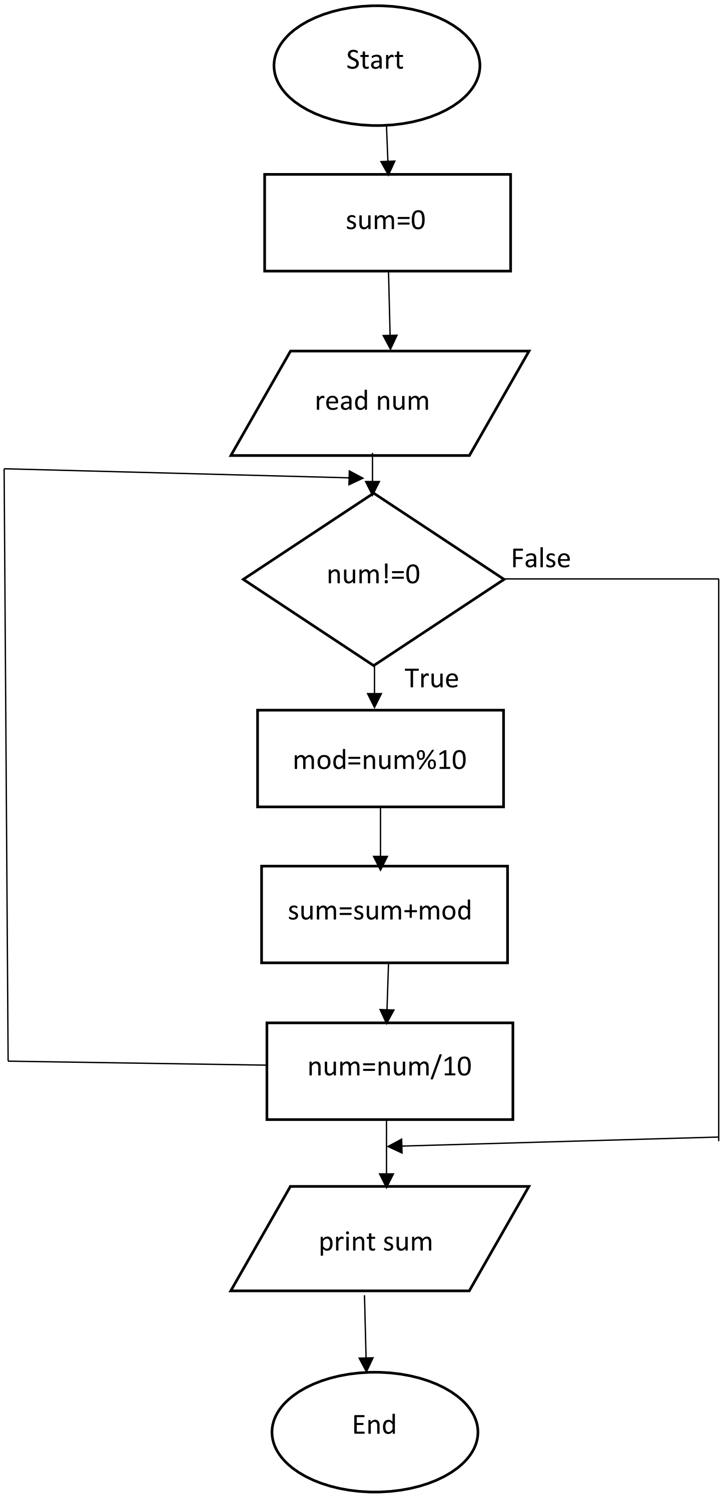


```
echo "Write a number"
read num
sum=0
while [ $num -gt 0 ]
  do
     mod=$((num%10))
     sum=$((sum+mod))
     num=$((num/10))
done
echo "$sum"
```

```
To run a command as administrator (user "root"), use "sudo <com
mand>".
See "man sudo_root" for details.

hemil@hemil:~$ bash addno.sh
Write a number
12
3
hemil@hemil:~$
```

Flowchart:


Start
sum=0
read num
num!=0
False
True
mod=num%10
sum=sum+mod
num=num/10
print sum
End