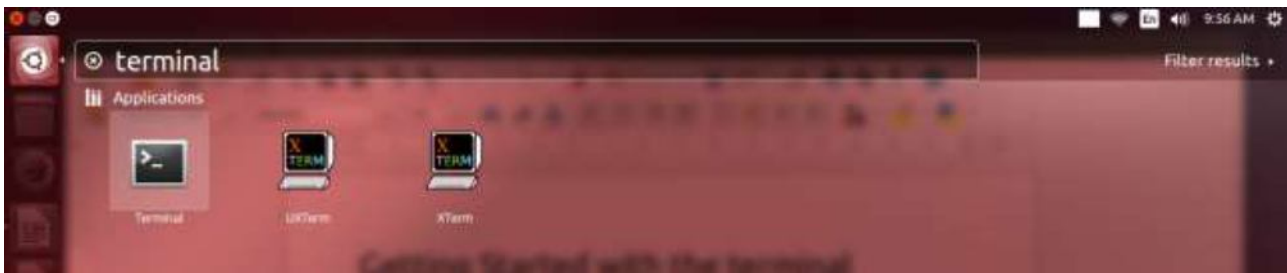


GETTING STARTED WITH THE TERMINAL

There are three easy ways to start the terminal.

- i. Press **Ctrl + Alt + t**
- ii. **Right Click** on any location and press **Open in Terminal**. The terminal will open showing the path of the same directory where you have clicked.
- iii. Open the application drawer and type “Terminal”. Select the terminal icon.



BASIC TERMINAL COMMANDS

1. **ls [option]** : This will list all the directories and files in the current directory.

Some options are:

ls -a : This will also list the files and directories starting with '.' (dot)

ls -l : This will show the long listing of all the directories and file. Long listing includes all the details and permission for each and every files and directories.

***Use `cd <directory name>` command to go to another directory.**

```
adminuser@lab05-03: ~  
adminuser@lab05-03:~$ ls -l  
total 56  
-rw-rw-r-- 1 adminuser adminuser  48 Mar 15 07:21 C:\nppdf32Log\debuglog.txt  
-rw-rw-r-- 1 adminuser adminuser 195 Apr 11 07:50 Count_digit.c  
-rw-rw-r-- 1 adminuser adminuser 195 Apr 11 07:50 Count_digit.c~  
drwxr-xr-x 3 adminuser adminuser 4096 Apr 21 09:51 Desktop  
drwxr-xr-x 2 adminuser adminuser 4096 Feb 16 09:18 Documents  
drwxr-xr-x 2 adminuser adminuser 4096 Mar 15 07:31 Downloads  
-rw-r--r-- 1 adminuser adminuser 8980 Feb 16 09:14 examples.desktop  
drwxr-xr-x 2 adminuser adminuser 4096 Feb 16 09:18 Music  
drwxr-xr-x 2 adminuser adminuser 4096 Feb 16 09:18 Pictures  
drwxr-xr-x 2 adminuser adminuser 4096 Mar 28 05:15 Public  
drwxr-xr-x 2 adminuser adminuser 4096 Feb 16 09:18 Templates  
drwxr-xr-x 2 adminuser adminuser 4096 Feb 16 09:18 Videos  
adminuser@lab05-03:~$
```



OPERATING SYSTEM LAB MANUAL (CS 693)

What the permissions actually means?

There are 9 characters for permission.

The first 3 characters are for the current user.

The next 3 characters are for group users.

The last 3 characters are for the other users.

There are three possible permissions: **r** (readable), **w** (writable), **x** (Executable)

If you look the above file, it has the permission as : -rw-rw-r--

This indicates that the file is readable and writable for the current user.

Same thing is for group users and the file is only readable for the other users.

2. chmod [options]

chmod is used to change the permissions of a file / directory.

There are two ways to change the permissions of a file / directory.

i.

If You look at the bit pattern the permission is like ____-____-____

0 is for inactive, 1 is for active.

The order of granting permission is rwx.

Suppose you want to grant a rwx permission to a file abc.c for current and group users and the other user wont get any permission.

So the character pattern would look like 111-111-000

Taking the octal value of every three bits we get 770

So in order to change the permission we simply write chmod 770 abc.c

Let us look2. chmod [options]

chmod is used to change the permissions of a file / directory.

There are two ways to change the permissions of a file / directory.

i.

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So the character pattern would look like 111-111-000

Taking the octal value of every three bits we get 770

```
adminuser@lab05-03: ~/Desktop
adminuser@lab05-03:~/Desktop$ ls -l abc.c
-rw-rw-r-- 1 adminuser adminuser 0 Apr 21 10:18 abc.c
adminuser@lab05-03:~/Desktop$ chmod 770 abc.c
adminuser@lab05-03:~/Desktop$ ls -l abc.c
-rwxrwx--- 1 adminuser adminuser 0 Apr 21 10:18 abc.c
adminuser@lab05-03:~/Desktop$
```

ii.

chmod +x abc.c

chmod +r abc.c

chmod +w abc.c

chmod +rx abc.c

And so on.

This will grant particular permission to all the users.

```
adminuser@lab05-03: ~/Desktop
adminuser@lab05-03:~/Desktop$ ls -l abc.c
----- 1 adminuser adminuser 0 Apr 21 10:18 abc.c
adminuser@lab05-03:~/Desktop$ chmod +x abc.c
adminuser@lab05-03:~/Desktop$ ls -l abc.c
---x---x--x 1 adminuser adminuser 0 Apr 21 10:18 abc.c
adminuser@lab05-03:~/Desktop$
```

FIRST SHELL SCRIPT

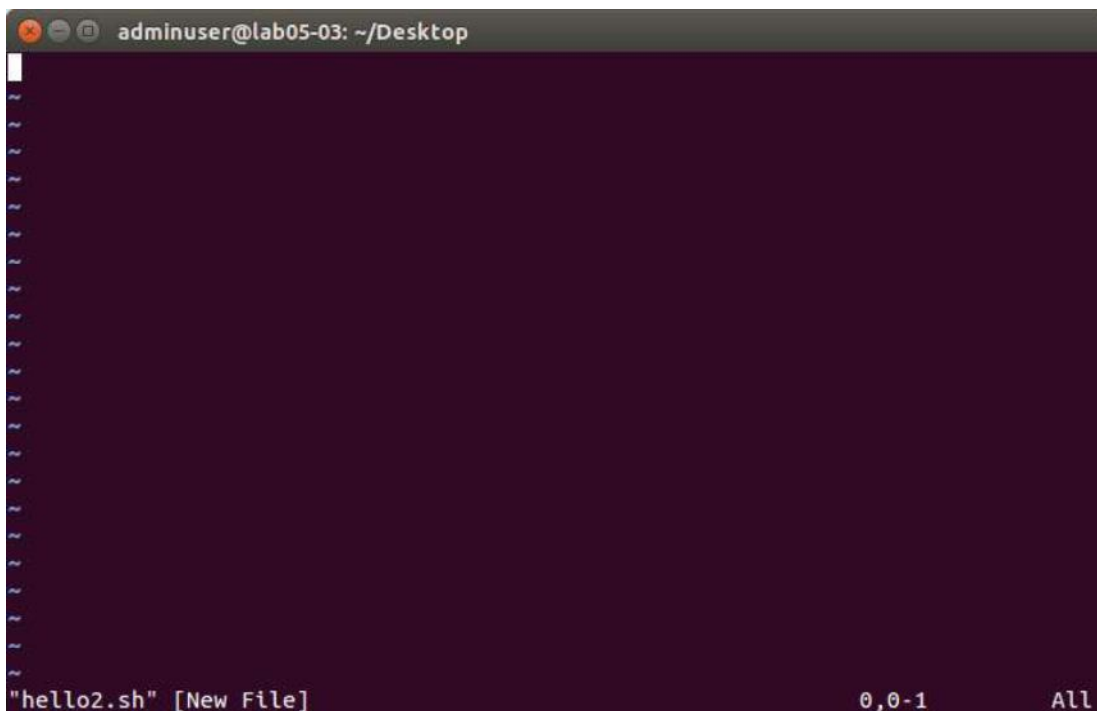
A shell script contains a combination of different system commands of unix.
To write a shell script, we can use any editor (vi , gedit).
Just open the terminal at a convinient location and type:

```
gedit <filename>.sh
```

or

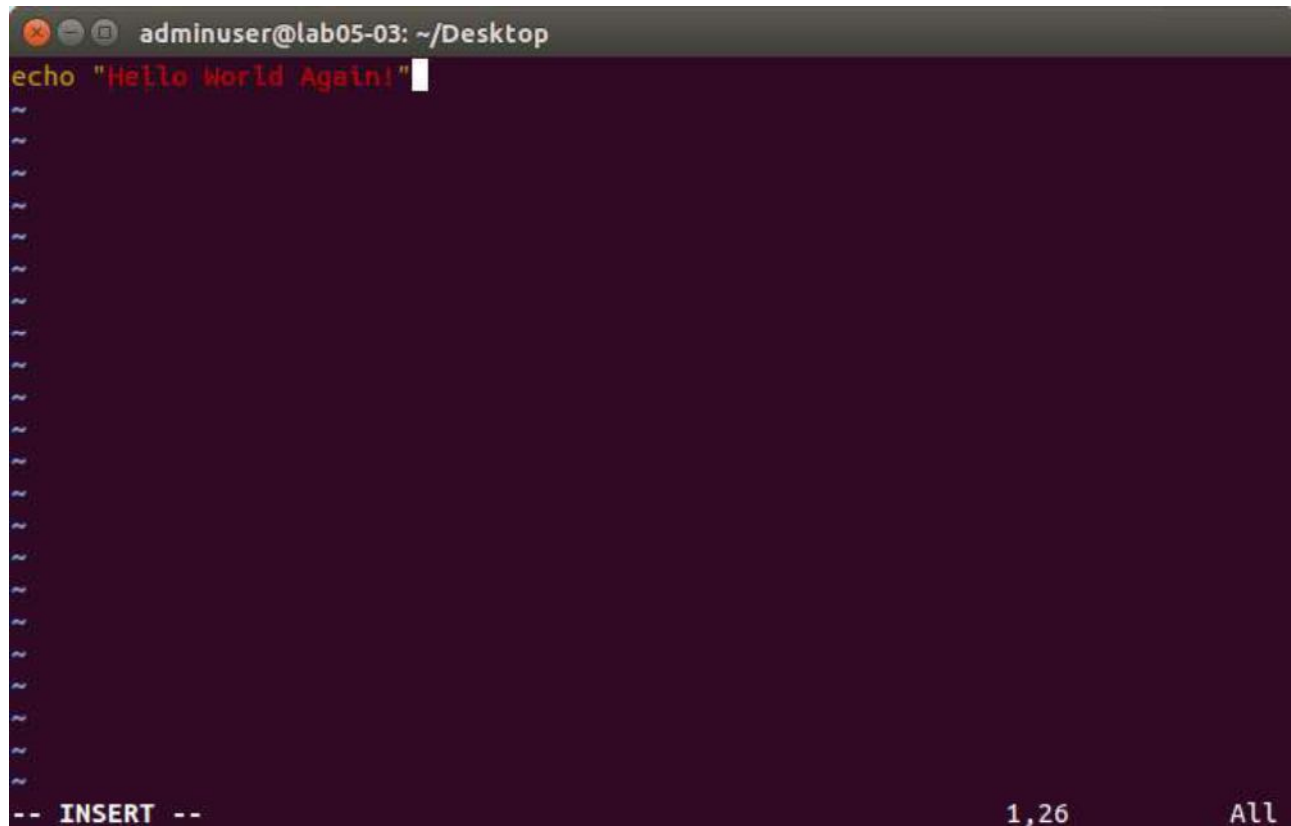
```
vi <filename>.sh
```

[It depends which editor you are using. It is recommended to use vi editor.]
Lets write a common hello world script.
In the terminal type vi hello2.sh



Press INSERT key to go to Insert Mode where you can enter characters.

After going to the INSERT mode, type your code:

A screenshot of a terminal window titled 'adminuser@lab05-03: ~/Desktop'. The terminal shows the nano text editor in insert mode. The first line of the file contains the command 'echo "Hello World Again!"' followed by a cursor. The bottom status bar of the editor shows '-- INSERT --' on the left, '1,26' in the center, and 'All' on the right. The background of the terminal is dark purple.

***echo command is used to display output on the screen**

To save and exit from the editor, press the following keys:

Esc + : (Colon) + w + q

Then press Enter.

The file would get saved and the editor will close.

Make the file's permission as Executable and Run the file.

To Run the file, type `./<filename>.sh`

```
adminuser@lab05-03: ~/Desktop
adminuser@lab05-03:~/Desktop$ ./hello2.sh
Hello World Again!
adminuser@lab05-03:~/Desktop$
```

For the hello2.sh file:

Lets compare our code with a similar C code.

```
adminuser@lab05-03: ~/Desktop
#include<stdio.h>
int main()
{
    printf("Hello World!");
}
```
