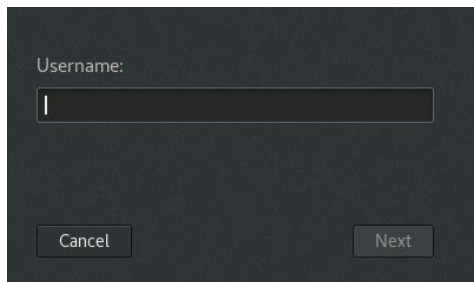Assignment-1
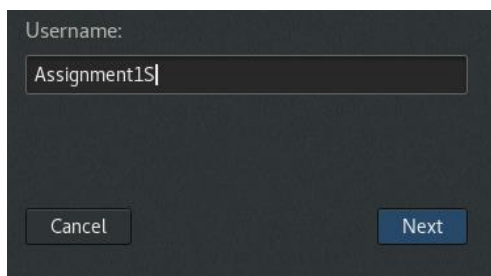
Connect and disconnect with login Access

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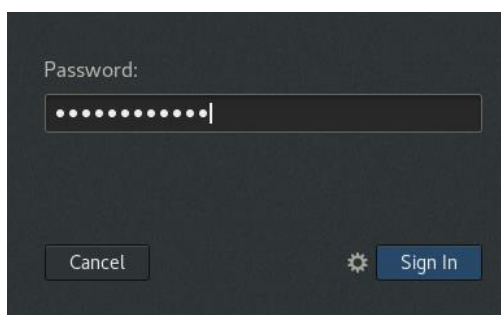

Valid user :

```
for more details see su(1).
[makesh@localhost ~]$ su - demo
su: user demo does not exist
[makesh@localhost ~]$ ▉
```

Explanation:
a. When a user tries to login with any new user credentials, he or she cant be logged in. When we try to switch to other user which is not existing, it will also throw a warning message.

Assignment-2

Password changing
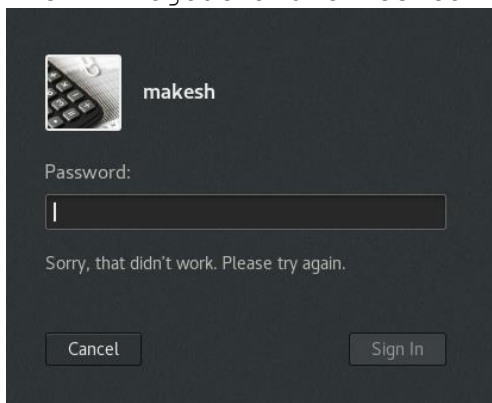
- Login into your account and then change password?
  - Change your password into *IneuR0n#42* and hit the **Enter** key

```
[makesh@localhost ~]$ passwd
Changing password for user makesh.
Changing password for makesh.
(current) UNIX password:
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[makesh@localhost ~]$ ▉
```
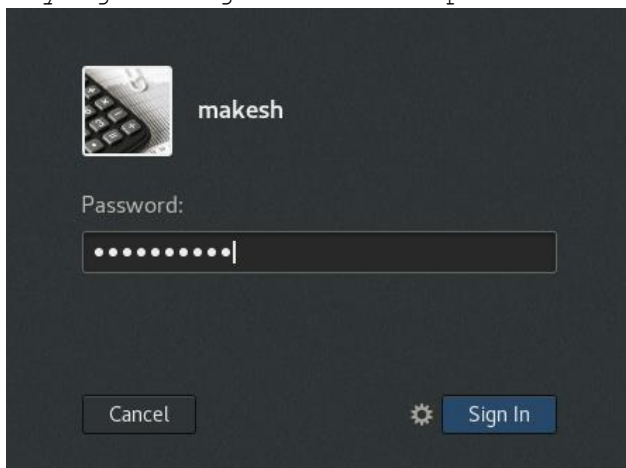
When I logout and tries to login with old pwd:

makesh

Password:

Sorry, that didn't work. Please try again.

Cancel   Sign In

Trying to login with new pwd:

makesh

Password:

••••••••••

Cancel   ⚙ Sign In

```
When I entered the right password it displayed the count of
wrong attempts made and Successfully logged in:
```
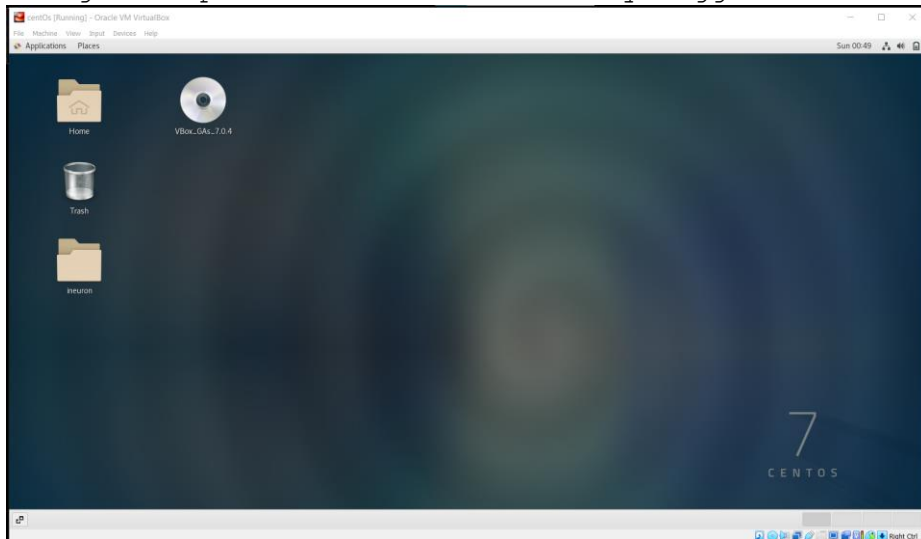

- o Try again to change password but use like password *1234* or *abcd*

Displayed error message : ***Getting*** authentication token manipulation error. So user needs to enter a strong password and when we enter password with length less than 8, error message is displayed.

- o Try again to change password but now don't use any password just hit **Enter** key
- o Answer: Got Authentication token manipulation error

```
makesh@localhost:~

File   Edit   View   Search   Terminal   Help

[makesh@localhost ~]$ passwd
Changing password for user makesh.
Changing password for makesh.
(current) UNIX password:
passwd: Authentication token manipulation error
[makesh@localhost ~]$ 1234
bash: 1234: command not found...
[makesh@localhost ~]$ passwd
Changing password for user makesh.
Changing password for makesh.
(current) UNIX password:
passwd: Authentication token manipulation error
[makesh@localhost ~]$ passwd
Changing password for user makesh.
Changing password for makesh.
(current) UNIX password:
passwd: Authentication token manipulation error
[makesh@localhost ~]$
```

Assignment-3

Working with Directories

- Enter the command **cd /** and then **ls** and then hit **Enter** key
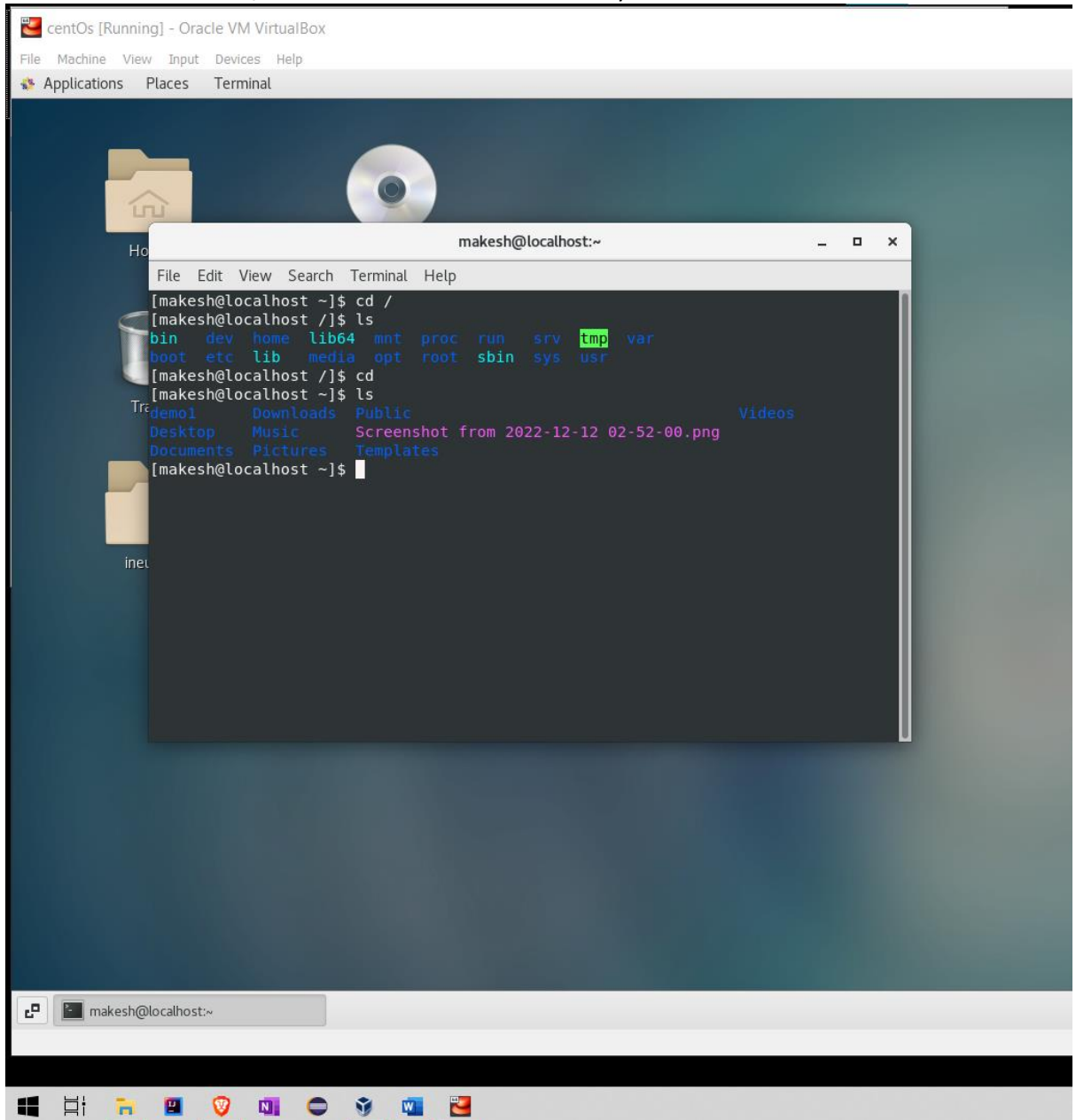
Cd / - move to the root directory
Ls – gives the list of files in that current root directory

- Enter the command now **cd /home** and then hit **Enter** key
  - o Do **ls,** provide screenshot and explain what is **/home** directory used for?

Explanation: List the home directory name

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

```
[makesh@localhost ~]$ cd Documents/
[makesh@localhost Documents]$ cd Desktop/
bash: cd: Desktop/: No such file or directory
[makesh@localhost Documents]$ cd ..
[makesh@localhost ~]$ ls
demo1        Downloads   Public                                  Videos
Desktop      Music       Screenshot from 2022-12-12 02-52-00.png
Documents    Pictures    Templates
[makesh@localhost ~]$ cd Desktop/
[makesh@localhost Desktop]$ ls
ineuron
[makesh@localhost Desktop]$ cd ..
[makesh@localhost ~]$ pwd
/home/makesh
[makesh@localhost ~]$ cd ..
[makesh@localhost home]$ pwd
/home
[makesh@localhost home]$ cd ..
[makesh@localhost /]$ pwd
/
[makesh@localhost /]$ cd ..
[makesh@localhost /]$ pwd
/
[makesh@localhost /]$
```

Explanation: To move back to the parent directory.

- Now enter **cd /var/www/html** and then type **cd** and hit **Enter** key

```
bash: cd: /var/war/html: No such file or directory
[makesh@localhost /]$ cd /var
[makesh@localhost var]$ ls
account  cache  db      games    kerberos  local  log   nis  preserve  spool  yp
adm      crash  empty   gopher   lib       lock   mail  opt  run       tmp
[makesh@localhost var]$
```

```
[makesh@localhost /]$ cd /var/war/html
bash: cd: /var/war/html: No such file or directory
```

- Since we don't have www folder inside, it was throwing error.

- Now type **cd /root** and then hit **Enter** key:

Answer: As a normal user, we don't have access to the root folder. Hence throwing error.

```
[makesh@localhost ~]$ cd /root
bash: cd: /root: Permission denied
[makesh@localhost ~]$ su
Password:
su: Authentication failure
[makesh@localhost ~]$ su
Password:
su: Authentication failure
[makesh@localhost ~]$ su
Password:
[root@localhost makesh]# cd /root
[root@localhost ~]# ls
anaconda-ks.cfg  initial-setup-ks.cfg
[root@localhost ~]#
```

Assignment-4

Working with File Listing

- Go to **cd /etc** and type **ls**

```
[makesh@localhost ~]$ cd /etc
[makesh@localhost etc]$ ls
abrt                     gcrypt              mke2fs.conf        rpc
adjtime                  gdbinit             modprobe.d         rpm
aliases                  gdbinit.d           modules-load.d     rsyncd.conf
aliases.db               gdm                 motd               rsyslog.conf
alsa                     geoclue             mtab               rsyslog.d
alternatives             GeoIP.conf          mtools.conf        rwtab
anacrontab               ghostscript         multipath          rwtab.d
asound.conf              glvnd               my.cnf             samba
at.deny                  gnupg               my.cnf.d           sane.d
audisp                   GREP_COLORS         nanorc             sasl2
audit                    groff               ndctl              scl
avahi                    group               netconfig          securetty
bash_completion.d        group-              NetworkManager     security
bashrc                   grub2.cfg           networks           selinux
binfmt.d                 grub.d              nfs.conf           services
bluetooth                gshadow             nfsmount.conf      sestatus.conf
brltty                   gshadow-            nsswitch.conf      setroubleshoot
brltty.conf              gss                 nsswitch.conf.bak  setuptool.d
centos-release           gssproxy            ntp                sgml
centos-release-upstream  host.conf           numad.conf         shadow
chkconfig.d              hostname            oddjob             shadow-
chrony.conf              hosts               oddjobd.conf       shells
chrony.keys              hosts.allow         oddjobd.conf.d     skel
cifs-utils               hosts.deny          openldap           smartmontools
cron.d                   hp                  opt                sos.conf
cron.daily               idmapd.conf         os-release         speech-dispatcher
cron.deny                init.d              PackageKit         ssh
cron.hourly              inittab             pam.d              ssl
cron.monthly             inputrc             papersize          statetab
crontab                  iproute2            passwd             statetab.d
cron.weekly              ipsec.conf          passwd-            subgid
crypttab                 ipsec.d             pbm2ppa.conf       subuid
csh.cshrc                ipsec.secrets       pinforc            sudo.conf
csh.login                iscsi               pkcs11             sudoers
cups                     issue               pki               sudoers.d
```

makesh@localhost:/etc   Home

Explanation:
- o All the configuration files are located and this can be treated as nerve centre of your Linux/Unix machine and contains system configuration information. It contains configuration files, executable files required to boot system and log files. These files are needed for the storage system to operate
- o Take screenshot and explain what different output you found compare to previous command you used?.

Explanation: In all the previous commands we are able to see only the files or folders which are present inside the particular directory. But we wont be able to see the config files of the OS,

- Then type **ls -al** and hit **Enter** key
  - o Take screenshot and explain what new file or directory you found?


```
[makesh@localhost etc]$ ls -al
total 1372
drwxr-xr-x. 139 root root    8192 Dec 18 01:16 .
dr-xr-xr-x.  17 root root     224 Dec 11 23:14 ..
drwxr-xr-x.   3 root root     101 Dec 11 23:06 abrt
-rw-r--r--.   1 root root      16 Dec 11 23:14 adjtime
-rw-r--r--.   1 root root    1529 Apr  1  2020 aliases
-rw-r--r--.   1 root root   12288 Dec 12 02:44 aliases.db
drwxr-xr-x.   3 root root      65 Dec 11 23:09 alsa
drwxr-xr-x.   2 root root    4096 Dec 12 05:57 alternatives
-rw-------.   1 root root     541 Jan 13  2022 anacrontab
-rw-r--r--.   1 root root      55 Aug  8  2019 asound.conf
-rw-r--r--.   1 root root       1 May 18  2022 at.deny
drwxr-x---.   3 root root      43 Dec 11 23:06 audisp
drwxr-x---.   3 root root      83 Dec 12 02:44 audit
drwxr-xr-x.   4 root root      71 Dec 11 23:09 avahi
drwxr-xr-x.   2 root root    4096 Dec 12 05:56 bash_completion.d
-rw-r--r--.   1 root root    2853 Apr  1  2020 bashrc
drwxr-xr-x.   2 root root       6 Sep  1 20:27 binfmt.d
drwxr-xr-x.   2 root root      23 Dec 11 23:06 bluetooth
```

makesh@localhost:/etc   Home

```
User is able to see the hidden files like . and .. which cant be
seen in ls command. So -a is added along with ls command and l
provides the permission info of the directory and file.
```

- Then use **ls -i** and hit **Enter** key

Explanation:
Displays the reference number or node for each file and directory

- Then use **ls –help** and see other options about **ls** command

```
[makesh@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
      --file-type            likewise, except do not append '*'
      --format=WORD          across -x, commas -m, horizontal -x, long -l,
                               single-column -1, verbose -l, vertical -C
      --full-time            like -l --time-style=full-iso
  -g                         like -l, but do not list owner
      --group-directories-first
                             group directories before files;
                               can be augmented with a --sort option, but any
                               use of --sort=none (-U) disables grouping
  -G, --no-group             in a long listing, don't print group names
  -h, --human-readable       with -l, print sizes in human readable format
                               (e.g., 1K 234M 2G)
      --si                   likewise, but use powers of 1000 not 1024
```

⌨	▣ makesh@localhost:/etc		🗄 Home
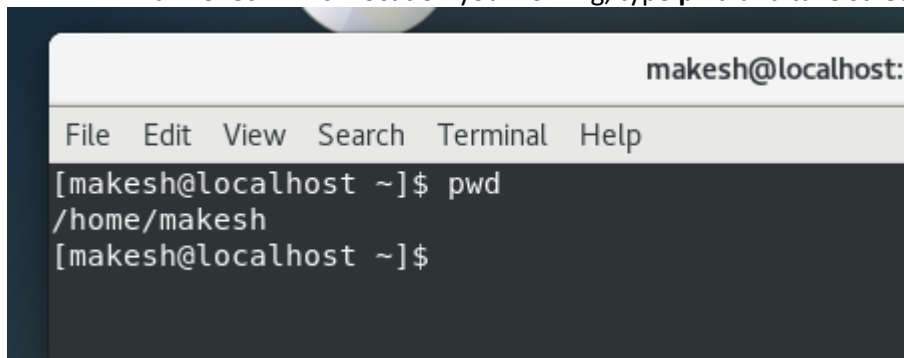
- o Explore it and try with other attribute we can use with **ls** command

Assignment-5
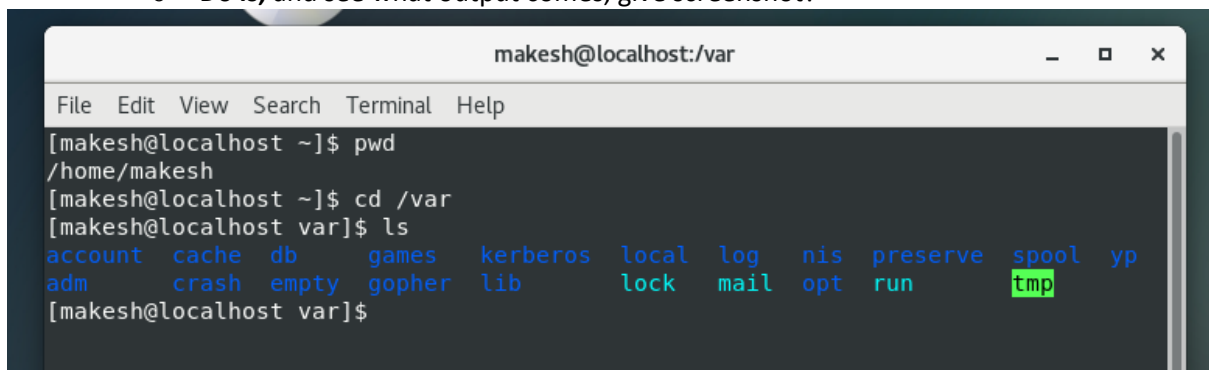
Know where you are and where you working

*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.*

- Open terminal after restart the linux
  - Check which location you working, type **pwd** and take screenshot

- Now use **cd /var** and hit **Enter** key

  - Do **ls,** and see what output comes, give screenshot?


```
Other Assignment given during class:
```
Assignment -1 : Install all the dependencies to make centOS fullscreen

Command used: sudo – to move to root user

1. Sudo yum -y install gcc
   a. Install gcc package and 4 other dependent package (cpp, glibe-devel, glibe-headers, kernel-headers)

```
Transaction Summary
================================================================================
Install  1 Package (+4 Dependent packages)

Total download size: 33 M
Installed size: 59 M
Downloading packages:
No Presto metadata available for base
No Presto metadata available for updates
(1/5): glibc-headers-2.17-326.el7_9.x86_64.rpm                | 691 kB  00:00:01
(2/5): glibc-devel-2.17-326.el7_9.x86_64.rpm                  | 1.1 MB  00:00:03
(3/5): cpp-4.8.5-44.el7.x86_64.rpm                            | 5.9 MB  00:00:16
(4/5): kernel-headers-3.10.0-1160.80.1.el7.x86_64.rpm         | 9.1 MB  00:00:20
(5/5): gcc-4.8.5-44.el7.x86_64.rpm                            |  16 MB  00:00:23
--------------------------------------------------------------------------------
Total                                              1.4 MB/s |  33 MB  00:23
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : cpp-4.8.5-44.el7.x86_64                                     1/5
  Installing : kernel-headers-3.10.0-1160.80.1.el7.x86_64                  2/5
  Installing : glibc-headers-2.17-326.el7_9.x86_64                         3/5
  Installing : glibc-devel-2.17-326.el7_9.x86_64                           4/5
  Installing : gcc-4.8.5-44.el7.x86_64                                     5/5
  Verifying  : glibc-headers-2.17-326.el7_9.x86_64                         1/5
  Verifying  : gcc-4.8.5-44.el7.x86_64                                     2/5
  Verifying  : kernel-headers-3.10.0-1160.80.1.el7.x86_64                  3/5
  Verifying  : glibc-devel-2.17-326.el7_9.x86_64                           4/5
  Verifying  : cpp-4.8.5-44.el7.x86_64                                     5/5

Installed:
  gcc.x86_64 0:4.8.5-44.el7

Dependency Installed:
  cpp.x86_64 0:4.8.5-44.el7              glibc-devel.x86_64 0:2.17-326.el7_9
  glibc-headers.x86_64 0:2.17-326.el7_9  kernel-headers.x86_64 0:3.10.0-1160.80.1.el7

Complete!
```

2. Sudo yum install make perl
   a. Package 1:make already installed and latest version
   b. Package 4:perl already installed and latest version

```
[root@localhost makesh]# sudo yum install make perl
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirrors.nxtgen.com
 * extras: mirrors.nxtgen.com
 * updates: mirrors.nxtgen.com
Package 1:make-3.82-24.el7.x86_64 already installed and latest version
Package 4:perl-5.16.3-299.el7_9.x86_64 already installed and latest version
Nothing to do
```

3. Installing package kernel-devel:
   a. Installing the package kernel-devel

```
[root@localhost makesh]# sudo yum -y install kernel-devel-$(uname -r)
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirrors.nxtgen.com
 * extras: mirrors.nxtgen.com
 * updates: mirrors.nxtgen.com
Resolving Dependencies
--> Running transaction check
---> Package kernel-devel.x86_64 0:3.10.0-1160.80.1.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package            Arch        Version                   Repository      Size
================================================================================
Installing:
 kernel-devel       x86_64      3.10.0-1160.80.1.el7      updates         18 M

Transaction Summary
================================================================================
Install  1 Package

Total download size: 18 M
Installed size: 38 M
Downloading packages:
No Presto metadata available for updates
kernel-devel-3.10.0-1160.80.1.el7.x86_64.rpm             |  18 MB  00:00:06
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : kernel-devel-3.10.0-1160.80.1.el7.x86_64                    1/1
  Verifying  : kernel-devel-3.10.0-1160.80.1.el7.x86_64                    1/1

Installed:
  kernel-devel.x86_64 0:3.10.0-1160.80.1.el7
```

4. Sudo yum install elfutils-libelf-devel:
   a. Installing the package elfutils-libelf-devel and it's dependent package: zlib-debel
   b. Enter y when prompted

File   Machine   View   Input   Devices   Help

🔧 Applications   Places   Terminal

File   Edit   View   Search   Terminal   Help

```
[root@localhost makesh]# sudo yum install elfutils-libelf-devel
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirrors.nxtgen.com
 * extras: mirrors.nxtgen.com
 * updates: mirrors.nxtgen.com
Resolving Dependencies
--> Running transaction check
---> Package elfutils-libelf-devel.x86_64 0:0.176-5.el7 will be installed
--> Processing Dependency: pkgconfig(zlib) for package: elfutils-libelf-devel-0.176-5.el7.x86_64
--> Running transaction check
---> Package zlib-devel.x86_64 0:1.2.7-20.el7_9 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package                Arch          Version             Repository      Size
================================================================================
Installing:
 elfutils-libelf-devel  x86_64        0.176-5.el7         base            40 k
Installing for dependencies:
 zlib-devel             x86_64        1.2.7-20.el7_9       updates         50 k

Transaction Summary
================================================================================
Install  1 Package (+1 Dependent package)

Total download size: 90 k
Installed size: 164 k
Is this ok [y/d/N]: y
Downloading packages:
(1/2): elfutils-libelf-devel-0.176-5.el7.x86_64.rpm          |  40 kB  00:00:00
(2/2): zlib-devel-1.2.7-20.el7_9.x86_64.rpm                  |  50 kB  00:00:00
--------------------------------------------------------------------------------
Total                                      178 kB/s |  90 kB  00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : zlib-devel-1.2.7-20.el7_9.x86_64                            1/2
  Installing : elfutils-libelf-devel-0.176-5.el7.x86_64                    2/2
  Verifying  : zlib-devel-1.2.7-20.el7_9.x86_64                            1/2
  Verifying  : elfutils-libelf-devel-0.176-5.el7.x86_64                    2/2

Installed:
  elfutils-libelf-devel.x86_64 0:0.176-5.el7

Dependency Installed:
  zlib-devel.x86_64 0:1.2.7-20.el7_9

Complete!
[root@localhost makesh]# su -l
```
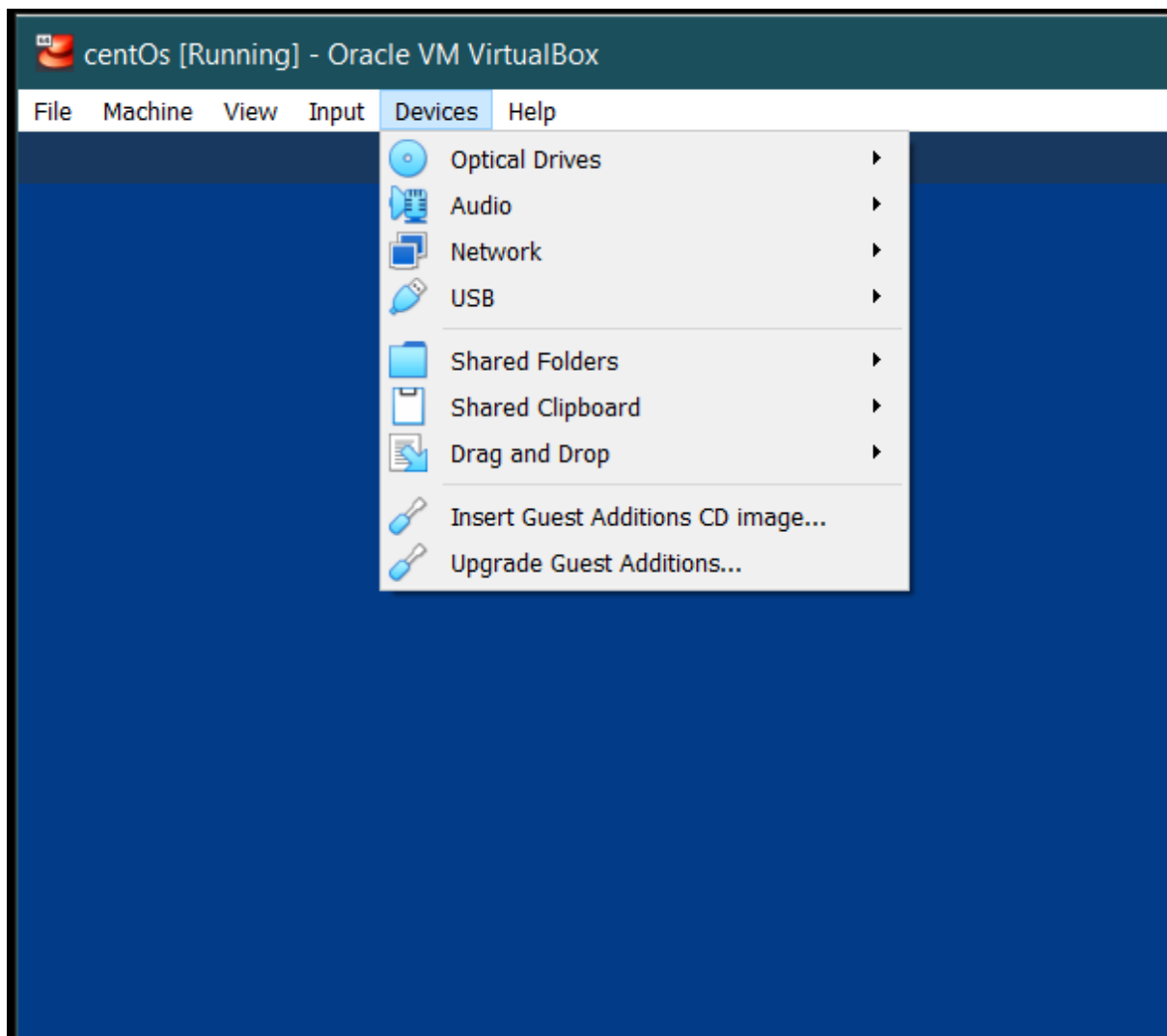
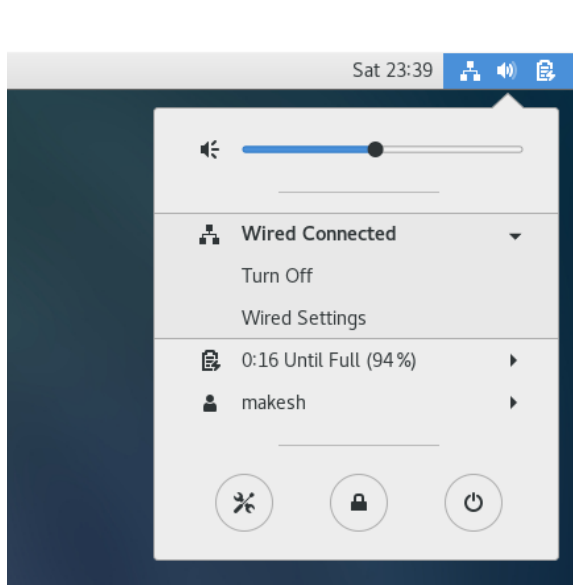🖥️ 🖥️ root@localhost:~   📁 Home

Go to home and remove the disk edition

Click on devices -> Insert Guest additions CD image

You will see a cd in the home page. Now click view from the menu bar and select full screen mode or click right ctrl+F button. The centOS will be in full screen mode...!

Note: Sometimes it may display as error. Check if the wired connection is connected.

Assignment -2 : Update centOS machine

Move to the root user. This can be identified using # symbol

Command:

su -   : to move to root user i.e) switch user

sudo yum -y update : to update and -y signifies yes i.e) to disable the confirmation prompt

Why yum?

Yum is the primary command to get, install, delete, querying packages from the repositories

Why sudo?

Super User DO – command used to execute commands either as root user or another user

Let's assume two users, who is admin and makesh. If I have logged in as Makesh and if I need to switch to admin,

sudo su – [username] : to switch from one user to another user

sudo - : used to switch to root user