

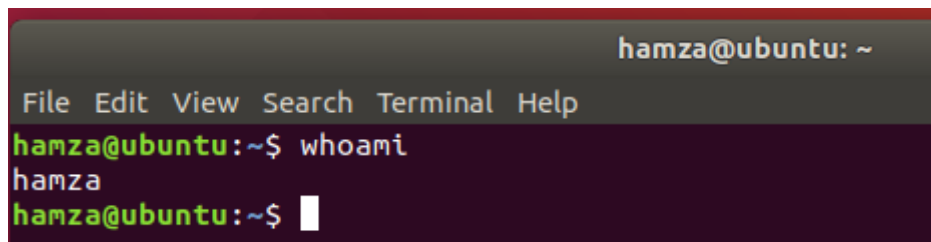
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## OS LAB – 01

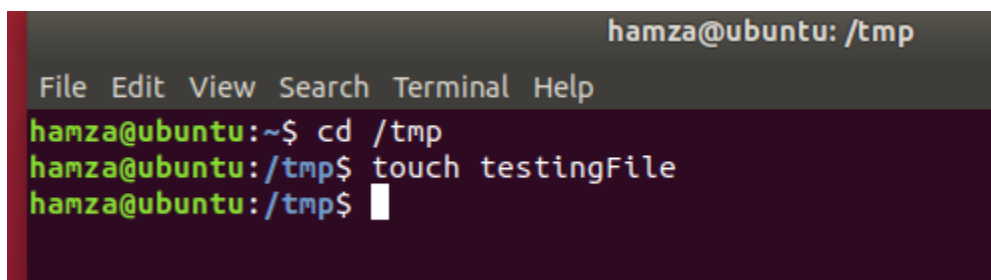
### Basic Shell Commands:

- 1- Whoami is used to display user name

A terminal window with a dark background and a red title bar. The title bar contains the text 'hamza@ubuntu: ~'. Below the title bar is a menu bar with 'File Edit View Search Terminal Help'. The terminal shows the command 'hamza@ubuntu:~\$ whoami' being entered, followed by the output 'hamza' on the next line. The prompt 'hamza@ubuntu:~\$' is shown again with a cursor.

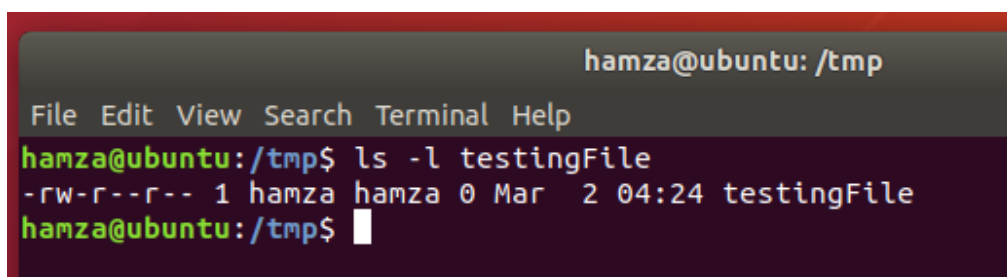
```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ whoami  
hamza  
hamza@ubuntu:~$
```

- 2- Create file in /tmp

A terminal window with a dark background and a red title bar. The title bar contains the text 'hamza@ubuntu: /tmp'. Below the title bar is a menu bar with 'File Edit View Search Terminal Help'. The terminal shows the command 'hamza@ubuntu:~\$ cd /tmp' being entered, followed by 'hamza@ubuntu:/tmp\$ touch testingFile' and the output 'testingFile'. The prompt 'hamza@ubuntu:/tmp\$' is shown again with a cursor.

```
hamza@ubuntu: /tmp  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ cd /tmp  
hamza@ubuntu:/tmp$ touch testingFile  
testingFile  
hamza@ubuntu:/tmp$
```

- 3- To check info about file ls -l is use – in the beginning show it's a file.

A terminal window with a dark background and a red title bar. The title bar contains the text 'hamza@ubuntu: /tmp'. Below the title bar is a menu bar with 'File Edit View Search Terminal Help'. The terminal shows the command 'hamza@ubuntu:/tmp\$ ls -l testingFile' being entered, followed by the output '-rw-r--r-- 1 hamza hamza 0 Mar 2 04:24 testingFile'. The prompt 'hamza@ubuntu:/tmp\$' is shown again with a cursor.

```
hamza@ubuntu: /tmp  
File Edit View Search Terminal Help  
hamza@ubuntu:/tmp$ ls -l testingFile  
-rw-r--r-- 1 hamza hamza 0 Mar 2 04:24 testingFile  
hamza@ubuntu:/tmp$
```

4- `rm` is use to delete a file while `rmdir` is use to delete an empty directory.

```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ ls  
Desktop    Downloads      Music    Public    tmpfile    Videos  
Documents  examples.desktop Pictures  Templates tmpfolder  
hamza@ubuntu:~$ rm tmpfile  
hamza@ubuntu:~$ rm tmpfolder/  
rm: cannot remove 'tmpfolder/': Is a directory  
hamza@ubuntu:~$ rmdir tmpfolder/  
hamza@ubuntu:~$ ls  
Desktop    Downloads      Music    Public    Videos  
Documents  examples.desktop Pictures  Templates  
hamza@ubuntu:~$
```

5- `cd /home` is use to go back in home directory directly.

```
hamza@ubuntu: /home  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ cd /home  
hamza@ubuntu: /home$
```

6- `mv "tryit&" "tryit_now"` use to rename file.

```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ touch "tryit&"  
hamza@ubuntu:~$ ls  
Desktop    Downloads      Music    Public    'tryit&'  
Documents  examples.desktop Pictures  Templates Videos  
hamza@ubuntu:~$ mv "tryit&" "tryit_now"  
hamza@ubuntu:~$ ls  
Desktop    Downloads      Music    Public    tryit_now  
Documents  examples.desktop Pictures  Templates Videos  
hamza@ubuntu:~$
```

7- alias myclear="clear" use to give another name to a command.

```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ alias myclear="clear"  
hamza@ubuntu:~$
```

8- (a)- output will be when u run cls at last then it display all directories in pwd.

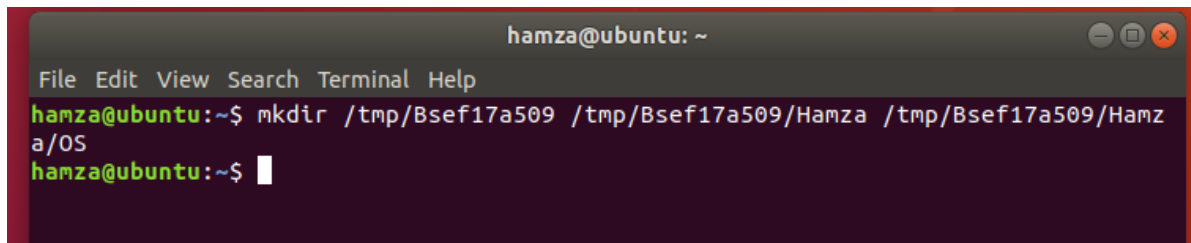
```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ alias cls=clear  
hamza@ubuntu:~$ cls  
hamza@ubuntu:~$ alias cls=ls  
hamza@ubuntu:~$ cls  
Desktop      Downloads      Music          Public          Videos  
Documents    examples.desktop Pictures        Templates
```

8- (b)-Output will be can't create directory with same name already exist.

```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ mkdir d1  
hamza@ubuntu:~$ cd d1  
hamza@ubuntu:~/d1$ touch f1 f2  
hamza@ubuntu:~/d1$ touch f1  
hamza@ubuntu:~/d1$ cd  
hamza@ubuntu:~$ mkdir d1  
mkdir: cannot create directory 'd1': File exists  
hamza@ubuntu:~$
```

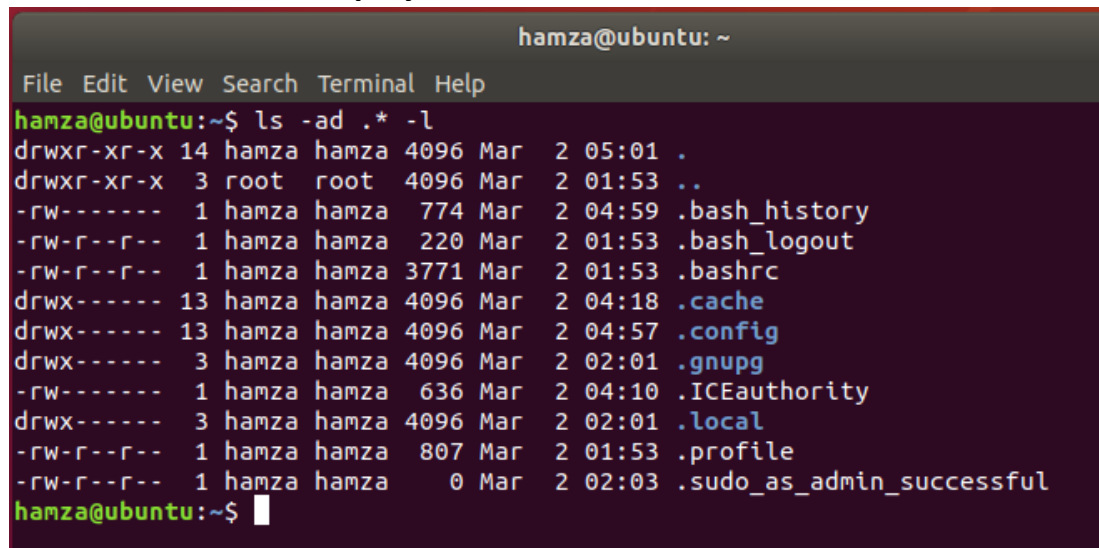
# QUESTIONS

- 1- 'mkdir /tmp/Bsef17a509 /tmp/Bsef17a509/Hamza /tmp/Bsef17a509/Hamza/OS' this single command is use to create three directories.



```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ mkdir /tmp/Bsef17a509 /tmp/Bsef17a509/Hamza /tmp/Bsef17a509/Hamza/OS  
hamza@ubuntu:~$
```

- 2- ls -ad .\* -l is use to display hidden files with details.



```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ ls -ad .* -l  
drwxr-xr-x 14 hamza hamza 4096 Mar  2 05:01 .  
drwxr-xr-x  3 root  root  4096 Mar  2 01:53 ..  
-rw----- 1 hamza hamza  774 Mar  2 04:59 .bash_history  
-rw-r--r-- 1 hamza hamza  220 Mar  2 01:53 .bash_logout  
-rw-r--r-- 1 hamza hamza 3771 Mar  2 01:53 .bashrc  
drwx----- 13 hamza hamza 4096 Mar  2 04:18 .cache  
drwx----- 13 hamza hamza 4096 Mar  2 04:57 .config  
drwx-----  3 hamza hamza 4096 Mar  2 02:01 .gnupg  
-rw----- 1 hamza hamza  636 Mar  2 04:10 .ICEauthority  
drwx-----  3 hamza hamza 4096 Mar  2 02:01 .local  
-rw-r--r-- 1 hamza hamza  807 Mar  2 01:53 .profile  
-rw-r--r-- 1 hamza hamza    0 Mar  2 02:03 .sudo_as_admin_successful  
hamza@ubuntu:~$
```

- 3- 1- rmdir /tmp/Bsef17a509/Hamza/OS/ /tmp/bsef17a509/Hamza/  
/tmp/Bsef17a509/

Or

- 2- rm -r /tmp/Bsef17a509

These two method can be used to delete directories with subdirectories.

```
hamza@ubuntu: /tmp
File Edit View Search Terminal Help
hamza@ubuntu:/tmp$ ls
Bsef17a509
config-err-RGnZ7j
ssh-Myra0u3PdTNa
systemd-private-6696c067e5c64d1bb3291e25acc341bd-bolt.service-wKtQyL
systemd-private-6696c067e5c64d1bb3291e25acc341bd-colord.service-8jzIGz
systemd-private-6696c067e5c64d1bb3291e25acc341bd-fwupd.service-0BBi0v
hamza@ubuntu:/tmp$ rmdir /tmp/Bsef17a509/Hamza/OS/ /tmp/Bsef17a509/Hamza/ /tmp/Bsef17a509/
hamza@ubuntu:/tmp$ ls
config-err-RGnZ7j
ssh-Myra0u3PdTNa
systemd-private-6696c067e5c64d1bb3291e25acc341bd-bolt.service-wKtQyL
systemd-private-6696c067e5c64d1bb3291e25acc341bd-colord.service-8jzIGz
systemd-private-6696c067e5c64d1bb3291e25acc341bd-fwupd.service-0BBi0v
hamza@ubuntu:/tmp$
```

4- cat > testFile is use to create file as well as allow to write.

cat -n testFil is use to display text with lines no.

```
hamza@ubuntu: /tmp
File Edit View Search Terminal Help
hamza@ubuntu:/tmp$ cat > testFile
I am Hamza Iqbal.
I am a PUCITIAN.
Linux has various distribution.
I love kali-linux.
Windows are not open-source operating systems.
It's fun to control OS with commands.
I am in Software Engineering.
Linux was invented by Linus Torvalds.
Window was developed by Microsoft.
First smartphone was created by IBM in 1992.
hamza@ubuntu:/tmp$ cat -n testFile
 1 I am Hamza Iqbal.
 2 I am a PUCITIAN.
 3 Linux has various distribution.
 4 I love kali-linux.
 5 Windows are not open-source operating systems.
 6 It's fun to control OS with commands.
 7 I am in Software Engineering.
 8 Linux was invented by Linus Torvalds.
 9 Window was developed by Microsoft.
10 First smartphone was created by IBM in 1992.
hamza@ubuntu:/tmp$
```

5- mv "testFile" "test@file!" use to rename file.

```
hamza@ubuntu: /tmp
File Edit View Search Terminal Help
hamza@ubuntu: /tmp$ ls
config-err-RGnZ7j
ssh-MyraOu3PdTNa
systemd-private-6696c067e5c64d1bb3291e25acc341bd-bolt.service-wKtQyL
systemd-private-6696c067e5c64d1bb3291e25acc341bd-colord.service-8jzIGz
systemd-private-6696c067e5c64d1bb3291e25acc341bd-fwupd.service-0BBi0v
systemd-private-6696c067e5c64d1bb3291e25acc341bd-rtkit-daemon.service-8zlpRW
systemd-private-6696c067e5c64d1bb3291e25acc341bd-systemd-resolved.service-BBkkV3
systemd-private-6696c067e5c64d1bb3291e25acc341bd-systemd-timesyncd.service-4xfB3
7
testFile
VMwareDnD
vmware-root_442-599887898
hamza@ubuntu: /tmp$ mv "testFile" "test@file!"
hamza@ubuntu: /tmp$ ls
config-err-RGnZ7j
ssh-MyraOu3PdTNa
systemd-private-6696c067e5c64d1bb3291e25acc341bd-bolt.service-wKtQyL
systemd-private-6696c067e5c64d1bb3291e25acc341bd-colord.service-8jzIGz
systemd-private-6696c067e5c64d1bb3291e25acc341bd-fwupd.service-0BBi0v
systemd-private-6696c067e5c64d1bb3291e25acc341bd-rtkit-daemon.service-8zlpRW
systemd-private-6696c067e5c64d1bb3291e25acc341bd-systemd-resolved.service-BBkkV
3
systemd-private-6696c067e5c64d1bb3291e25acc341bd-systemd-timesyncd.service-4xfB
37
'test@file!'
VMwareDnD
vmware-root_442-599887898
hamza@ubuntu: /tmp$
```

6- tail -2 test@file! Is use to display last 2 lines.

```
hamza@ubuntu: /tmp
File Edit View Search Terminal Help
hamza@ubuntu: /tmp$ tail -2 test@file!
Window was developed by Microsoft.
First smartphone was created by IBM in 1992.
hamza@ubuntu: /tmp$
```

7- alias unleash="ls -ad .\* -l" now unleash can be use to display hidden files with details.

```
hamza@ubuntu: ~
File Edit View Search Terminal Help
hamza@ubuntu: ~$ alias unleash="ls -ad .* -l"
hamza@ubuntu: ~$ unleash
drwxr-xr-x 14 hamza hamza 4096 Mar 2 05:01 .
drwxr-xr-x 3 root root 4096 Mar 2 01:53 ..
-rw-r--r-- 1 hamza hamza 774 Mar 2 04:59 .bash_history
-rw-r--r-- 1 hamza hamza 220 Mar 2 01:53 .bash_logout
-rw-r--r-- 1 hamza hamza 3771 Mar 2 01:53 .bashrc
drwx----- 13 hamza hamza 4096 Mar 2 04:18 .cache
drwx----- 13 hamza hamza 4096 Mar 2 04:57 .config
drwx----- 3 hamza hamza 4096 Mar 2 02:01 .gnupg
-rw-r----- 1 hamza hamza 636 Mar 2 04:10 .ICEauthority
drwx----- 3 hamza hamza 4096 Mar 2 02:01 .local
-rw-r----- 1 hamza hamza 807 Mar 2 01:53 .profile
-rw-r----- 1 hamza hamza 0 Mar 2 02:03 .sudo_as_admin_successful
hamza@ubuntu: ~$
```

8- I use `man command-name` to display command details.

9- `Type type` is use to display type command type if it's builtin then it's mean it's internal command.

```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ type type  
type is a shell builtin  
hamza@ubuntu:~$
```

10- `rm -r directory-name` can be use to remove directory.

```
hamza@ubuntu: ~  
File Edit View Search Terminal Help  
hamza@ubuntu:~$ mkdir tmpDir  
hamza@ubuntu:~$ ls  
Desktop    Downloads      Music          Public         tmpDir  
Documents  examples.desktop Pictures        Templates      Videos  
hamza@ubuntu:~$ rm -r tmpDir/  
hamza@ubuntu:~$ ls  
Desktop    Downloads      Music          Public         Videos  
Documents  examples.desktop Pictures        Templates  
hamza@ubuntu:~$
```

# Absolute/Relative Path

- 1- `mkdir /home/dillawer/reports` use to make directory in dillawer.

```
root@ubuntu: /home
File Edit View Search Terminal Help
root@ubuntu:/home# mkdir /home/dilwaer/reports
root@ubuntu:/home#
```

- 2- `sudo mkdir /home/abdul` is use to make directory abdul in home.

```
root@ubuntu: /home/dilwaer/reports
File Edit View Search Terminal Help
root@ubuntu:/home/dilwaer/reports# mkdir /home/abdul
root@ubuntu:/home/dilwaer/reports#
```

- 3- `touch ../../abdul/file1` is use to make file1 in abdul pwd reports.

```
root@ubuntu: /home/dilwaer/reports
File Edit View Search Terminal Help
root@ubuntu:/home/dilwaer/reports# touch ../../abdul/file1
root@ubuntu:/home/dilwaer/reports#
```

- 4- `mkdir ../staff/arif ../staff/rauf` use to make directories in staff using relative path pwd abdul.

```
root@ubuntu: /home/abdul
File Edit View Search Terminal Help
root@ubuntu:/home/abdul# mkdir ../staff/arif ../staff/rauf
root@ubuntu:/home/abdul#
```

- 5- `touch arif/file2 rauf/file3` use to make file2 and file3 in arif and raud pwd staff.

```
root@ubuntu: /home/staff
File Edit View Search Terminal Help
root@ubuntu:/home/staff# touch arif/file2 rauf/file3
root@ubuntu:/home/staff#
```



- 6- `cp /home/staff/arif/file2 /home/abdul/`  
`cp /home/staff/rauf/file3 /home/abdul/`  
use to copy file2 and 3 in abdul using absolute path.

```
root@ubuntu: /home/staff
File Edit View Search Terminal Help
root@ubuntu:/home/staff# cp /home/staff/arif/file2 /home/abdul/
root@ubuntu:/home/staff# cp /home/staff/rauf/file3 /home/abdul/
root@ubuntu:/home/staff#
```

- 7- `cp -r ../staff/ ../dilwaer/newdir/` use to copy staff directory with it's subdirectories to dilawer/newdir.

```
root@ubuntu: /home/abdul
File Edit View Search Terminal Help
root@ubuntu:/home/abdul# cp -r ../staff/ ../dilwaer/newdir/
root@ubuntu:/home/abdul#
```

- 8- `rm -r ../../staff` use to remove staff with it's subdirectories pwd dilwaer/newdir.

```
root@ubuntu: /home/dilwaer/newdir
File Edit View Search Terminal Help
root@ubuntu:/home/dilwaer/newdir# rm -r ../../staff/
root@ubuntu:/home/dilwaer/newdir#
```

- 9-`mv staff/arif/file2 staff/arif/refile2` rename file2 with refile2 pwd newdir.

```
root@ubuntu: /home/dilwaer/newdir/staff/arif
File Edit View Search Terminal Help
root@ubuntu:/home/dilwaer/newdir# mv staff/arif/file2 staff/arif/refile2
root@ubuntu:/home/dilwaer/newdir# cd staff/arif/
root@ubuntu:/home/dilwaer/newdir/staff/arif# ls
refile2
root@ubuntu:/home/dilwaer/newdir/staff/arif#
```