

Basic Linux Commands Assignments

Assignment date: 9th OCT 2022

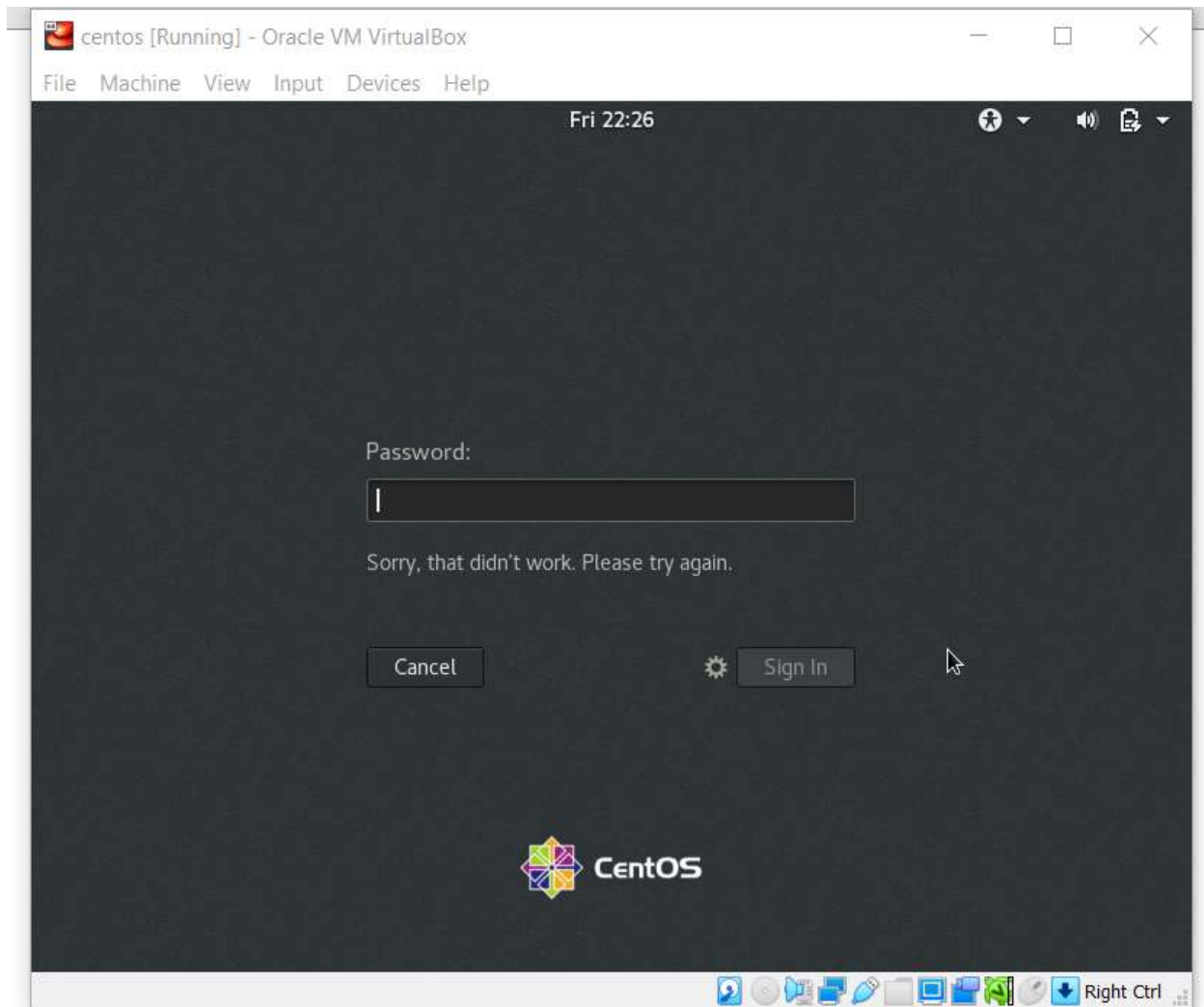
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Assignment-1: Connect and disconnect with login Access

1) What happens when you login a non-existent users or username?

- ➔ It will allow to write username on first step and password on next step but when we try to sign in, it won't allow and will show a message "Sorry, that didn't work. Please try again."

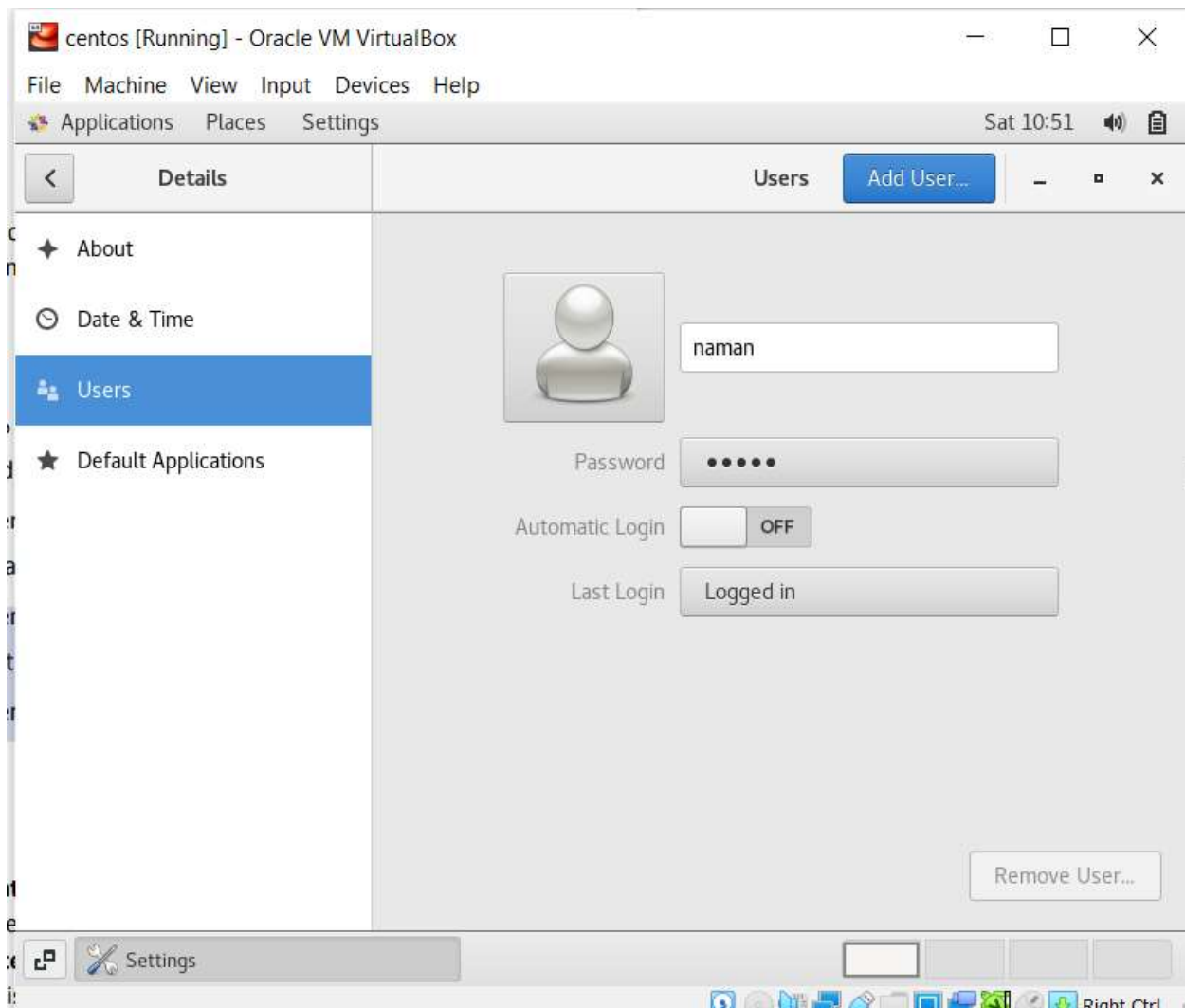


Assignment-2: Password changing

1) Login into your account and then change password?

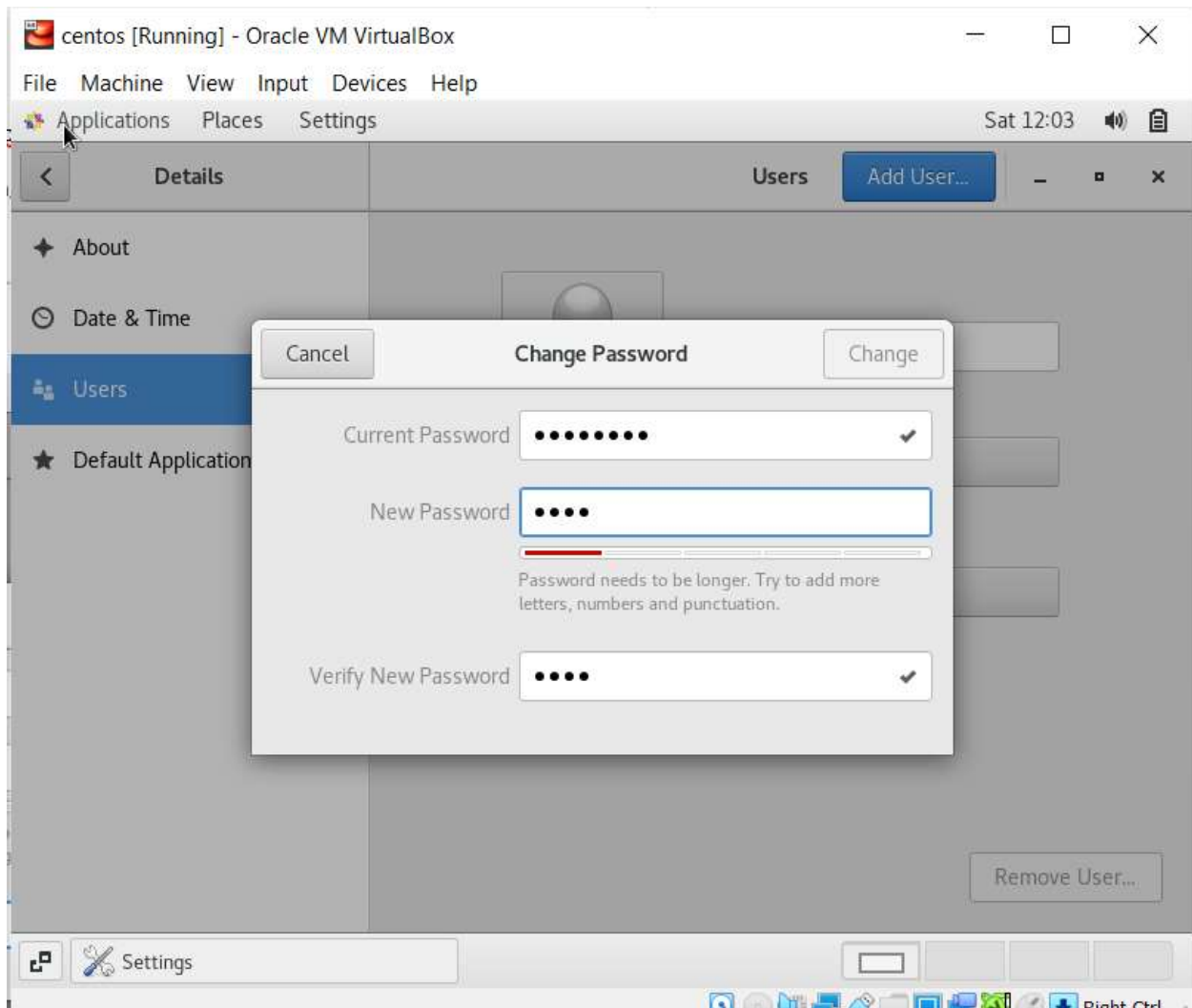
Change your password into IneuR0n#42 and hit the Enter key

➔ First we need to unlock by entering root password, then we can change password. Same I did and I was able to change password.



Try again to change password but use like password 1234 or abcd

- ➔ Not able to change password since new password is not fair enough as per password policy to be set as password.



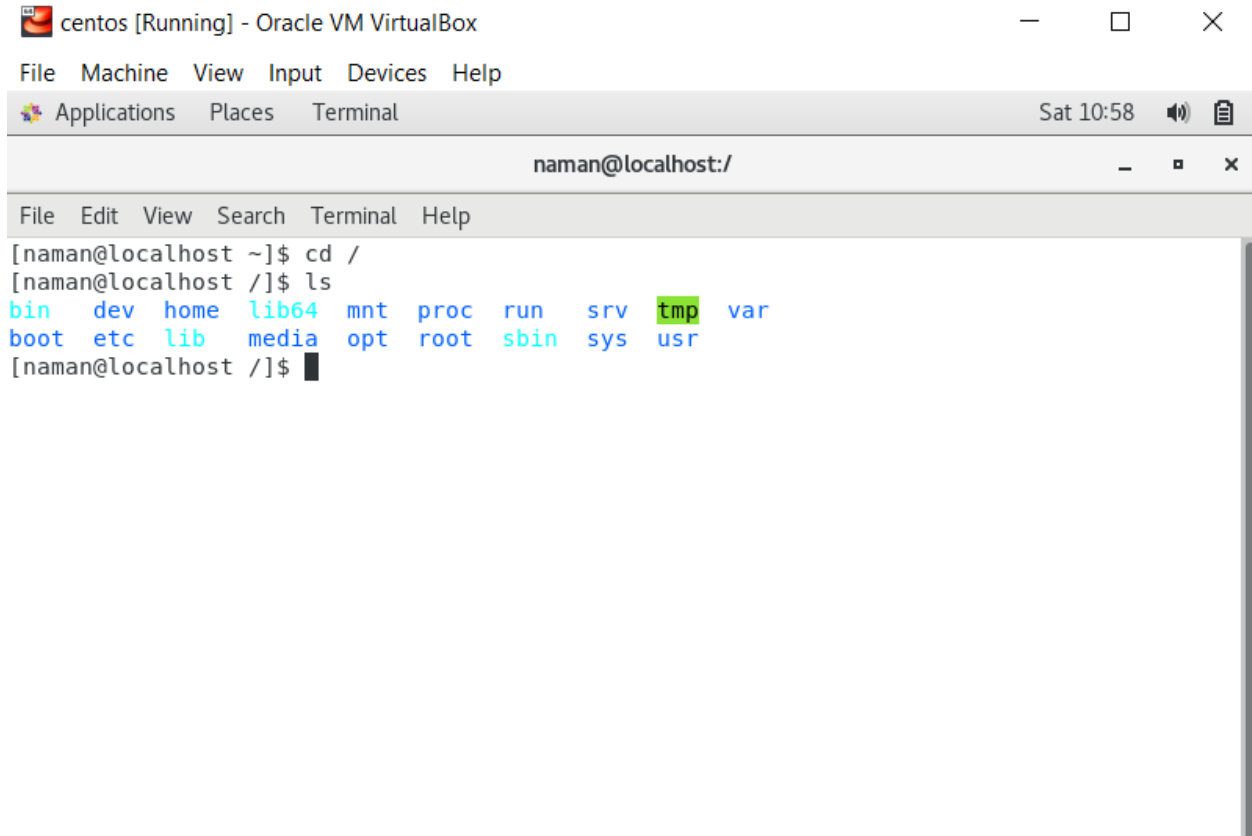
Try again to change password but now don't use any password just hit Enter key

- ➔ Not able to change password, as we have not entered current as well as new password.

Assignment-3: Working with Directories

1) Enter the command `cd /` and then `ls` and then hit Enter key

➔ `cd /` will change our present working directory to root directory. After that `ls` will list files and directories under `/`

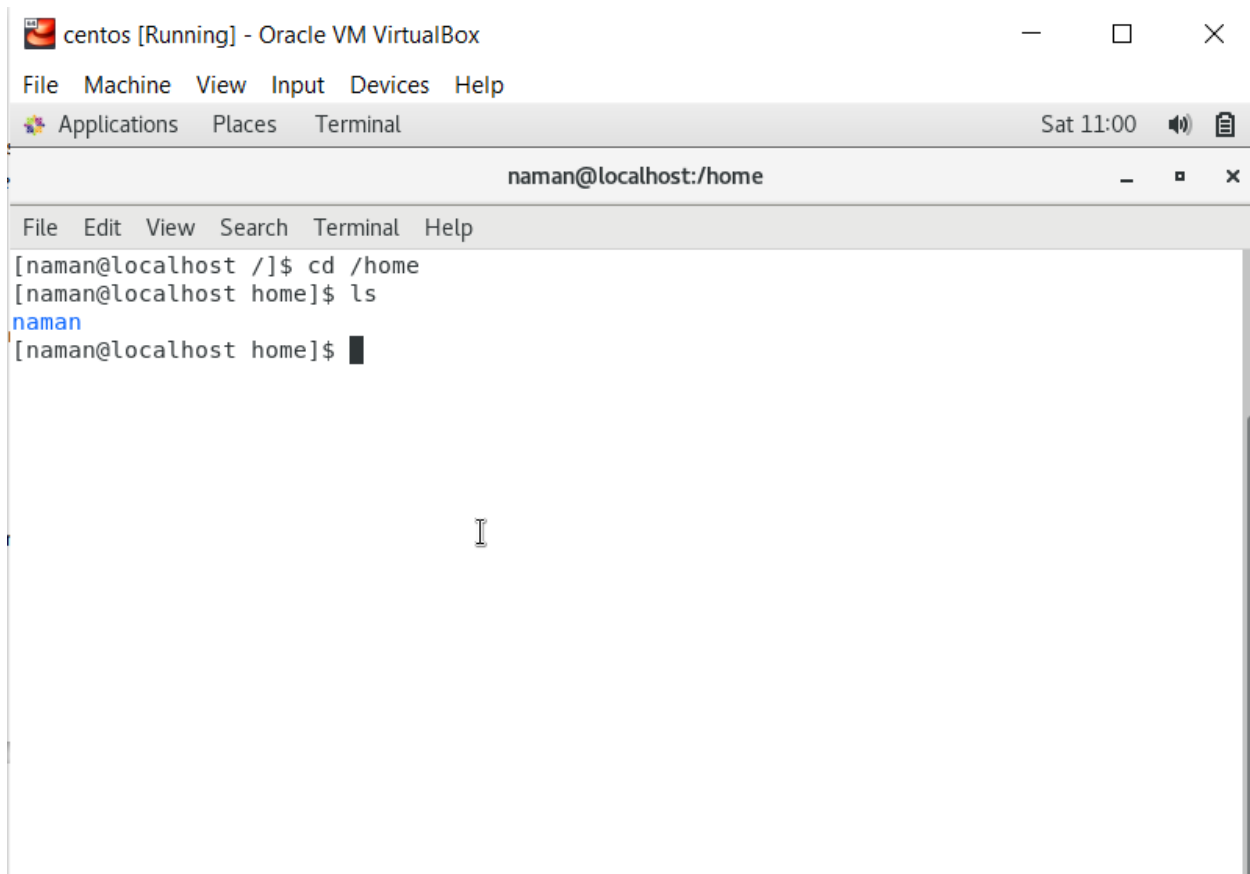


The screenshot shows a terminal window titled "centos [Running] - Oracle VM VirtualBox". The terminal has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal". The terminal's title bar shows "naman@localhost:/" and standard window controls. The terminal's menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal output shows the following commands and results:

```
[naman@localhost ~]$ cd /  
[naman@localhost /]$ ls  
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var  
boot  etc  lib  media  opt  root  sbin  sys  usr
```

2) Enter the command now `cd /home` and then hit Enter key

- ➔ `cd /home` will change our present working directory to home directory. After that `ls` will list files and directories under `/home`.
- ➔ A home directory is a file system directory on a multiuser operating system containing files for a given user of the system. With the home directory the user can store all their personal information, files, etc.

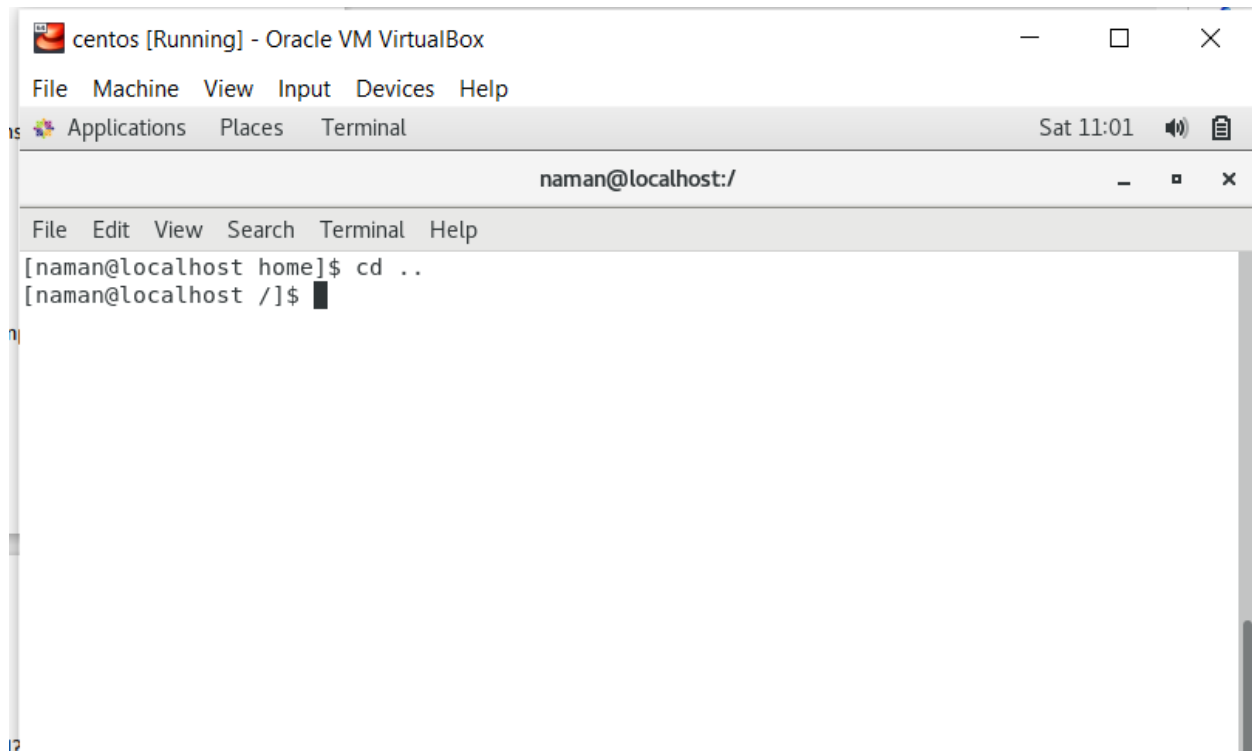


The screenshot shows a terminal window titled "centos [Running] - Oracle VM VirtualBox". The window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal" buttons, along with a clock showing "Sat 11:00" and a volume icon. The terminal itself has a title bar "naman@localhost:/home" and a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal content shows the following commands and output:

```
[naman@localhost /]$ cd /home
[naman@localhost home]$ ls
naman
[naman@localhost home]$
```

3) Enter cd .. and hit Enter key [Note: here we have space after cd then use double dot]

➔ cd .. will change our present working directory to current directory's parent directory. So when we are on /home and if we do cd .. then our present working directory will be /

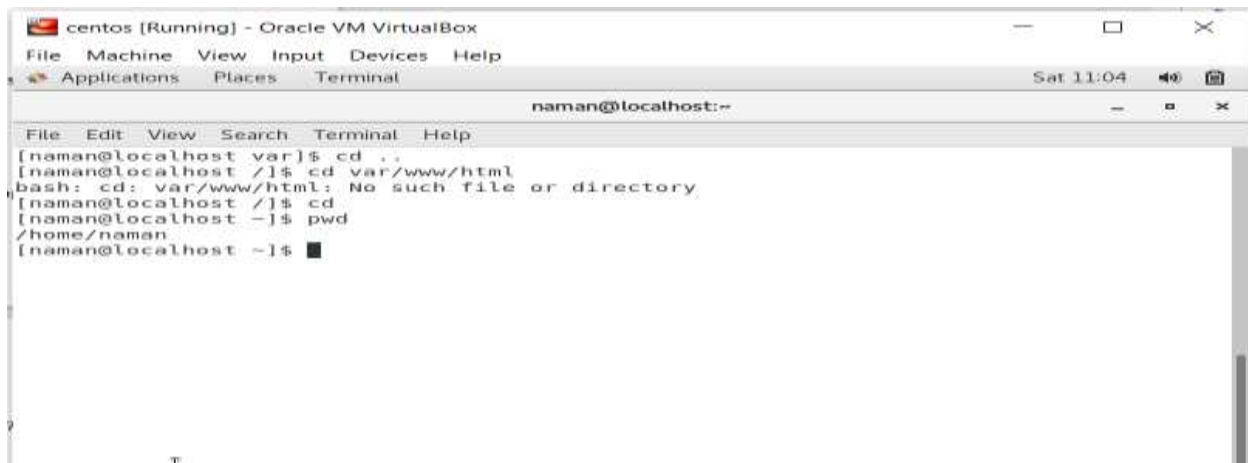


The screenshot shows a terminal window titled "centos [Running] - Oracle VM VirtualBox". The window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal" buttons. The terminal itself has a title bar "naman@localhost:/" and a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal output shows the command "cd .." being executed, changing the directory from "/home" to "/".

```
[naman@localhost home]$ cd ..  
[naman@localhost /]$
```

4) Now enter `cd /var/www/html` and then type `cd` and hit Enter key

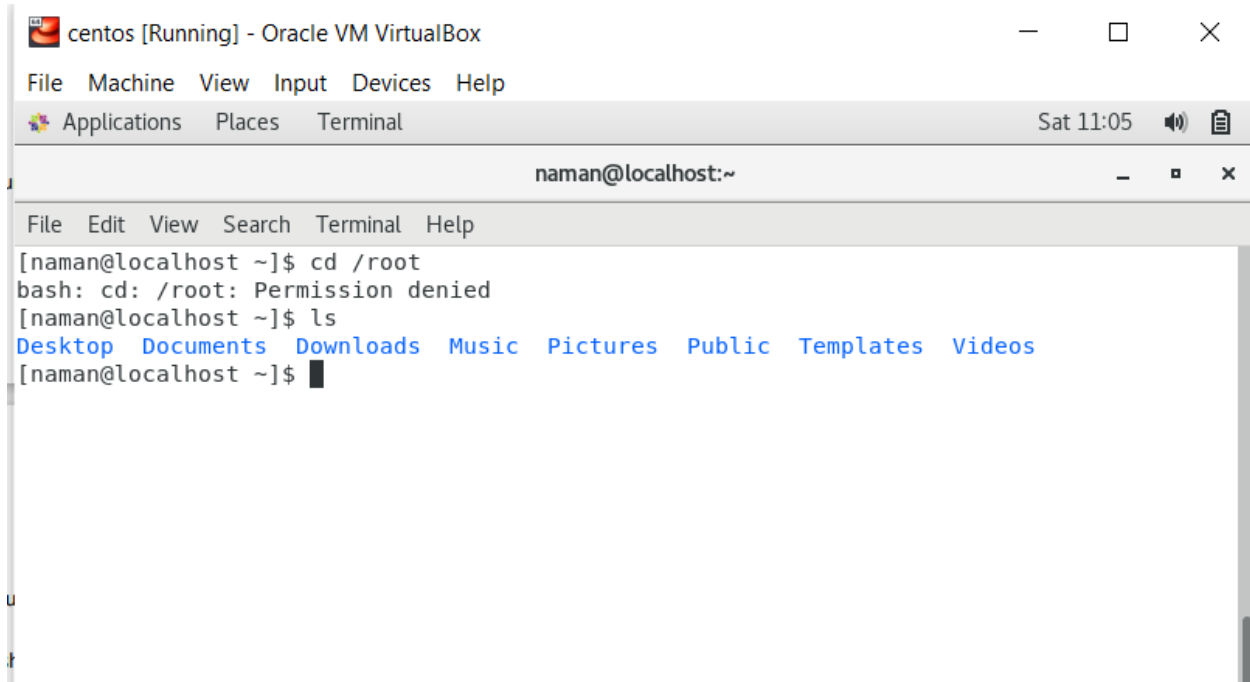
➔ Able to get into /var but /var don't have any child directory called www. So it shows no such file or directory.



```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Sat 11:04
naman@localhost:~
File Edit View Search Terminal Help
[naman@localhost var]$ cd ..
[naman@localhost /]$ cd var/www/html
bash: cd: var/www/html: No such file or directory
[naman@localhost /]$ cd
[naman@localhost ~]$ pwd
/home/naman
[naman@localhost ~]$
```

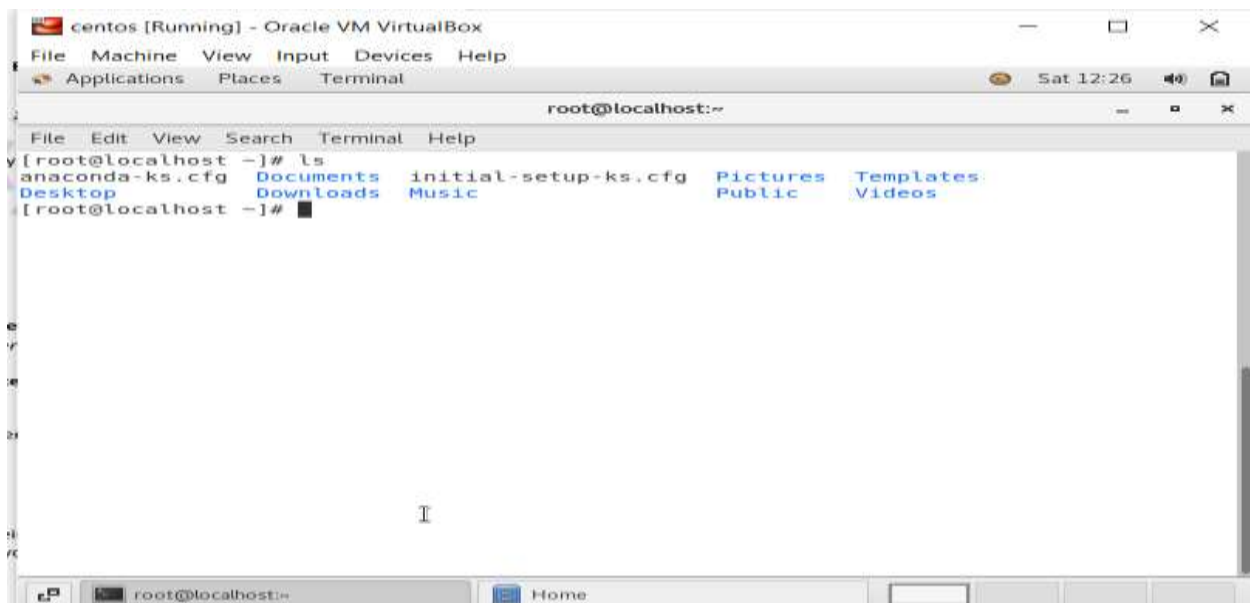

5) Now type `cd /root` and then hit Enter key

➔ Giving permission denied when logged in as a normal user.



```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Sat 11:05
naman@localhost:~
File Edit View Search Terminal Help
[naman@localhost ~]$ cd /root
bash: cd: /root: Permission denied
[naman@localhost ~]$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
[naman@localhost ~]$
```

➔ If logged in as a root user, then able to get into /root and output is as below when I did `ls`

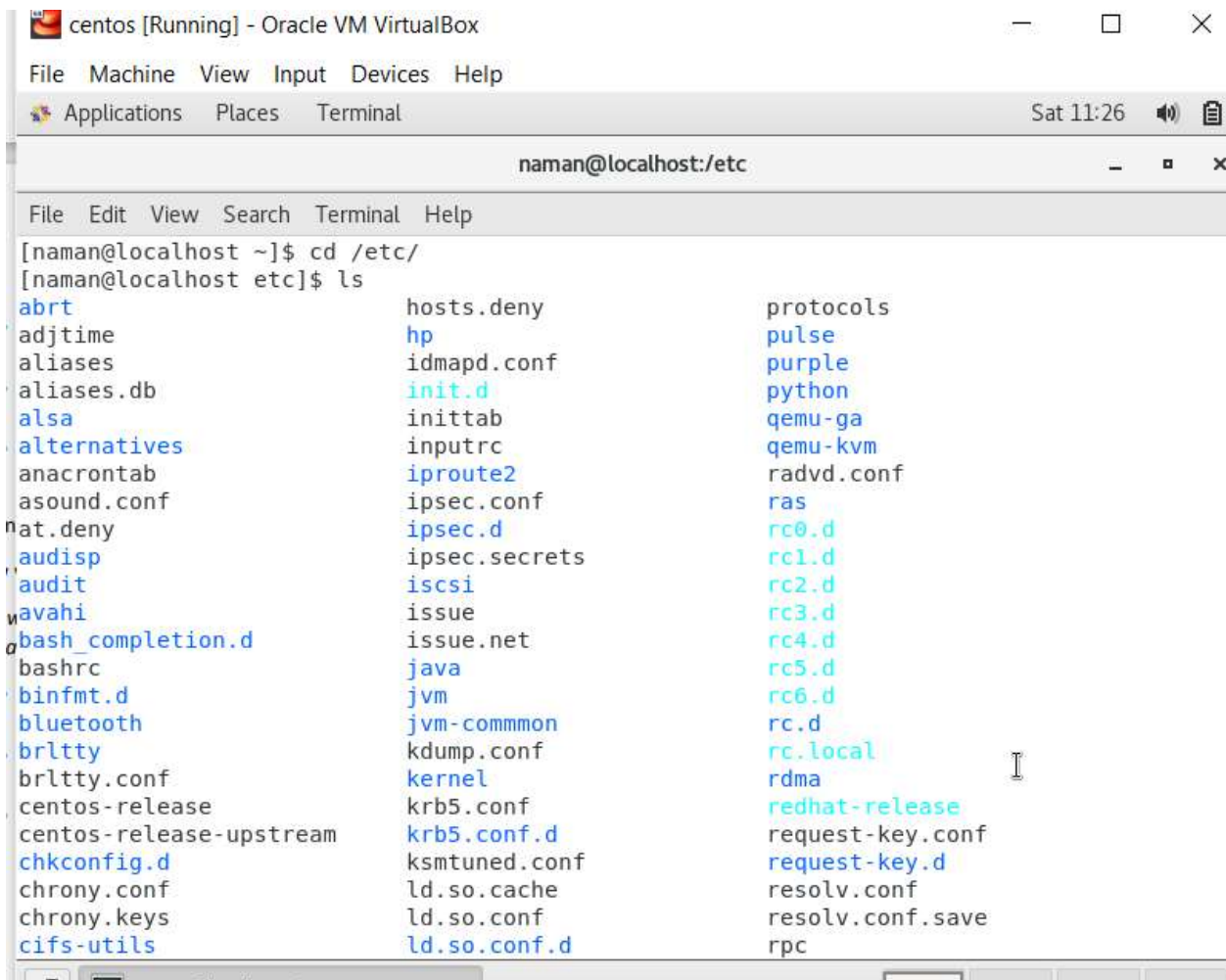


```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Sat 12:26
root@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# ls
anaconda-ks.cfg Documents initial-setup-ks.cfg Pictures Templates
Desktop Downloads Music Public Videos
[root@localhost ~]#
```

Assignment-4: Working with File Listing

1) Go to cd /etc and type ls

- ➔ cd /etc will change our present working directory to /etc directory. And ls will list files and directories under /etc. ls won't show any hidden files (starting with .)

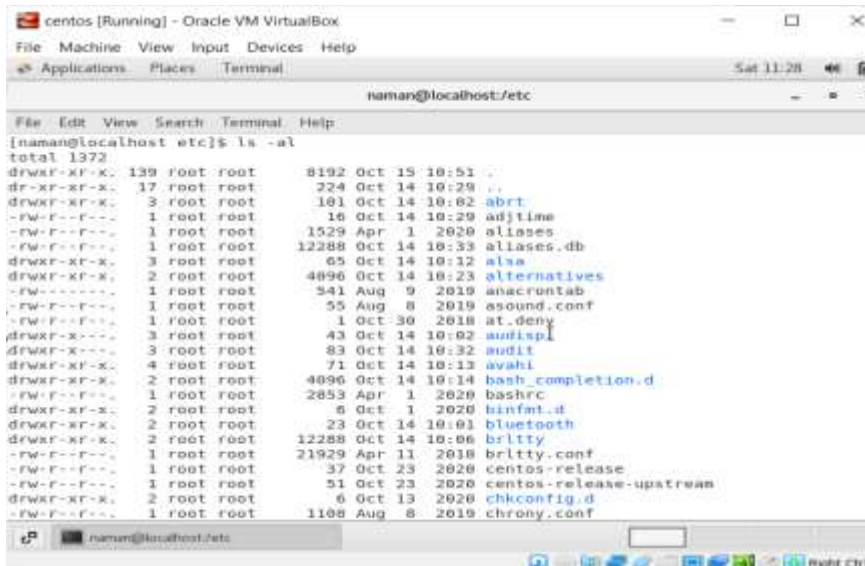


The screenshot shows a terminal window titled 'centos [Running] - Oracle VM VirtualBox'. The terminal prompt is 'naman@localhost: /etc'. The user has entered 'cd /etc/' and 'ls', resulting in a three-column list of files and directories in the /etc directory. The files are color-coded: blue for executables, green for directories, and cyan for configuration files. The list includes files like 'abrt', 'adjtime', 'aliases', 'alsa', 'alternatives', 'anacrontab', 'asound.conf', 'at.deny', 'audisp', 'audit', 'avahi', 'bash_completion.d', 'bashrc', 'binfmt.d', 'bluetooth', 'brltty', 'brltty.conf', 'centos-release', 'centos-release-upstream', 'chkconfig.d', 'chrony.conf', 'chrony.keys', 'cifs-utils', 'hosts.deny', 'hp', 'idmapd.conf', 'init.d', 'inittab', 'inputrc', 'iproute2', 'ipsec.conf', 'ipsec.d', 'ipsec.secrets', 'iscsi', 'issue', 'issue.net', 'java', 'jvm', 'jvm-common', 'kdump.conf', 'kernel', 'krb5.conf', 'krb5.conf.d', 'ksmtuned.conf', 'ld.so.cache', 'ld.so.conf', 'ld.so.conf.d', 'protocols', 'pulse', 'purple', 'python', 'qemu-ga', 'qemu-kvm', 'radvd.conf', 'ras', 'rc0.d', 'rc1.d', 'rc2.d', 'rc3.d', 'rc4.d', 'rc5.d', 'rc6.d', 'rc.d', 'rc.local', 'rdma', 'redhat-release', 'request-key.conf', 'request-key.d', 'resolv.conf', 'resolv.conf.save', and 'rpc'.

```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Sat 11:26
naman@localhost:/etc
File Edit View Search Terminal Help
[naman@localhost ~]$ cd /etc/
[naman@localhost etc]$ ls
abrt          hosts.deny    protocols
adjtime       hp            pulse
aliases       idmapd.conf  purple
aliases.db    init.d        python
alsa          inittab       qemu-ga
alternatives  inputrc       qemu-kvm
anacrontab    iproute2      radvd.conf
asound.conf   ipsec.conf    ras
at.deny       ipsec.d       rc0.d
audisp        ipsec.secrets rc1.d
audit         iscsi         rc2.d
avahi         issue         rc3.d
bash_completion.d issue.net      rc4.d
bashrc        java          rc5.d
binfmt.d      jvm           rc6.d
bluetooth     jvm-common    rc.d
brltty        kdump.conf    rc.local
brltty.conf   kernel        rdma
centos-release krb5.conf     redhat-release
centos-release-upstream krb5.conf.d  request-key.conf
chkconfig.d   ksmtuned.conf request-key.d
chrony.conf   ld.so.cache   resolv.conf
chrony.keys   ld.so.conf    resolv.conf.save
cifs-utils    ld.so.conf.d  rpc
```

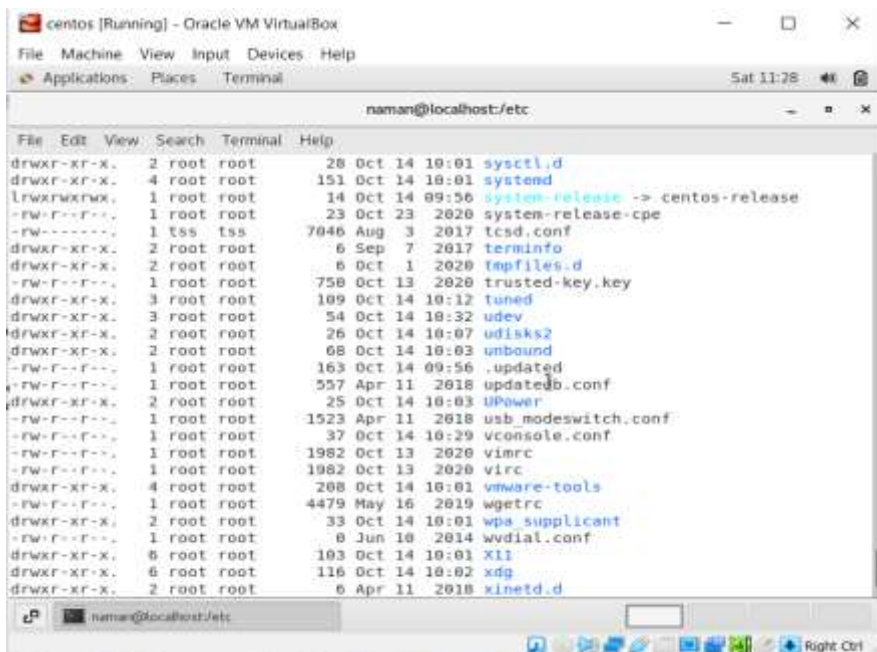
2) Then type `ls -al` and hit Enter key

➔ `ls -al` will show all files and directories, along with permissions and it will show hidden files/directories as well. Example we are able to see `.updated` file



```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Sat 11:28
naman@localhost:/etc

File Edit View Search Terminal Help
[naman@localhost /etc]$ ls -al
total 1372
drwxr-xr-x. 139 root root      8192 Oct 15 10:51 .
dr-xr-xr-x.  17 root root      224 Oct 14 10:29 ..
drwxr-xr-x.   3 root root      101 Oct 14 10:02 abrt
-rw-r--r--.   1 root root        16 Oct 14 10:29 adjtime
-rw-r--r--.   1 root root    1529 Apr  1 2020 aliases
-rw-r--r--.   1 root root  12288 Oct 14 10:33 aliases.db
drwxr-xr-x.   3 root root        65 Oct 14 10:12 alsa
drwxr-xr-x.   2 root root    4096 Oct 14 10:23 alternatives
-rw-r--r--.   1 root root      541 Aug  9 2019 anacrontab
-rw-r--r--.   1 root root       55 Aug  8 2019 asound.conf
-rw-r--r--.   1 root root        1 Oct 30 2018 at.deny
drwxr-xr-x.   3 root root        43 Oct 14 10:02 audisp
drwxr-xr-x.   3 root root        83 Oct 14 10:32 audit
drwxr-xr-x.   4 root root        71 Oct 14 10:13 avahi
drwxr-xr-x.   2 root root    4096 Oct 14 10:14 bash_completion.d
-rw-r--r--.   1 root root    2853 Apr  1 2020 bashrc
drwxr-xr-x.   2 root root         6 Oct  1 2020 binfmt.d
drwxr-xr-x.   2 root root      23 Oct 14 10:01 bluetooth
drwxr-xr-x.   2 root root  12288 Oct 14 10:06 brltty
-rw-r--r--.   1 root root   21929 Apr 11 2018 brltty.conf
-rw-r--r--.   1 root root       37 Oct 23 2020 centos-release
-rw-r--r--.   1 root root       51 Oct 23 2020 centos-release-upstream
drwxr-xr-x.   2 root root         6 Oct 13 2020 chkconfig.d
-rw-r--r--.   1 root root     1108 Aug  8 2019 chrony.conf
```

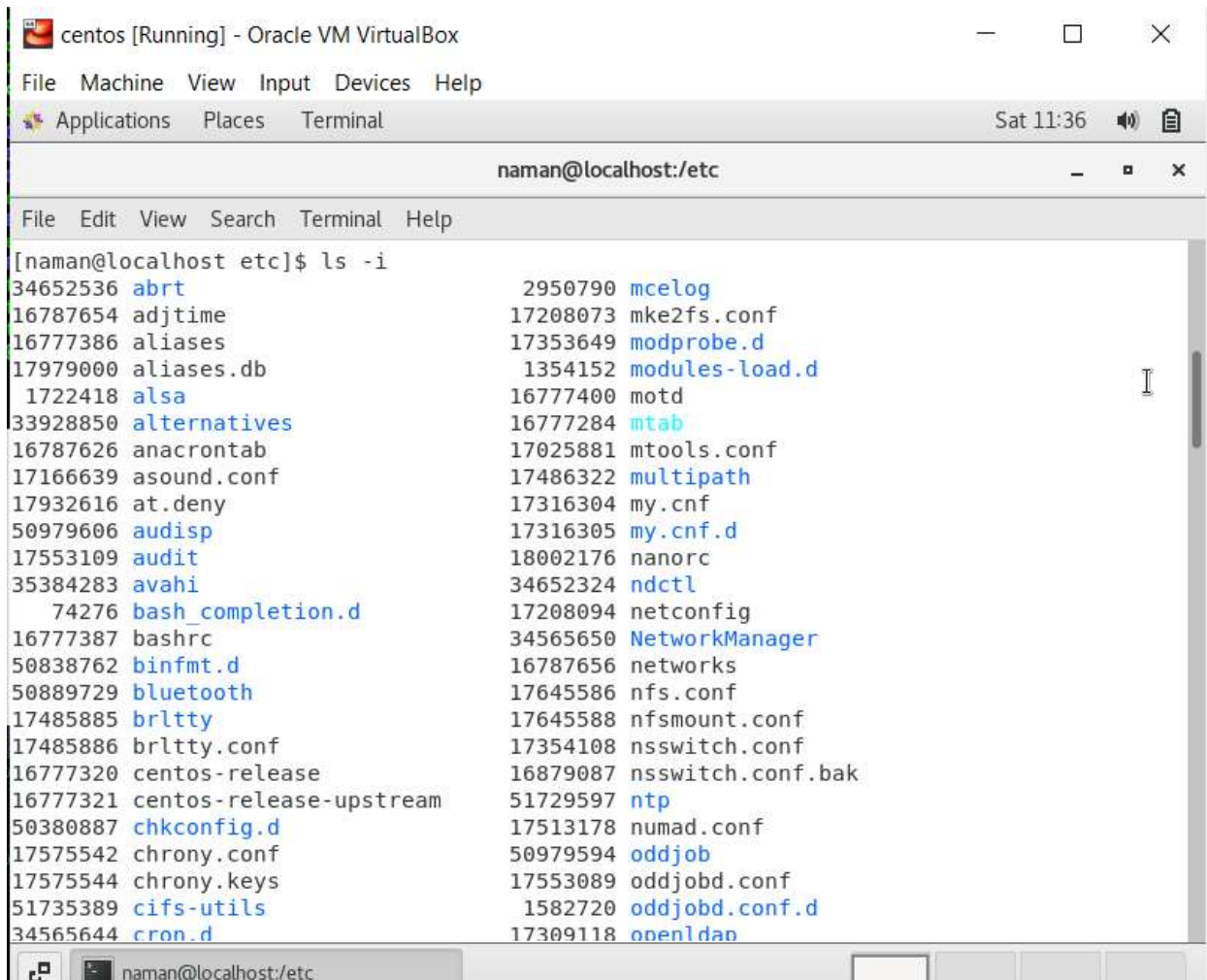


```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Sat 11:28
naman@localhost:/etc

File Edit View Search Terminal Help
[naman@localhost /etc]$ ls -al
drwxr-xr-x.   2 root root      28 Oct 14 10:01 sysctl.d
drwxr-xr-x.   4 root root     151 Oct 14 10:01 systemd
lrwxrwxrwx.   1 root root        14 Oct 14 09:56 system-release -> centos-release
-rw-r--r--.   1 root root       23 Oct 23 2020 system-release-cpe
-rw-r--r--.   1 tss tss      7046 Aug  3 2017 tcstd.conf
drwxr-xr-x.   2 root root         6 Sep  7 2017 terminfo
drwxr-xr-x.   2 root root         6 Oct  1 2020 tmpfiles.d
-rw-r--r--.   1 root root      758 Oct 13 2020 trusted-key.key
drwxr-xr-x.   3 root root      109 Oct 14 10:12 tuned
drwxr-xr-x.   3 root root       54 Oct 14 10:32 udev
drwxr-xr-x.   2 root root       26 Oct 14 10:07 udisks2
drwxr-xr-x.   2 root root       68 Oct 14 10:03 unbound
-rw-r--r--.   1 root root     163 Oct 14 09:56 .updated
-rw-r--r--.   1 root root    557 Apr 11 2018 updatedb.conf
drwxr-xr-x.   2 root root       25 Oct 14 10:03 UPower
-rw-r--r--.   1 root root   1523 Apr 11 2018 usb_modeswitch.conf
-rw-r--r--.   1 root root       37 Oct 14 10:29 vconsole.conf
-rw-r--r--.   1 root root    1982 Oct 13 2020 vimrc
-rw-r--r--.   1 root root    1982 Oct 13 2020 virc
drwxr-xr-x.   4 root root      208 Oct 14 10:01 vmware-tools
-rw-r--r--.   1 root root    4479 May 16 2019 wgetrc
drwxr-xr-x.   2 root root         33 Oct 14 10:01 wpa_supplicant
-rw-r--r--.   1 root root         8 Jun 10 2014 wvdial.conf
drwxr-xr-x.   6 root root       103 Oct 14 10:01 X11
drwxr-xr-x.   6 root root       116 Oct 14 10:02 xdg
drwxr-xr-x.   2 root root         6 Apr 11 2018 xinetd.d
```

3) Then use ls -i and hit Enter key

- ➔ Sometimes you may want to know the inode number of a file. Use -i option to display inode number.

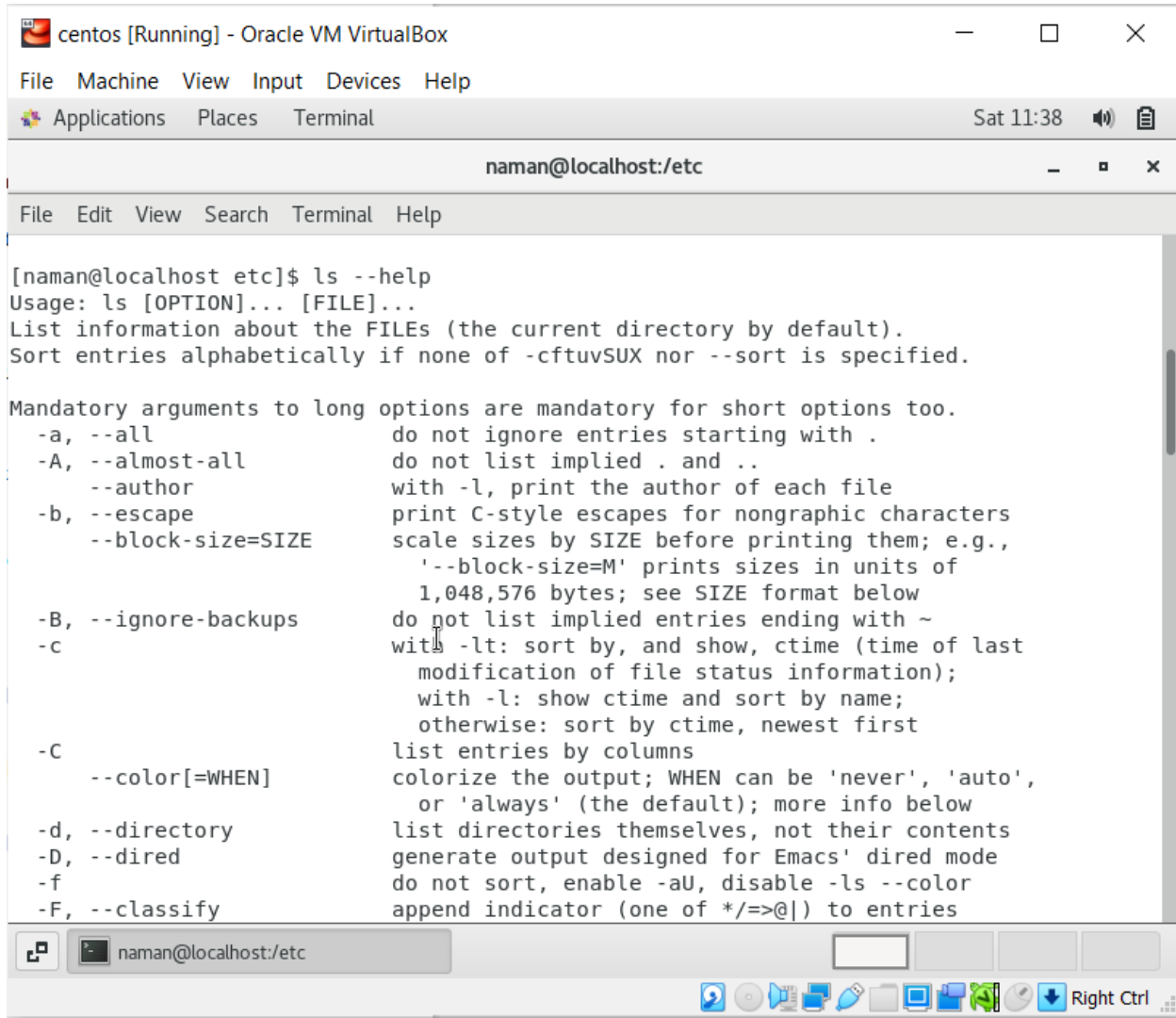


```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Sat 11:36
naman@localhost:/etc

[naman@localhost etc]$ ls -i
34652536 abrt
16787654 adjtime
16777386 aliases
17979000 aliases.db
1722418 alsa
33928850 alternatives
16787626 anacrontab
17166639 asound.conf
17932616 at.deny
50979606 audisp
17553109 audit
35384283 avahi
74276 bash_completion.d
16777387 bashrc
50838762 binfo.d
50889729 bluetooth
17485885 brltty
17485886 brltty.conf
16777320 centos-release
16777321 centos-release-upstream
50380887 chkconfig.d
17575542 chrony.conf
17575544 chrony.keys
51735389 cifs-utils
34565644 cron.d
2950790 mcelog
17208073 mke2fs.conf
17353649 modprobe.d
1354152 modules-load.d
16777400 motd
16777284 mtab
17025881 mtools.conf
17486322 multipath
17316304 my.cnf
17316305 my.cnf.d
18002176 nanorc
34652324 ndctl
17208094 netconfig
34565650 NetworkManager
16787656 networks
17645586 nfs.conf
17645588 nfsmount.conf
17354108 nsswitch.conf
16879087 nsswitch.conf.bak
51729597 ntp
17513178 numad.conf
50979594 oddjob
17553089 oddjobd.conf
1582720 oddjobd.conf.d
17309118 openldap
```

4) Then use `ls --help` and see other options about `ls` command

➔ it will show various options we can add as part of `ls` command



```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Sat 11:38
naman@localhost:/etc
File Edit View Search Terminal Help

[naman@localhost etc]$ ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILES (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.
-a, --all                do not ignore entries starting with .
-A, --almost-all        do not list implied . and ..
--author                with -l, print the author of each file
-b, --escape             print C-style escapes for nongraphic characters
--block-size=SIZE       scale sizes by SIZE before printing them; e.g.,
                        '--block-size=M' prints sizes in units of
                        1,048,576 bytes; see SIZE format below
-B, --ignore-backups     do not list implied entries ending with ~
-c                      with -lt: sort by, and show, ctime (time of last
                        modification of file status information);
                        with -l: show ctime and sort by name;
                        otherwise: sort by ctime, newest first
-C                      list entries by columns
--color[=WHEN]          colorize the output; WHEN can be 'never', 'auto',
                        or 'always' (the default); more info below
-d, --directory          list directories themselves, not their contents
-D, --dired              generate output designed for Emacs' dired mode
-f                      do not sort, enable -aU, disable -ls --color
-F, --classify           append indicator (one of */=>@|) to entries
```

Additional performed options with `ls` :

Order Files Based on Last Modified Time Using `ls -lt`

Order Files Based on Last Modified Time (In Reverse Order) Using `ls -ltr`

Display One File per Line Using `ls -l`

Display File Size in Human Readable Format Using `ls -lh`

list all the files and directories without the owner details `ls -g`

list the files and directories separated by a comma **ls -m**

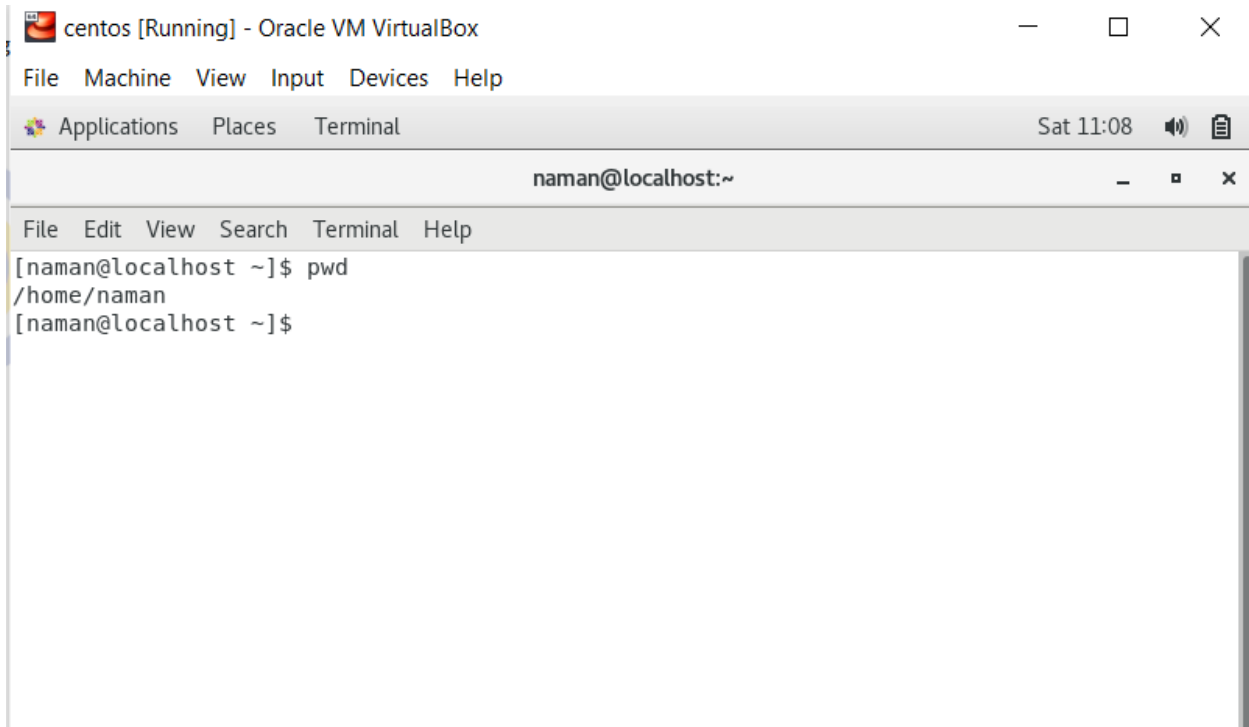
list files and directories sorted by file-size **ls -lS**

Assignment-5: Know where you are and where you working

Here we use pwd, cd and ls as combine task to understand where you working on terminal and how you can switch from one directory to another one

1) Open terminal after restart the linux. Check which location you working, type pwd

➔ pwd stands for Print Working Directory. So at any given point of time if we want to see where we are, we can use pwd.

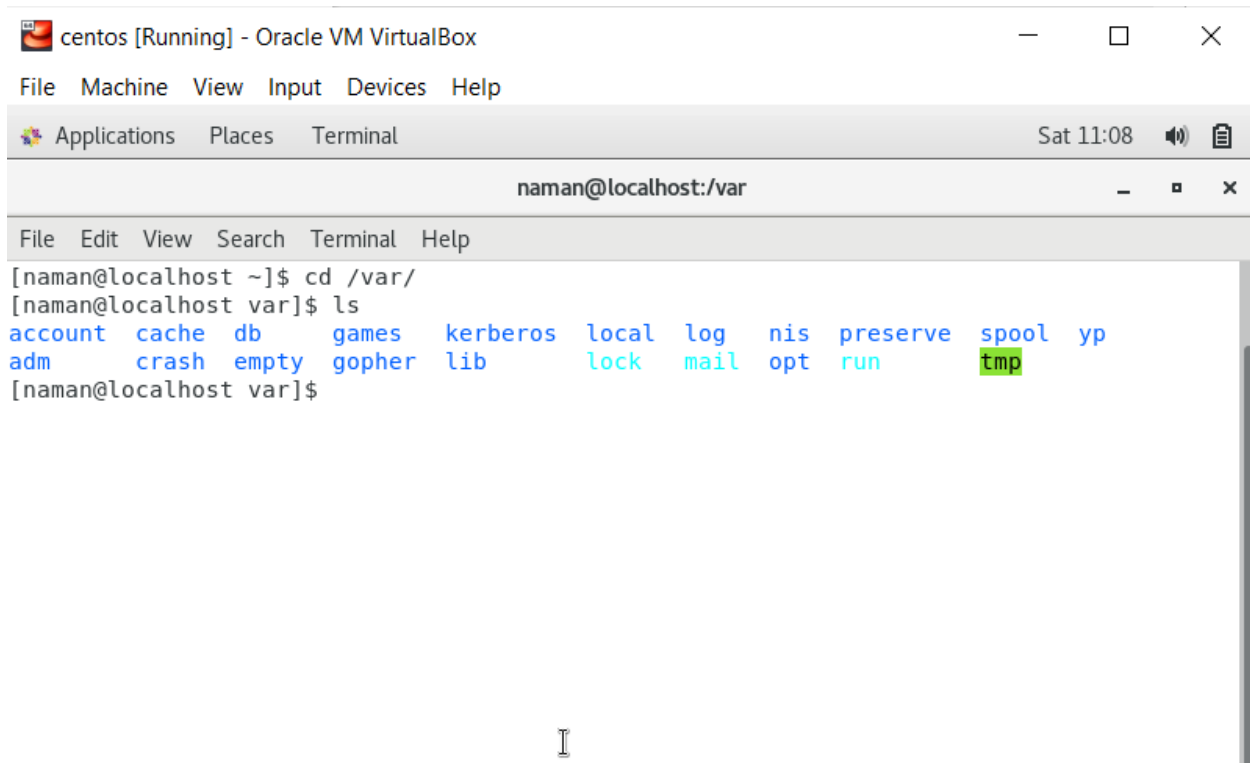


The screenshot shows a terminal window titled 'centos [Running] - Oracle VM VirtualBox'. The window has a menu bar with 'File', 'Machine', 'View', 'Input', 'Devices', and 'Help'. Below the menu bar is a toolbar with 'Applications', 'Places', and 'Terminal' buttons, and a status bar showing 'Sat 11:08'. The terminal itself has a title bar 'naman@localhost:~' and a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal content shows the command 'pwd' being executed, with the output '/home/naman'.

```
[naman@localhost ~]$ pwd
/home/naman
[naman@localhost ~]$
```

2) Now use `cd /var` and hit Enter key Do `ls`, and see what output comes,

➔ `ls` will show directories/files under our pwd (`/var`)



The screenshot shows a terminal window titled "centos [Running] - Oracle VM VirtualBox". The terminal has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal". The terminal window shows the following commands and output:

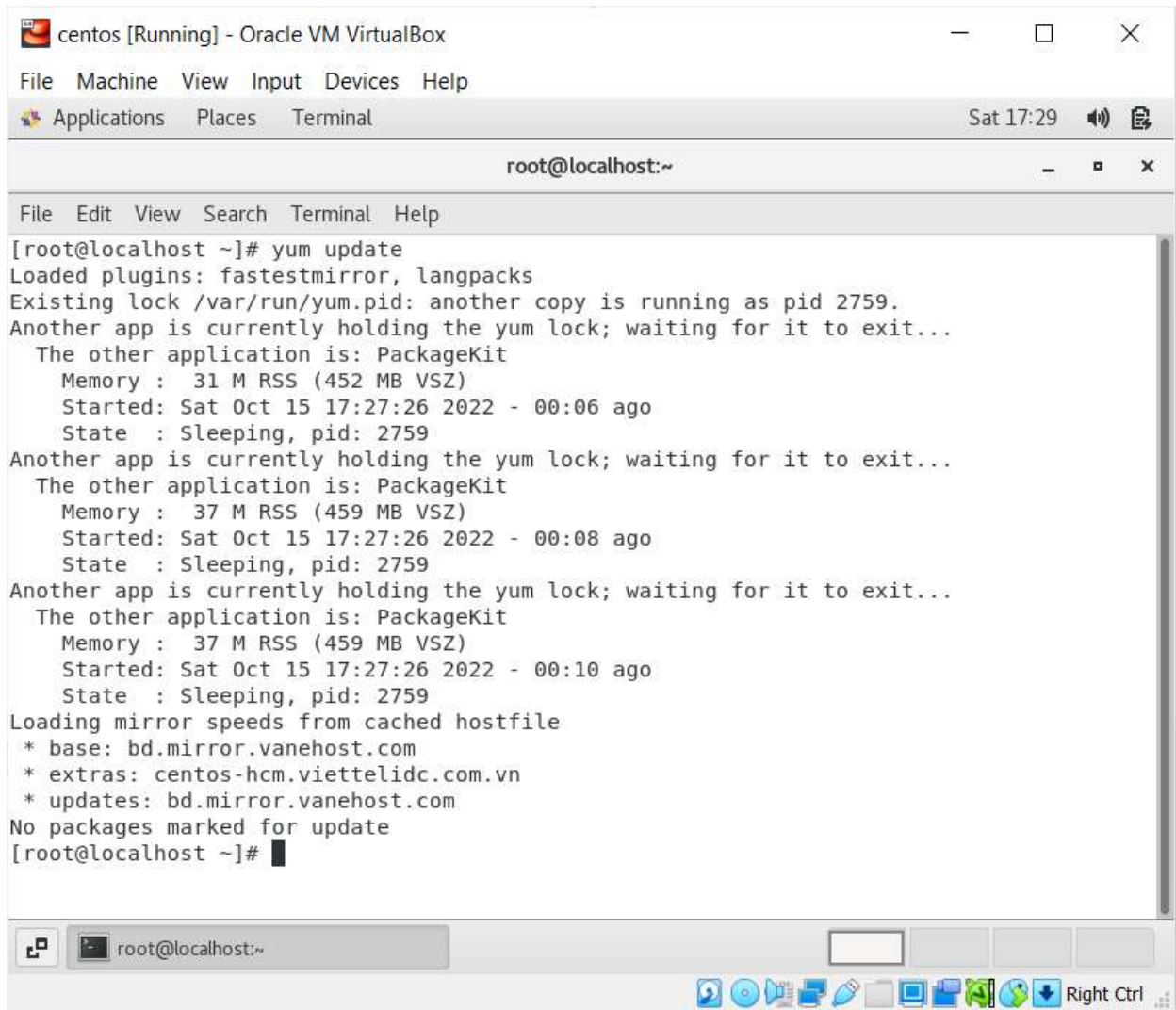
```
[naman@localhost ~]$ cd /var/
[naman@localhost var]$ ls
account  cache  db      games  kerberos  local  log  nis  preserve  spool  yp
adm      crash  empty  gopher  lib       lock  mail  opt  run      tmp
```

3) Explore other help options of each command to learn more other things we can do with these commands

➔ yes I did explored other commands(`cat`, `echo`, `touch`, `cp`, `mv`, `diff`, etc..) as well.

Assignment-6: Update CentOS machine

- ➔ I am logged in as root user, and I ran command yum update and it did updated. After that update also, I ran again and it showed below output like “No packages marked for update”. So Machine is successfully updated (figure 1).
- ➔ If we are logged in as a user, then yum update will ask to login as a root to perform this update. So we have to act root to perform yum update (figure 2).



```
centos [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Sat 17:29
root@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# yum update
Loaded plugins: fastestmirror, langpacks
Existing lock /var/run/yum.pid: another copy is running as pid 2759.
Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: PackageKit
    Memory : 31 M RSS (452 MB VSZ)
    Started: Sat Oct 15 17:27:26 2022 - 00:06 ago
    State : Sleeping, pid: 2759
Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: PackageKit
    Memory : 37 M RSS (459 MB VSZ)
    Started: Sat Oct 15 17:27:26 2022 - 00:08 ago
    State : Sleeping, pid: 2759
Another app is currently holding the yum lock; waiting for it to exit...
  The other application is: PackageKit
    Memory : 37 M RSS (459 MB VSZ)
    Started: Sat Oct 15 17:27:26 2022 - 00:10 ago
    State : Sleeping, pid: 2759
Loading mirror speeds from cached hostfile
* base: bd.mirror.vanehost.com
* extras: centos-hcm.viettelidc.com.vn
* updates: bd.mirror.vanehost.com
No packages marked for update
[root@localhost ~]#
```

Figure 1- with root account

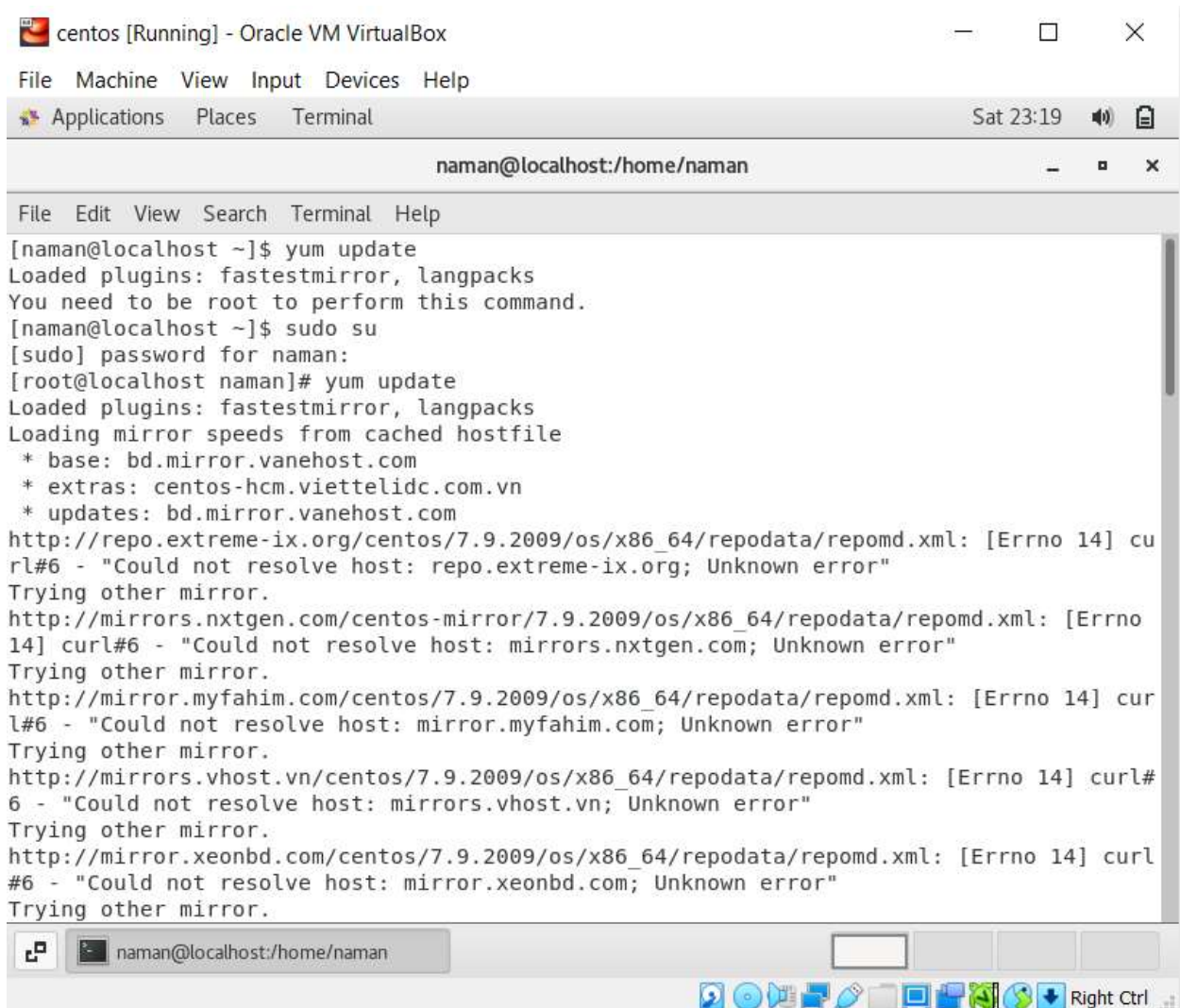


Figure 2- with user account

Assignment-7: Install all the dependencies for making CentOS full screen

➔ By adding necessary dependencies through terminal, now I am able to launch CentOS in full screen.

