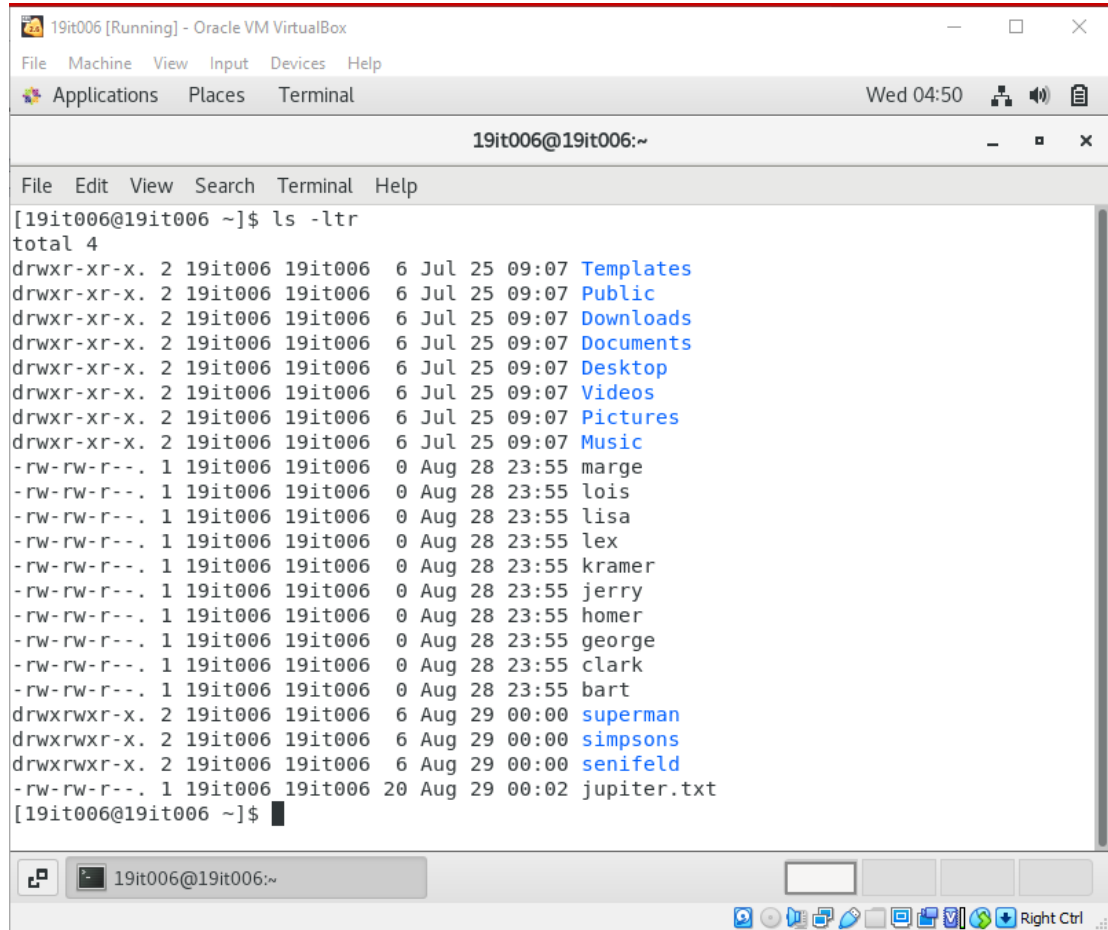


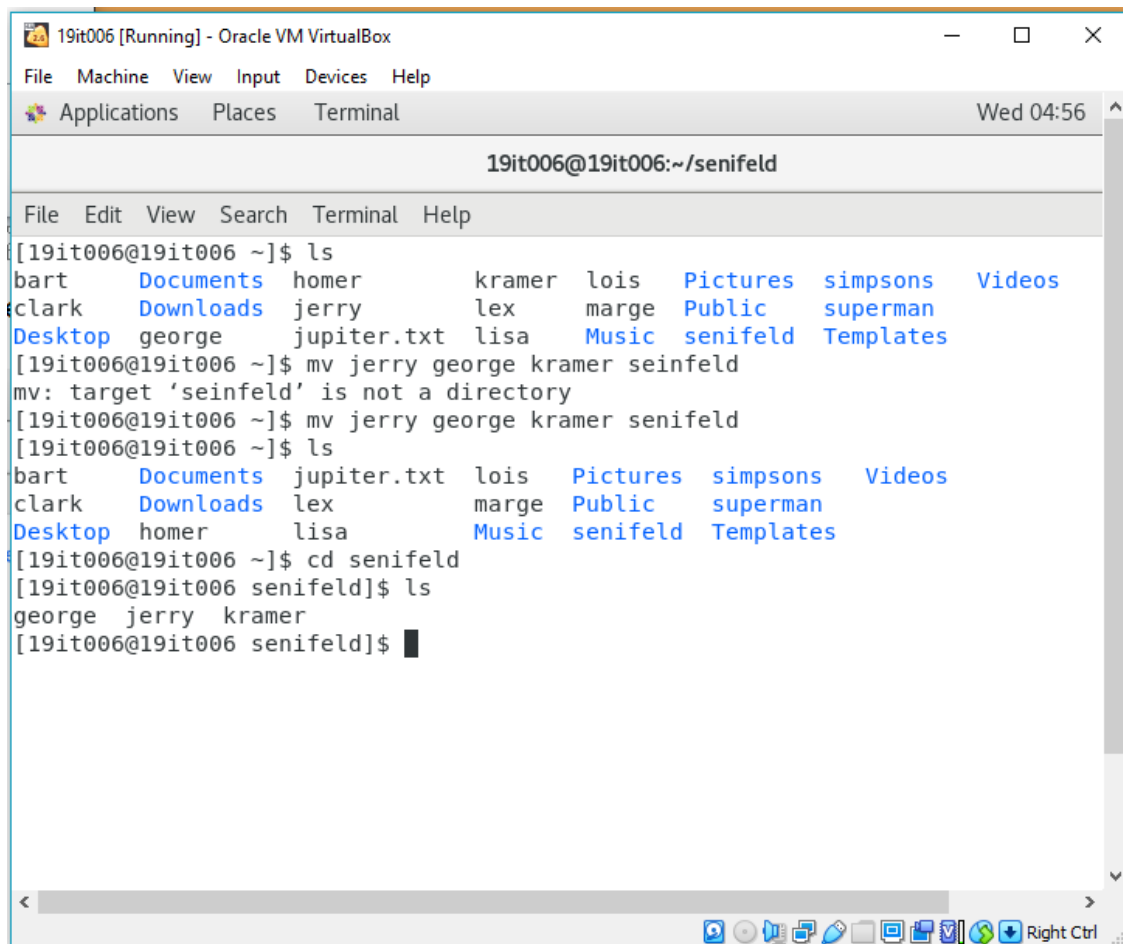
## Practical 3

- List files in your home directory by the last time they were modified



```
[19it006@19it006 ~]$ ls -ltr
total 4
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Templates
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Public
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Downloads
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Documents
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Desktop
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Videos
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Pictures
drwxr-xr-x. 2 19it006 19it006 6 Jul 25 09:07 Music
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 marge
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 lois
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 lisa
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 lex
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 kramer
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 jerry
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 homer
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 george
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 clark
-rw-rw-r--. 1 19it006 19it006 0 Aug 28 23:55 bart
drwxrwxr-x. 2 19it006 19it006 6 Aug 29 00:00 superman
drwxrwxr-x. 2 19it006 19it006 6 Aug 29 00:00 simpsons
drwxrwxr-x. 2 19it006 19it006 6 Aug 29 00:00 senifeld
-rw-rw-r--. 1 19it006 19it006 20 Aug 29 00:02 jupiter.txt
[19it006@19it006 ~]$
```

- Move jerry, george, kramer and puddy files into seinfeld directory



The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar, there are tabs for "Applications", "Places", and "Terminal", with the "Terminal" tab selected. The top right corner shows the date and time "Wed 04:56". The terminal prompt is "19it006@19it006:~/seinfeld". The terminal content shows the following commands and output:

```
[19it006@19it006 ~]$ ls
bart      Documents  homer      kramer    lois      Pictures  simpsons  Videos
clark     Downloads  jerry      lex       marge     Public    superman
Desktop   george     jupiter.txt lisa      Music     seinfeld  Templates

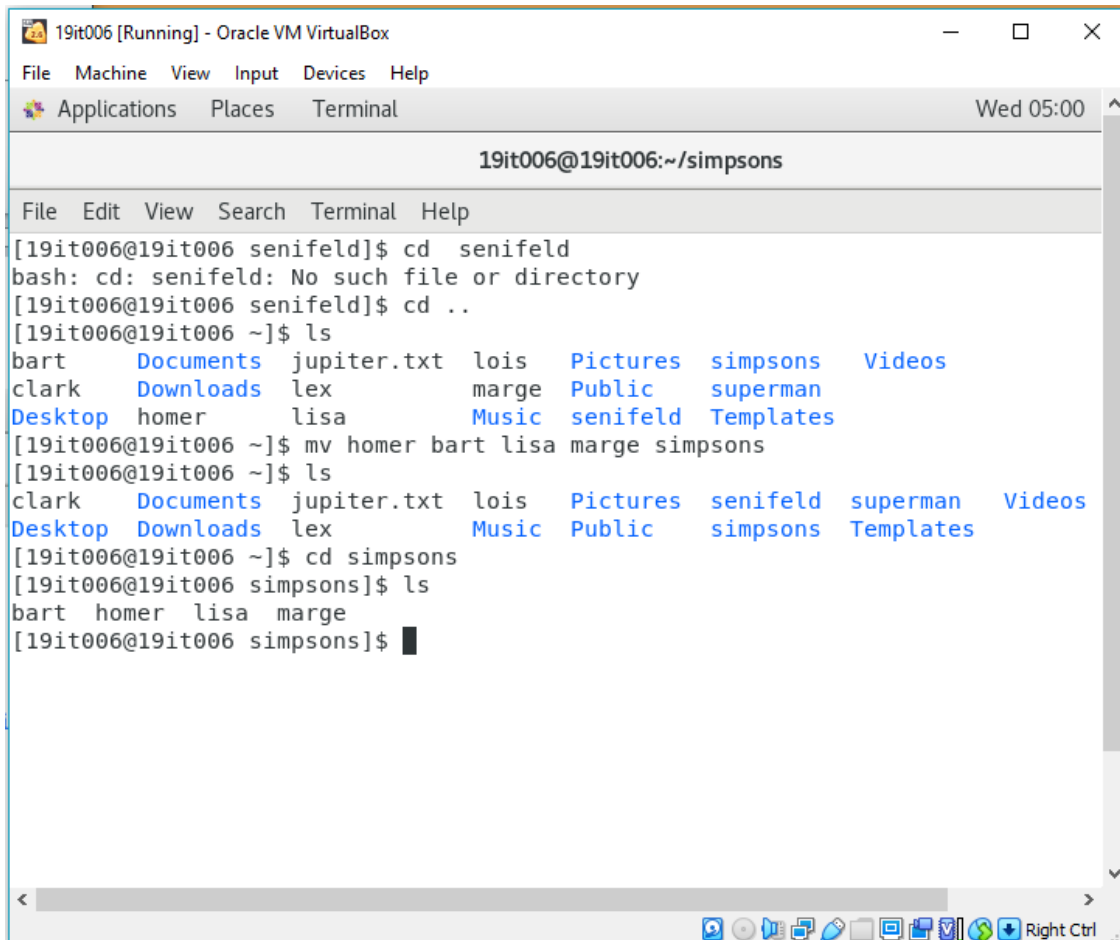
[19it006@19it006 ~]$ mv jerry george kramer seinfeld
mv: target 'seinfeld' is not a directory

[19it006@19it006 ~]$ mv jerry george kramer seinfeld
[19it006@19it006 ~]$ ls
bart      Documents  jupiter.txt lois      Pictures  simpsons  Videos
clark     Downloads  lex        marge     Public    superman
Desktop   homer      lisa      Music     seinfeld  Templates

[19it006@19it006 ~]$ cd seinfeld
[19it006@19it006 seinfeld]$ ls
george jerry kramer
[19it006@19it006 seinfeld]$
```

The terminal window also has a status bar at the bottom with various icons and the text "Right Ctrl".

- Move homer, bart, marge, lisa files in simpsons directory

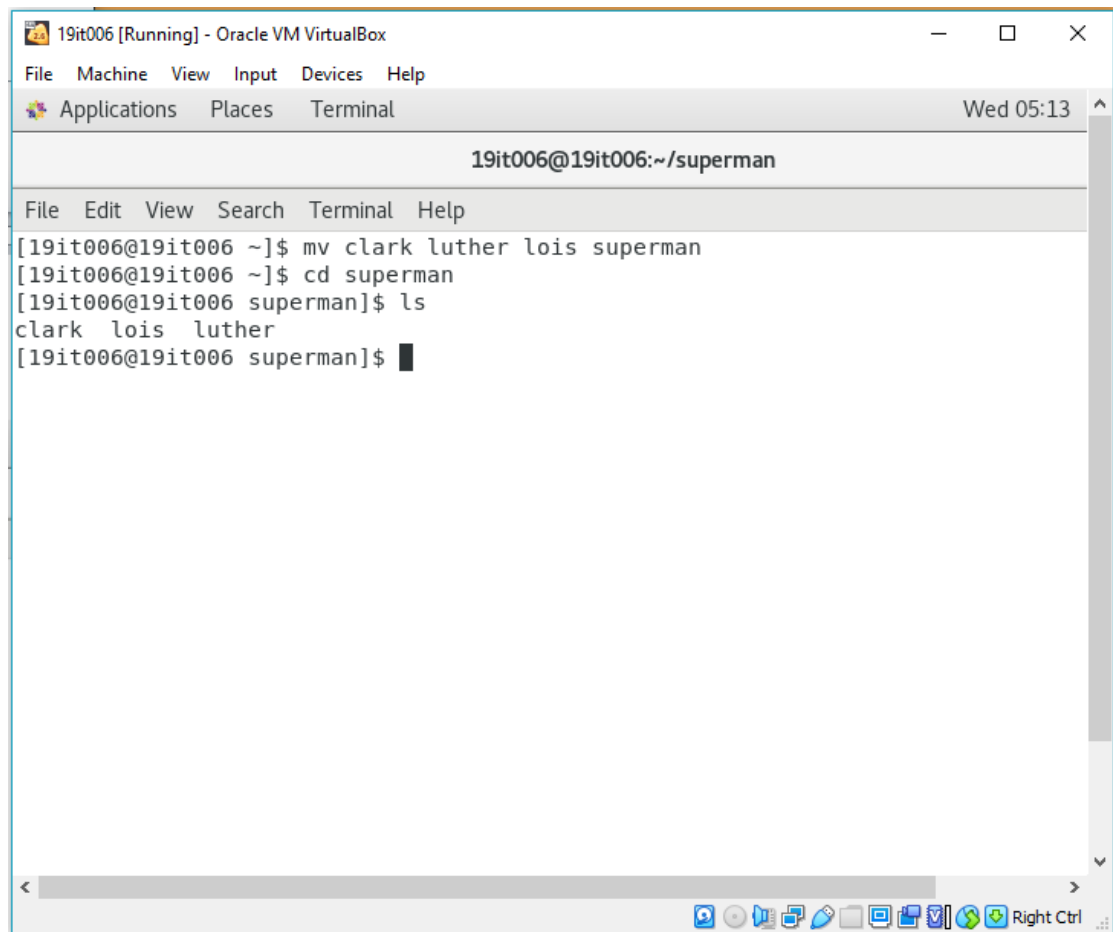


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal". The terminal displays the following commands and output:

```
19it006@19it006:~/simpsons
File Edit View Search Terminal Help
[19it006@19it006 senifeld]$ cd senifeld
bash: cd: senifeld: No such file or directory
[19it006@19it006 senifeld]$ cd ..
[19it006@19it006 ~]$ ls
bart    Documents  jupiter.txt  lois    Pictures  simpsons  Videos
clark   Downloads  lex          marge   Public    superman
Desktop homer     lisa        Music   senifeld  Templates
[19it006@19it006 ~]$ mv homer bart lisa marge simpsons
[19it006@19it006 ~]$ ls
clark   Documents  jupiter.txt  lois    Pictures  senifeld  superman  Videos
Desktop Downloads  lex          Music   Public    simpsons  Templates
[19it006@19it006 ~]$ cd simpsons
[19it006@19it006 simpsons]$ ls
bart homer lisa marge
[19it006@19it006 simpsons]$
```

The terminal window also shows a status bar at the bottom with various icons and the text "Right Ctrl".

- Move clark, luther and lois files in superman directory

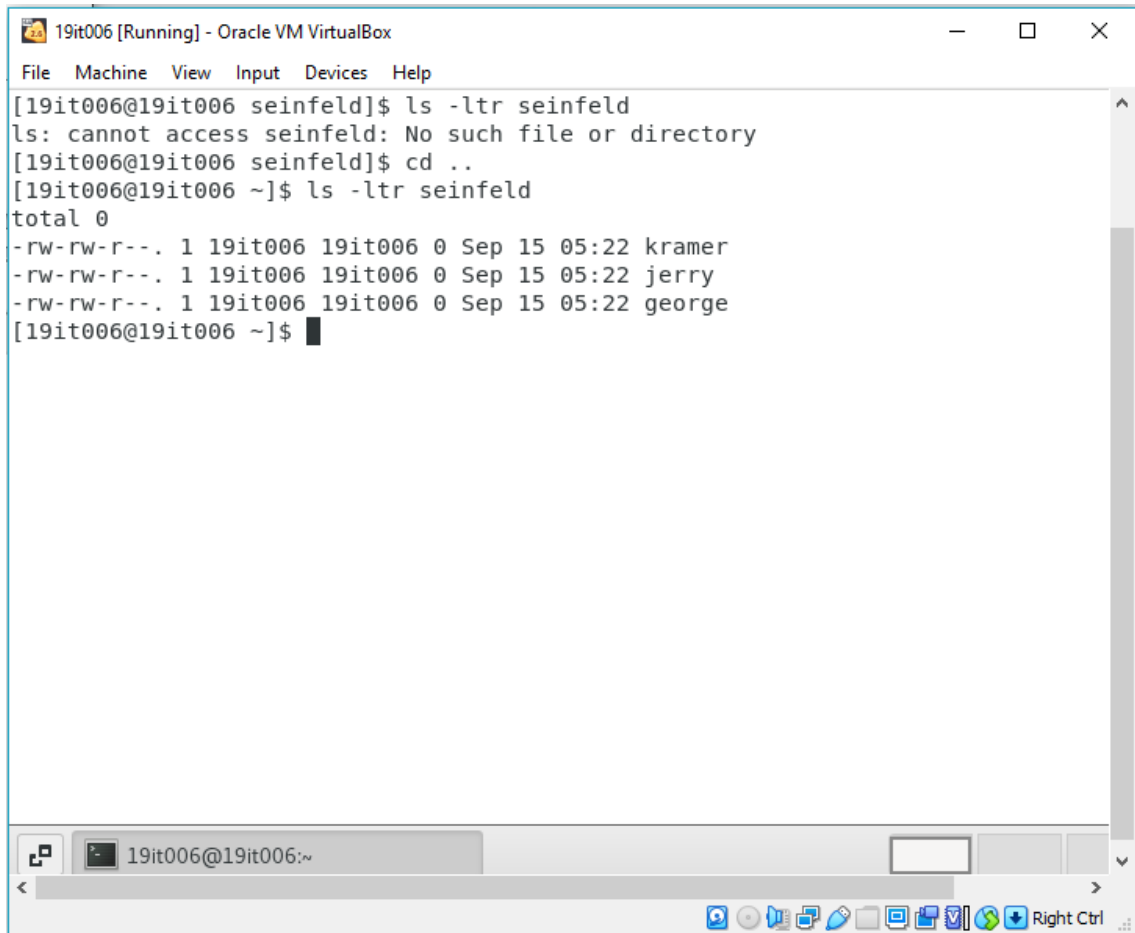


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal" buttons, and a clock showing "Wed 05:13". The terminal content shows the user "19it006@19it006:~/superman" and the following commands and output:

```
[19it006@19it006 ~]$ mv clark luther lois superman
[19it006@19it006 ~]$ cd superman
[19it006@19it006 superman]$ ls
clark  lois  luther
[19it006@19it006 superman]$
```

The terminal window also has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". At the bottom of the window is a taskbar with various icons and a "Right Ctrl" button.

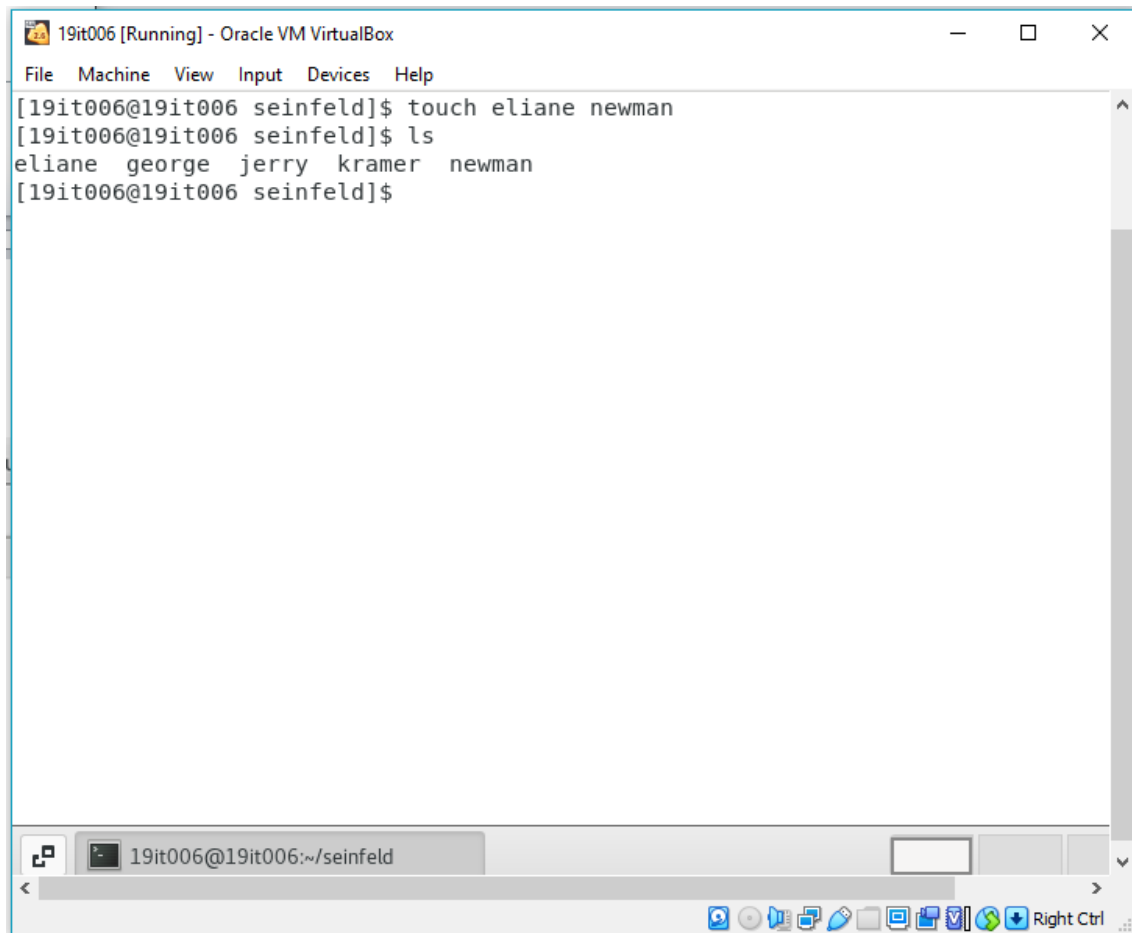
- List the content of seinfeld directory by the last time they were modified



The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". The command prompt is "[19it006@19it006 seinfeld]\$". The user enters the command "ls -ltr seinfeld", which results in an error: "ls: cannot access seinfeld: No such file or directory". The user then enters "cd .." to move to the parent directory. The prompt changes to "[19it006@19it006 ~]\$". The user enters "ls -ltr seinfeld" again. The output shows "total 0" followed by three lines of file permissions, owner, group, size, date, and filename: "-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer", "-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry", and "-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george". The prompt returns to "[19it006@19it006 ~]\$". The terminal window has a taskbar at the bottom with various icons and a "Right Ctrl" button.

```
[19it006@19it006 seinfeld]$ ls -ltr seinfeld
ls: cannot access seinfeld: No such file or directory
[19it006@19it006 seinfeld]$ cd ..
[19it006@19it006 ~]$ ls -ltr seinfeld
total 0
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george
[19it006@19it006 ~]$
```

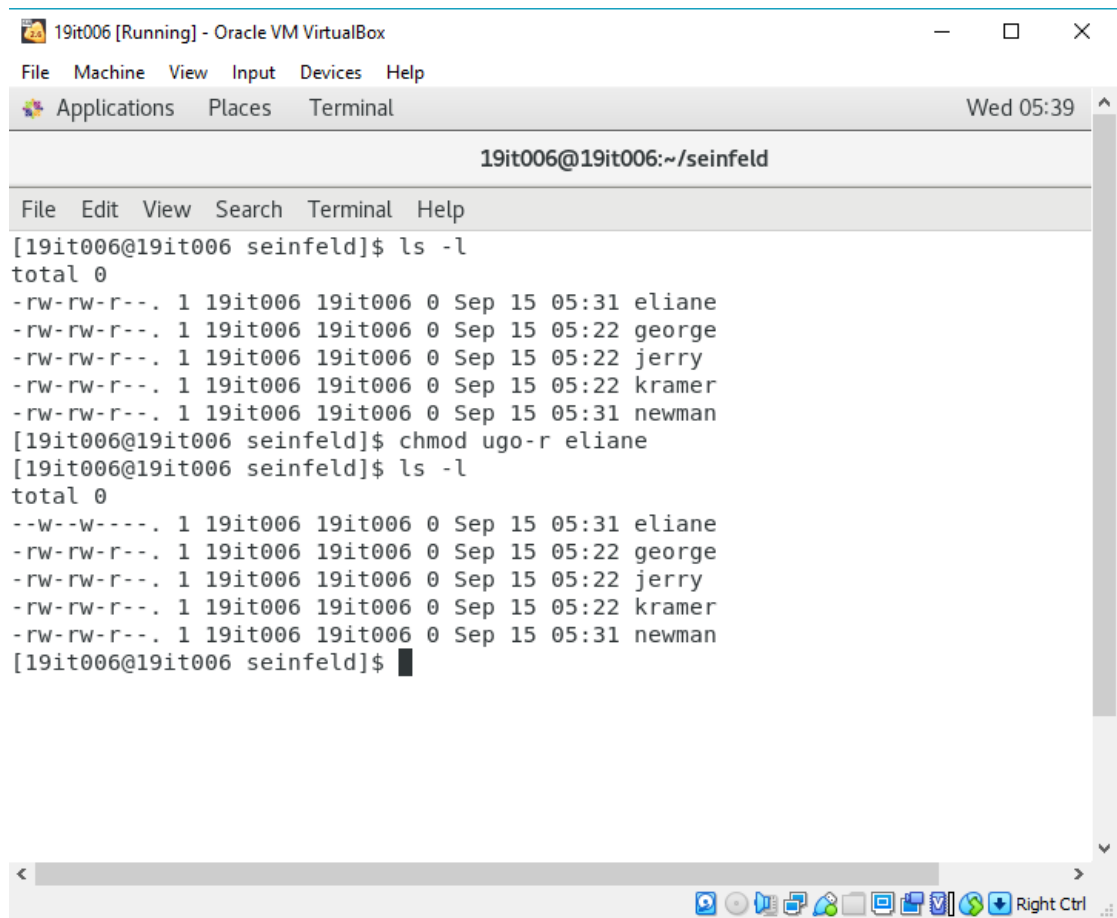
- Create 2 new files in seinfeld directory, eliane and newman



The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". The command prompt is "[19it006@19it006 seinfeld]\$". The user enters the command "touch eliane newman". The prompt changes to "[19it006@19it006 seinfeld]\$". The user enters the command "ls". The output is "eliane george jerry kramer newman". The prompt returns to "[19it006@19it006 seinfeld]\$". At the bottom of the window, there is a taskbar with various icons and a "Right Ctrl" button.

```
[19it006@19it006 seinfeld]$ touch eliane newman
[19it006@19it006 seinfeld]$ ls
eliane george jerry kramer newman
[19it006@19it006 seinfeld]$
```

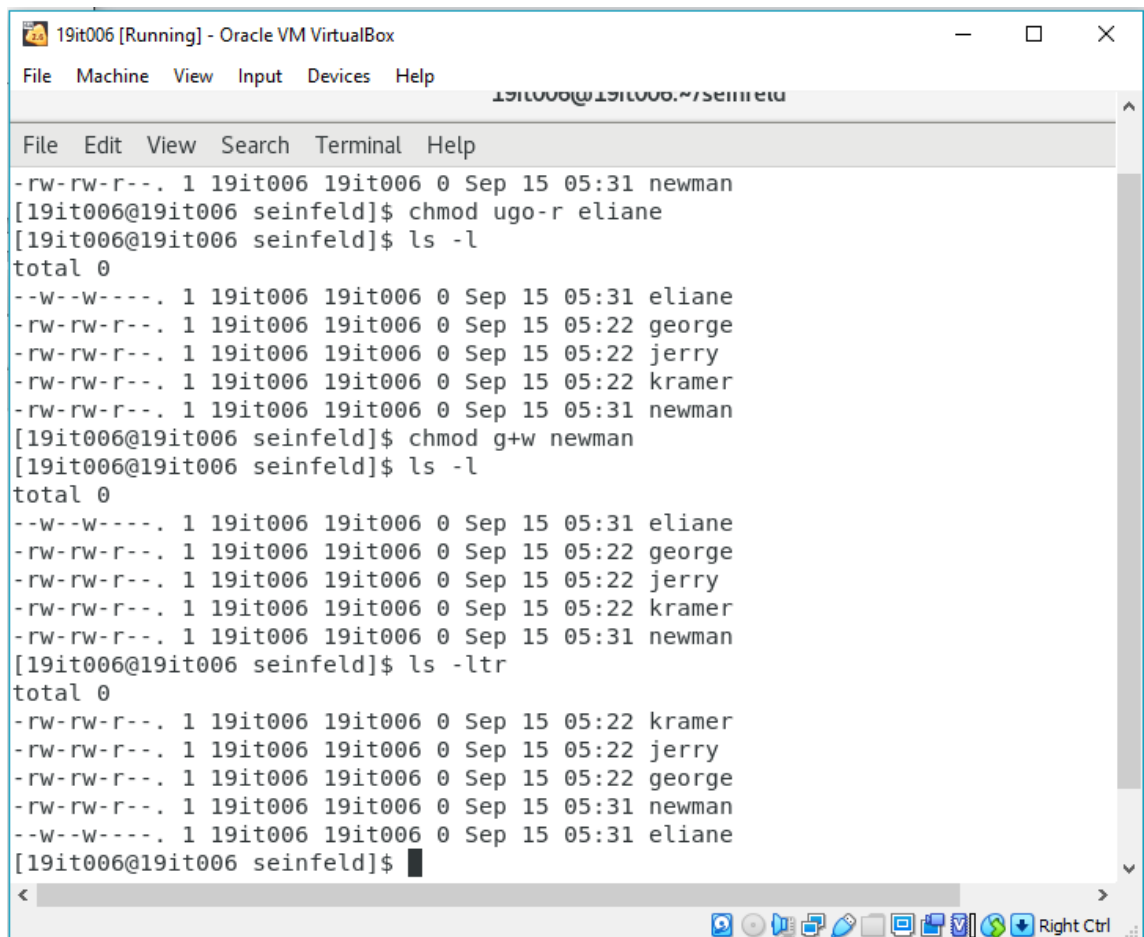
- change file permission of eliane to remove read access from everyone



The screenshot shows a terminal window titled "19it006 [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". The terminal content shows the user "19it006@19it006" in the directory "~/seinfeld". The user runs the command "ls -l", which lists five files: "eliane", "george", "jerry", "kramer", and "newman", all with permissions "-rw-rw-r--". The user then runs "chmod ugo-r eliane", which removes read access for everyone from the file "eliane". A second "ls -l" command confirms the change, showing the permissions for "eliane" as "--w--w----". The terminal window has a status bar at the bottom with a "Right Ctrl" button.

```
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 seinfeld]$ ls -l
total 0
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 eliane
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 newman
[19it006@19it006 seinfeld]$ chmod ugo-r eliane
[19it006@19it006 seinfeld]$ ls -l
total 0
--w--w----. 1 19it006 19it006 0 Sep 15 05:31 eliane
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 newman
[19it006@19it006 seinfeld]$
```

- change file permission of newman to add write permissions to only group

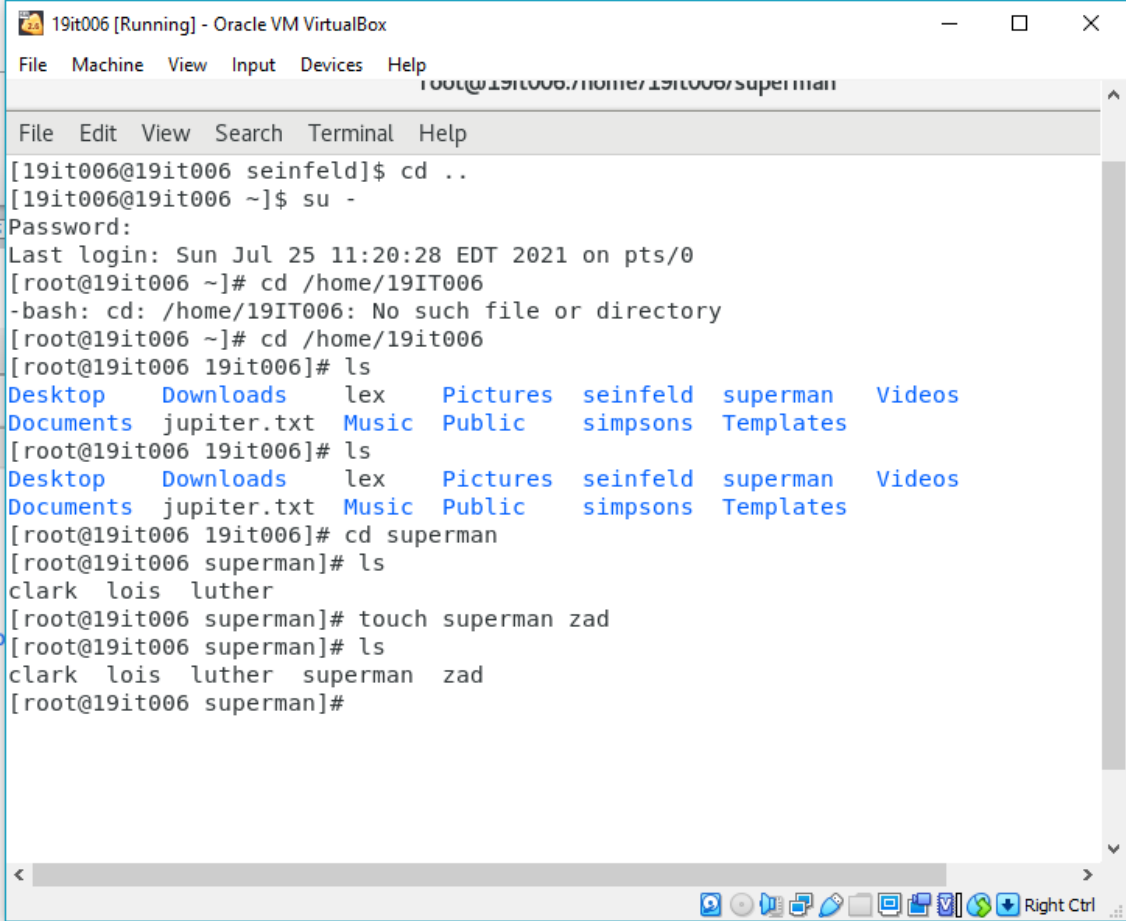


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal displays the following commands and output:

```
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 newman
[19it006@19it006 seinfeld]$ chmod ugo-r eliane
[19it006@19it006 seinfeld]$ ls -l
total 0
--w--w----. 1 19it006 19it006 0 Sep 15 05:31 eliane
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 newman
[19it006@19it006 seinfeld]$ chmod g+w newman
[19it006@19it006 seinfeld]$ ls -l
total 0
--w--w----. 1 19it006 19it006 0 Sep 15 05:31 eliane
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 newman
[19it006@19it006 seinfeld]$ ls -ltr
total 0
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 kramer
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 jerry
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:22 george
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:31 newman
--w--w----. 1 19it006 19it006 0 Sep 15 05:31 eliane
[19it006@19it006 seinfeld]$
```



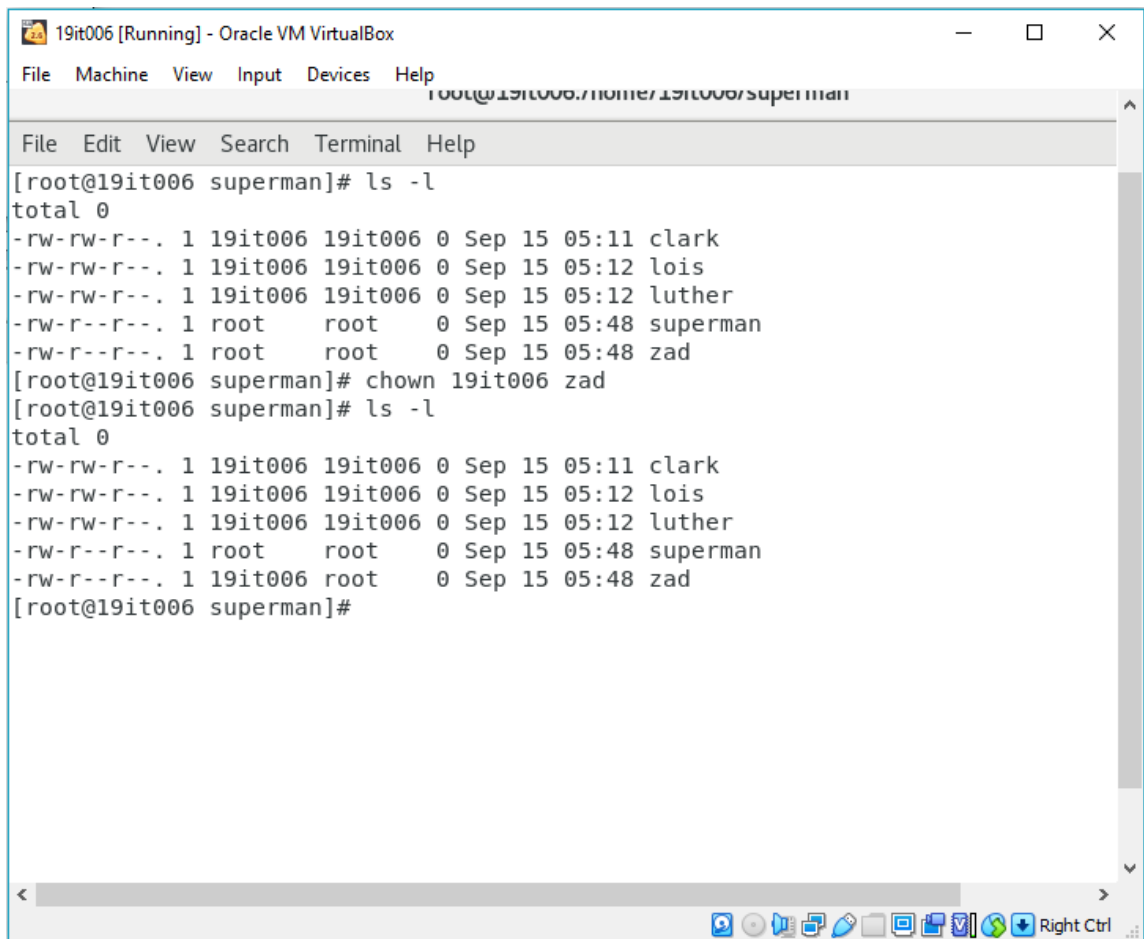
- Become root and cd into your home directory (e.g.,/home/admin). Then create 2 new files superman and zad in superman directory



```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@19it006:/home/19it006/superman

File Edit View Search Terminal Help
[19it006@19it006 seinfeld]$ cd ..
[19it006@19it006 ~]$ su -
Password:
Last login: Sun Jul 25 11:20:28 EDT 2021 on pts/0
[root@19it006 ~]# cd /home/19IT006
-bash: cd: /home/19IT006: No such file or directory
[root@19it006 ~]# cd /home/19it006
[root@19it006 19it006]# ls
Desktop    Downloads  lex       Pictures  seinfeld  superman  Videos
Documents  jupiter.txt Music     Public    simpsons  Templates
[root@19it006 19it006]# ls
Desktop    Downloads  lex       Pictures  seinfeld  superman  Videos
Documents  jupiter.txt Music     Public    simpsons  Templates
[root@19it006 19it006]# cd superman
[root@19it006 superman]# ls
clark  lois  luther
[root@19it006 superman]# touch superman zad
[root@19it006 superman]# ls
clark  lois  luther  superman  zad
[root@19it006 superman]#
```

- Change ownership of zad file from root to your username

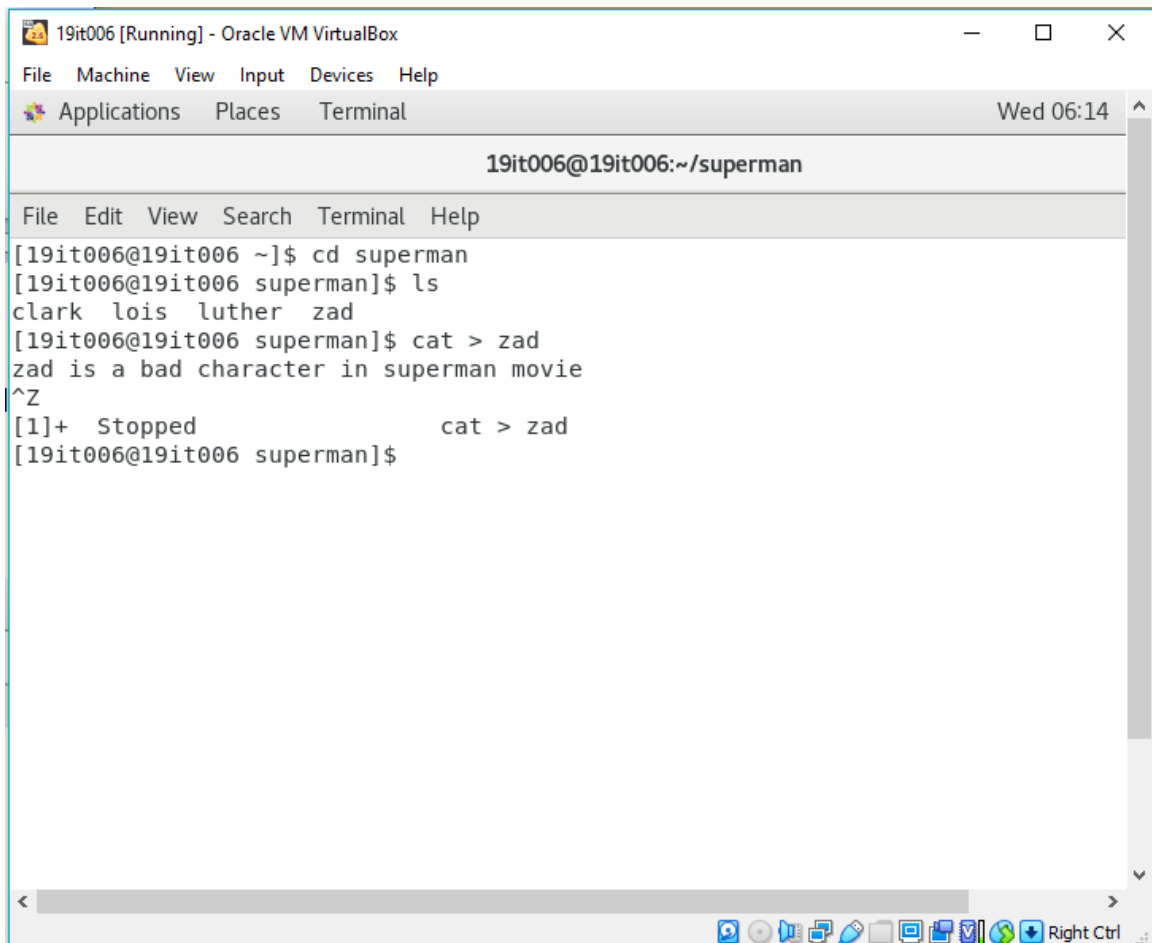


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal prompt is "root@19it006:/home/19it006/superman". The user runs the command "ls -l", which displays a list of files with their permissions, sizes, owners, and names. The file "zad" is currently owned by "root". The user then runs the command "chown 19it006 zad", which changes the ownership of "zad" to "19it006". Finally, the user runs "ls -l" again, and the output shows that "zad" is now owned by "19it006".

```
File Machine View Input Devices Help
root@19it006:/home/19it006/superman

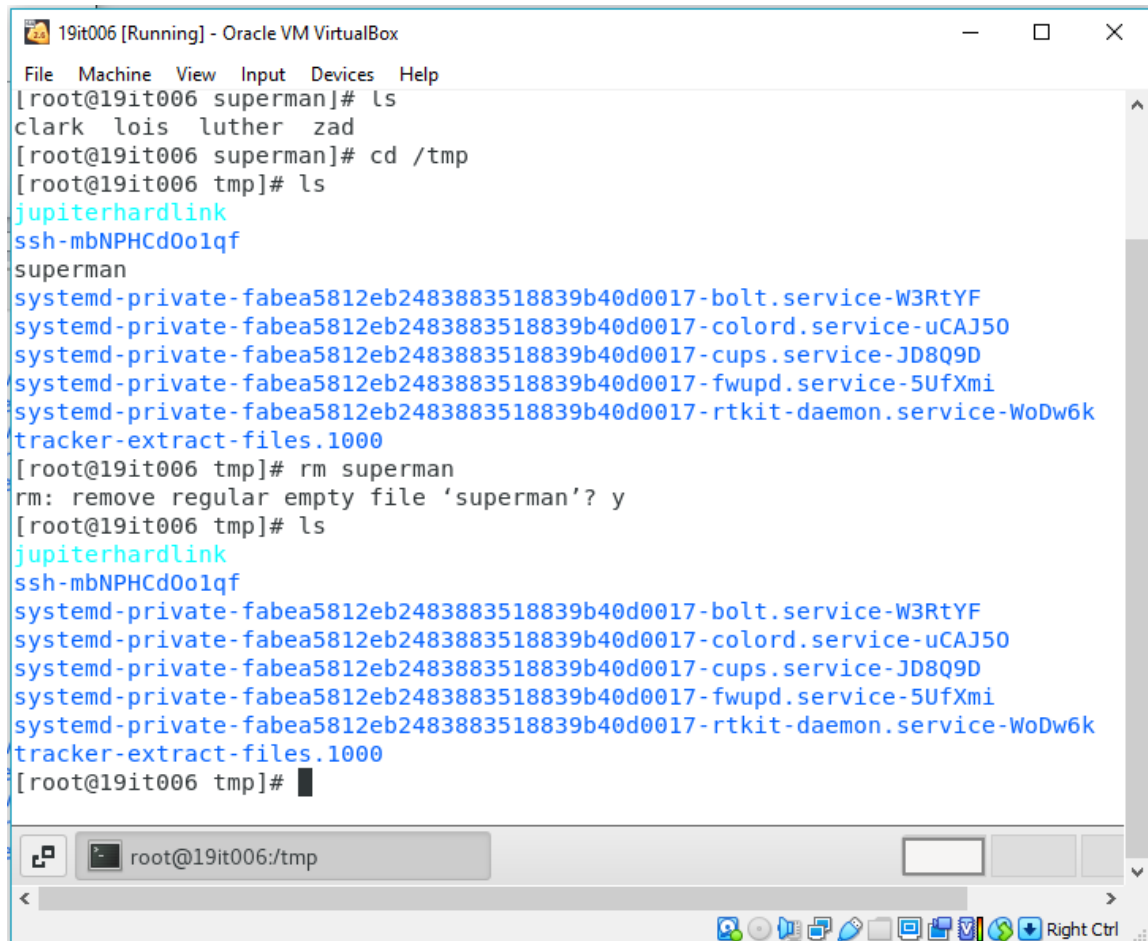
File Edit View Search Terminal Help
[root@19it006 superman]# ls -l
total 0
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:11 clark
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:12 lois
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:12 luther
-rw-r--r--. 1 root    root    0 Sep 15 05:48 superman
-rw-r--r--. 1 root    root    0 Sep 15 05:48 zad
[root@19it006 superman]# chown 19it006 zad
[root@19it006 superman]# ls -l
total 0
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:11 clark
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:12 lois
-rw-rw-r--. 1 19it006 19it006 0 Sep 15 05:12 luther
-rw-r--r--. 1 root    root    0 Sep 15 05:48 superman
-rw-r--r--. 1 19it006 root    0 Sep 15 05:48 zad
[root@19it006 superman]#
```

- Change group ownership of zad from root to your username



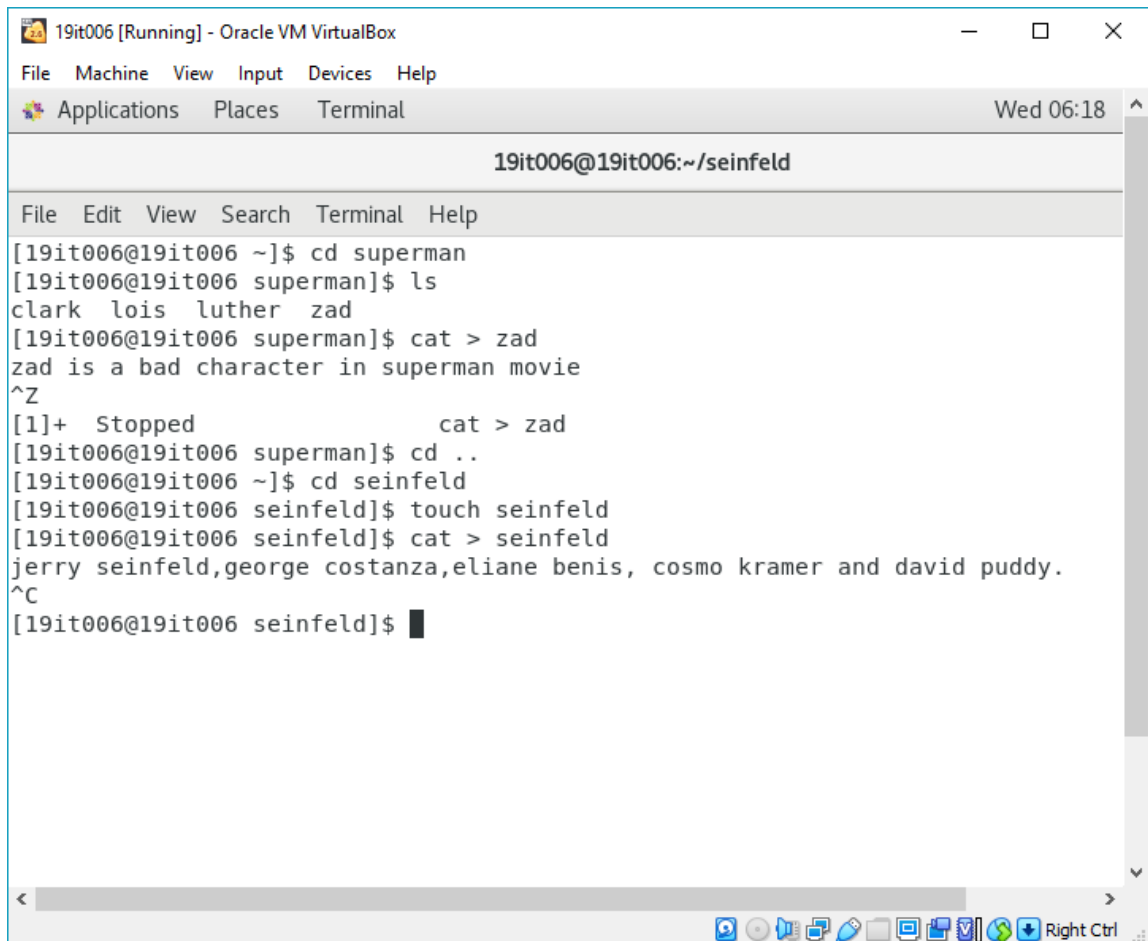
```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Wed 06:14
19it006@19it006:~/superman
File Edit View Search Terminal Help
[19it006@19it006 ~]$ cd superman
[19it006@19it006 superman]$ ls
clark lois luther zad
[19it006@19it006 superman]$ cat > zad
zad is a bad character in superman movie
^Z
[1]+  Stopped                  cat > zad
[19it006@19it006 superman]$
```

- Then move superman file to /tmp directory



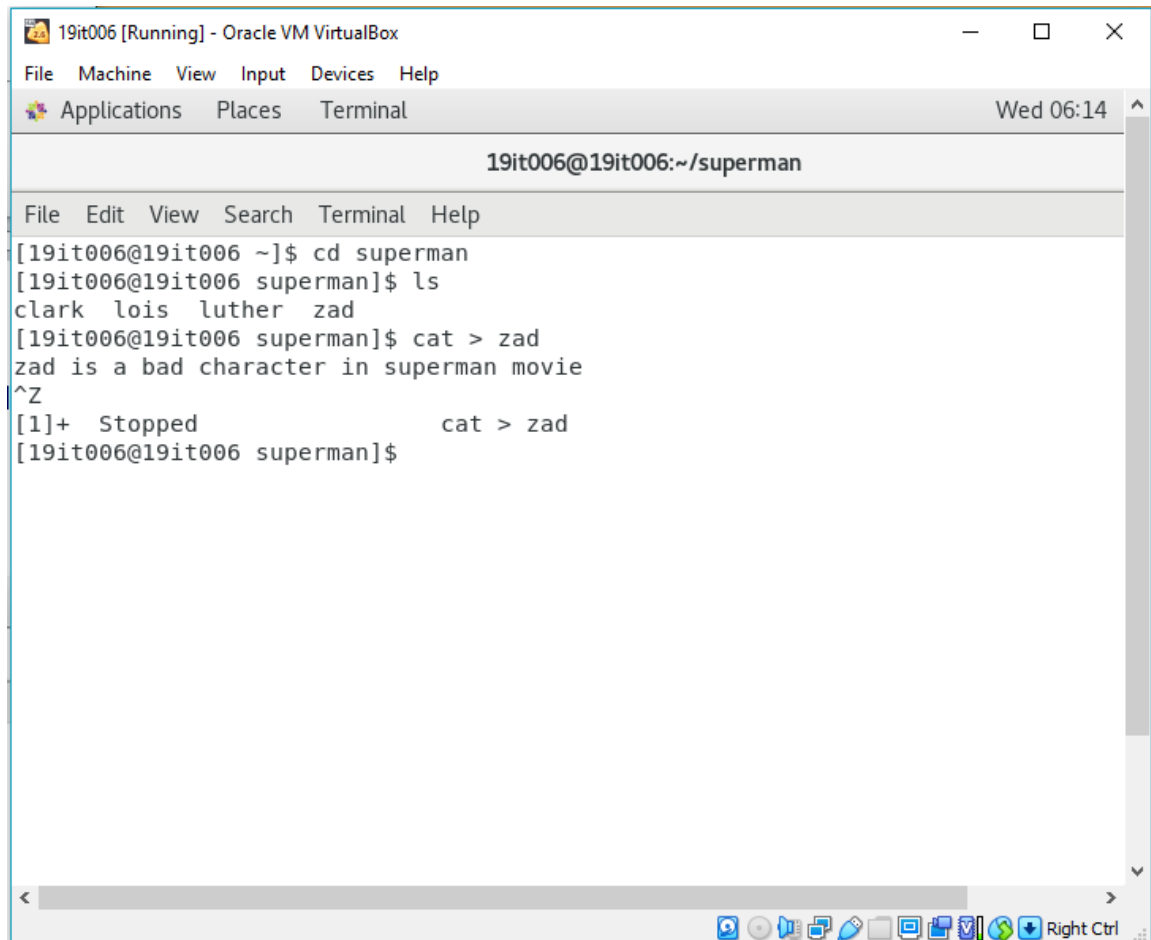
```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
[root@19it006 superman]# ls
clark lois luther zad
[root@19it006 superman]# cd /tmp
[root@19it006 tmp]# ls
jupiterhardlink
ssh-mbNPHCd0o1qf
superman
systemd-private-fabea5812eb2483883518839b40d0017-bolt.service-W3RtYF
systemd-private-fabea5812eb2483883518839b40d0017-colord.service-uCAJ50
systemd-private-fabea5812eb2483883518839b40d0017-cups.service-JD8Q9D
systemd-private-fabea5812eb2483883518839b40d0017-fwupd.service-5UfXmi
systemd-private-fabea5812eb2483883518839b40d0017-rtkit-daemon.service-WoDw6k
tracker-extract-files.1000
[root@19it006 tmp]# rm superman
rm: remove regular empty file 'superman'? y
[root@19it006 tmp]# ls
jupiterhardlink
ssh-mbNPHCd0o1qf
systemd-private-fabea5812eb2483883518839b40d0017-bolt.service-W3RtYF
systemd-private-fabea5812eb2483883518839b40d0017-colord.service-uCAJ50
systemd-private-fabea5812eb2483883518839b40d0017-cups.service-JD8Q9D
systemd-private-fabea5812eb2483883518839b40d0017-fwupd.service-5UfXmi
systemd-private-fabea5812eb2483883518839b40d0017-rtkit-daemon.service-WoDw6k
tracker-extract-files.1000
[root@19it006 tmp]#
```

- Remove superman file from /tmp directory



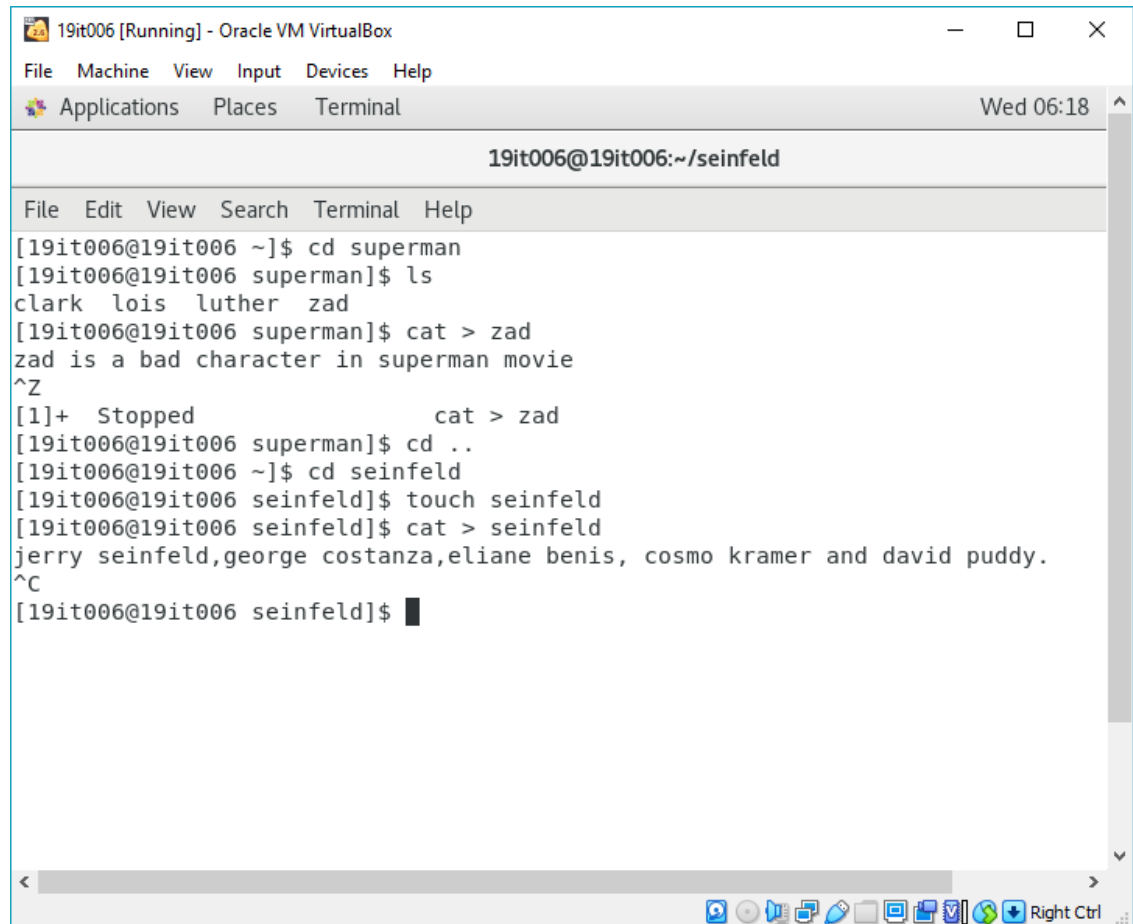
```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Wed 06:18
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 ~]$ cd superman
[19it006@19it006 superman]$ ls
clark lois luther zad
[19it006@19it006 superman]$ cat > zad
zad is a bad character in superman movie
^Z
[1]+  Stopped                  cat > zad
[19it006@19it006 superman]$ cd ..
[19it006@19it006 ~]$ cd seinfeld
[19it006@19it006 seinfeld]$ touch seinfeld
[19it006@19it006 seinfeld]$ cat > seinfeld
jerry seinfeld,george costanza,eliane benis, cosmo kramer and david puddy.
^C
[19it006@19it006 seinfeld]$
```

- Exit out of root account
- Go back to superman directory in your home directory and add this line to zad file "zad is a bad character in superman movie"



```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Wed 06:14
19it006@19it006:~/superman
File Edit View Search Terminal Help
[19it006@19it006 ~]$ cd superman
[19it006@19it006 superman]$ ls
clark lois luther zad
[19it006@19it006 superman]$ cat > zad
zad is a bad character in superman movie
^Z
[1]+  Stopped                  cat > zad
[19it006@19it006 superman]$
```

- Then go seinfeld directory and create a new file seinfeld.
- Add 5 seinfeld character's name in seinfeld file. Jerry Seinfeld, George Costanza, Eliane Benis, Cosmo Kramer, and David Puddy

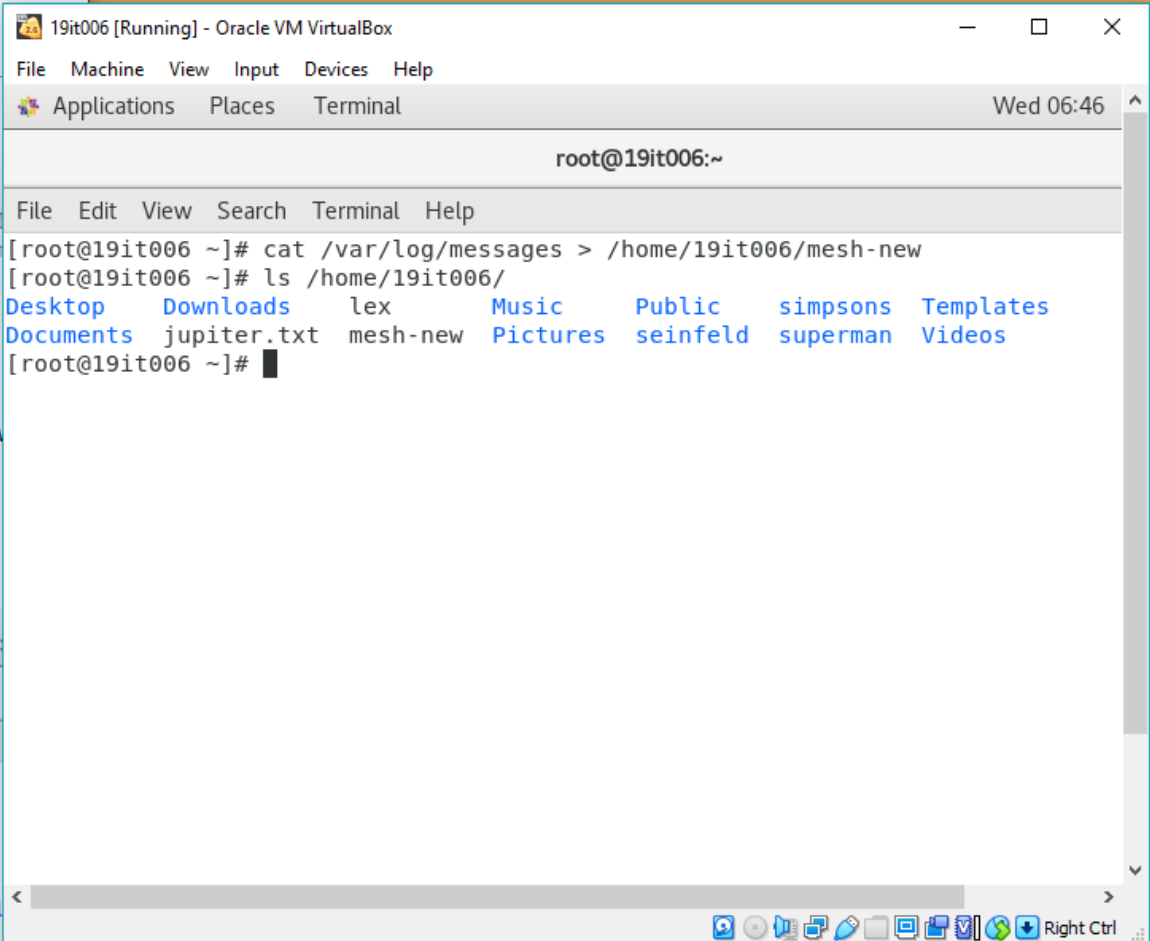


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal". The terminal displays the following commands and output:

```
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 ~]$ cd superman
[19it006@19it006 superman]$ ls
clark lois luther zad
[19it006@19it006 superman]$ cat > zad
zad is a bad character in superman movie
^Z
[1]+  Stopped                  cat > zad
[19it006@19it006 superman]$ cd ..
[19it006@19it006 ~]$ cd seinfeld
[19it006@19it006 seinfeld]$ touch seinfeld
[19it006@19it006 seinfeld]$ cat > seinfeld
jerry seinfeld,george costanza,eliane benis, cosmo kramer and david puddy.
^C
[19it006@19it006 seinfeld]$
```

The terminal window also shows a status bar at the bottom with various icons and the text "Right Ctrl".

- Become root user again
- Do cat /var/log/messages and output to a file called mesg-new in your home directory (e.g.,/home/Admin)

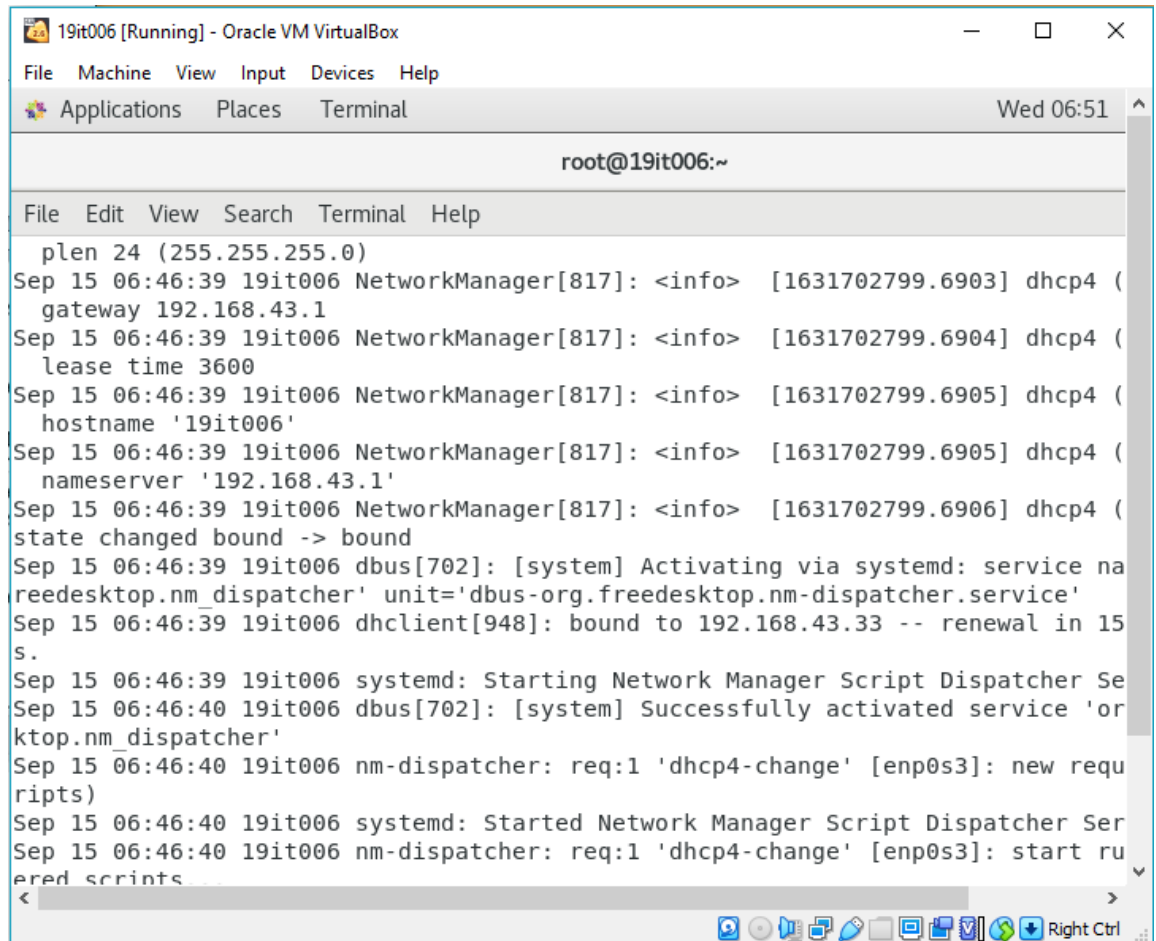


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal prompt is "root@19it006:~". The user has executed the command "cat /var/log/messages > /home/19it006/mesh-new". The output of the command is displayed as a list of files and directories: Desktop, Downloads, lex, Music, Public, simpsons, Templates, Documents, jupiter.txt, mesh-new, Pictures, seinfeld, superman, and Videos. The terminal window has a menu bar with File, Machine, View, Input, Devices, and Help. The status bar at the bottom shows the time as Wed 06:46 and a "Right Ctrl" button.

```
root@19it006:~  
File Edit View Search Terminal Help  
[root@19it006 ~]# cat /var/log/messages > /home/19it006/mesh-new  
[root@19it006 ~]# ls /home/19it006/  
Desktop Downloads lex Music Public simpsons Templates  
Documents jupiter.txt mesh-new Pictures seinfeld superman Videos  
[root@19it006 ~]#
```



- Read the mesg-new file with cat, more and less commands and practice

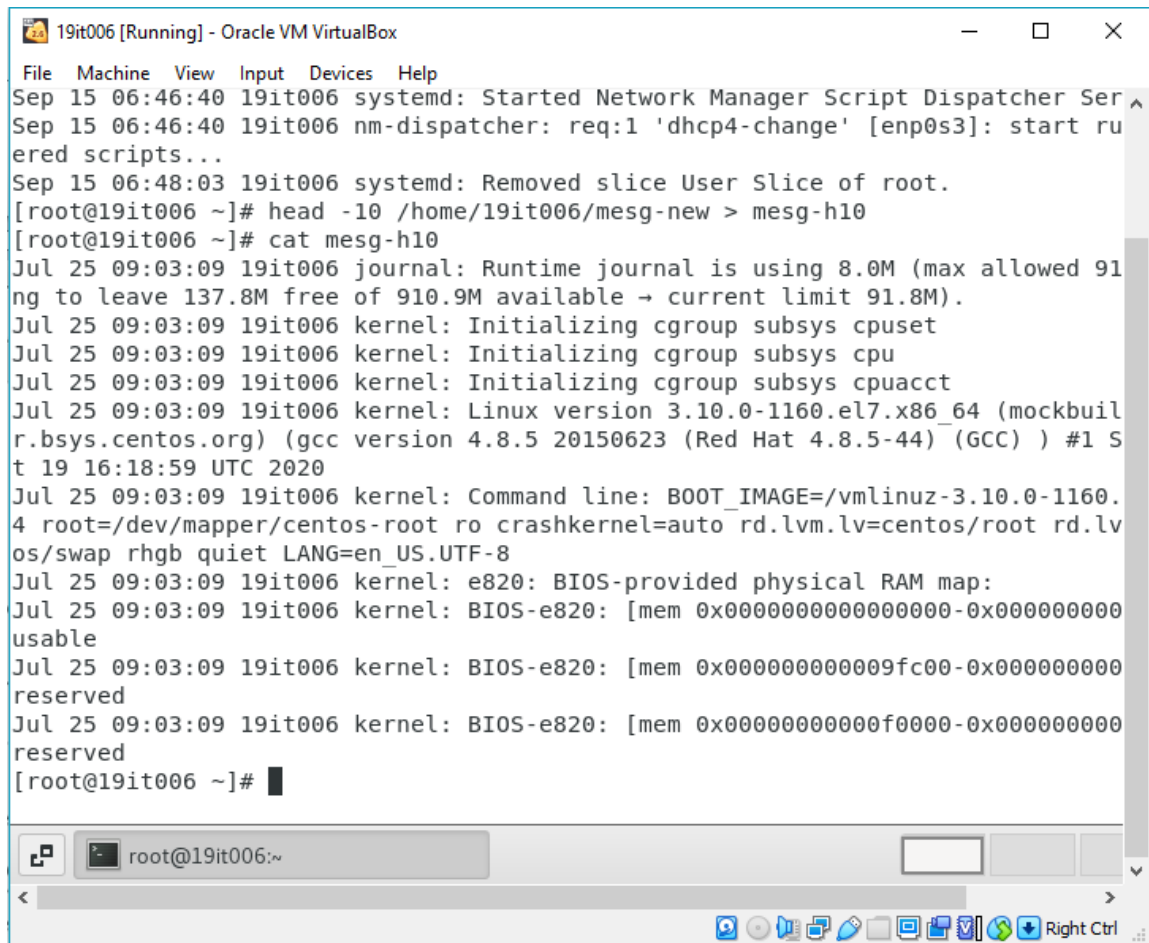


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". Below the menu bar is a toolbar with "Applications", "Places", and "Terminal". The terminal prompt is "root@19it006:~". The terminal output shows a series of log messages from the NetworkManager and systemd services, indicating the configuration and activation of the network interface.

```
File Edit View Search Terminal Help
root@19it006:~
File Edit View Search Terminal Help
plen 24 (255.255.255.0)
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6903] dhcp4 (
gateway 192.168.43.1
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6904] dhcp4 (
lease time 3600
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6905] dhcp4 (
hostname '19it006'
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6905] dhcp4 (
nameserver '192.168.43.1'
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6906] dhcp4 (
state changed bound -> bound
Sep 15 06:46:39 19it006 dbus[702]: [system] Activating via systemd: service na
reedesktop.nm_dispatcher' unit='dbus-org.freedesktop.nm-dispatcher.service'
Sep 15 06:46:39 19it006 dhclient[948]: bound to 192.168.43.33 -- renewal in 15
s.
Sep 15 06:46:39 19it006 systemd: Starting Network Manager Script Dispatcher Se
Sep 15 06:46:40 19it006 dbus[702]: [system] Successfully activated service 'or
ktop.nm_dispatcher'
Sep 15 06:46:40 19it006 nm-dispatcher: req:1 'dhcp4-change' [enp0s3]: new requ
ripts)
Sep 15 06:46:40 19it006 systemd: Started Network Manager Script Dispatcher Ser
Sep 15 06:46:40 19it006 nm-dispatcher: req:1 'dhcp4-change' [enp0s3]: start ru
ered scripts
<
```



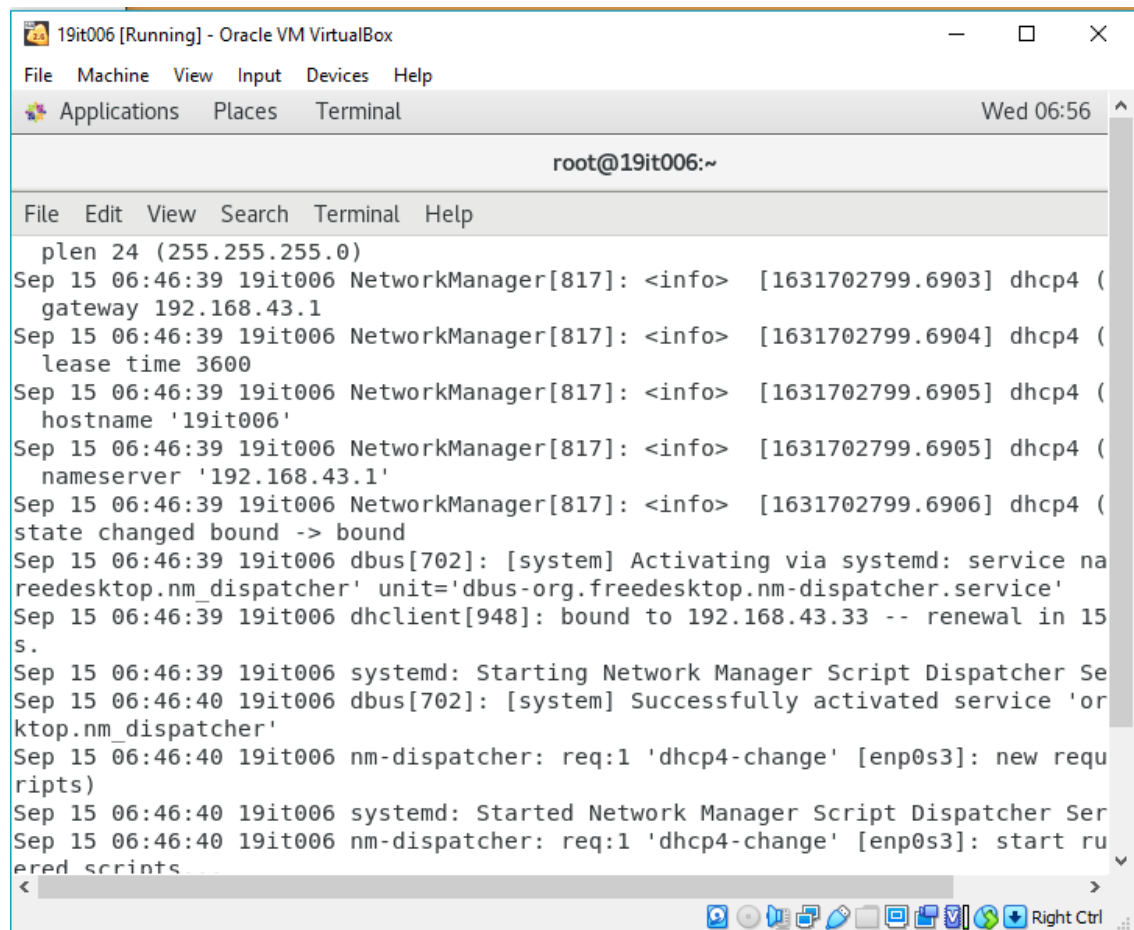
- View the first 10 lines of mesg-new file and output to a file name mesg-h10



The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal displays system logs and commands. The logs include messages from systemd, nm-dispatcher, and the kernel. The user has executed the command `head -10 /home/19it006/mesg-new > mesg-h10` and then `cat mesg-h10`. The output of the cat command shows the first 10 lines of the mesg-new file, which are system logs. The terminal window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". The status bar at the bottom shows the user is root@19it006 and the current directory is ~. The terminal window is running on a Linux system with kernel version 3.10.0-1160.el7.x86\_64.

```
File Machine View Input Devices Help
Sep 15 06:46:40 19it006 systemd: Started Network Manager Script Dispatcher Ser
Sep 15 06:46:40 19it006 nm-dispatcher: req:1 'dhcp4-change' [enp0s3]: start ru
ered scripts...
Sep 15 06:48:03 19it006 systemd: Removed slice User Slice of root.
[root@19it006 ~]# head -10 /home/19it006/mesg-new > mesg-h10
[root@19it006 ~]# cat mesg-h10
Jul 25 09:03:09 19it006 journal: Runtime journal is using 8.0M (max allowed 91
ng to leave 137.8M free of 910.9M available → current limit 91.8M).
Jul 25 09:03:09 19it006 kernel: Initializing cgroup subsys cpuset
Jul 25 09:03:09 19it006 kernel: Initializing cgroup subsys cpu
Jul 25 09:03:09 19it006 kernel: Initializing cgroup subsys cpuacct
Jul 25 09:03:09 19it006 kernel: Linux version 3.10.0-1160.el7.x86_64 (mockbuil
r.bsys.centos.org) (gcc version 4.8.5 20150623 (Red Hat 4.8.5-44) (GCC) ) #1 S
t 19 16:18:59 UTC 2020
Jul 25 09:03:09 19it006 kernel: Command line: BOOT_IMAGE=/vmlinuz-3.10.0-1160.
4 root=/dev/mapper/centos-root ro crashkernel=auto rd.lvm.lv=centos/root rd.lv
os/swap rhgb quiet LANG=en_US.UTF-8
Jul 25 09:03:09 19it006 kernel: e820: BIOS-provided physical RAM map:
Jul 25 09:03:09 19it006 kernel: BIOS-e820: [mem 0x0000000000000000-0x000000000
usable
Jul 25 09:03:09 19it006 kernel: BIOS-e820: [mem 0x00000000000009fc00-0x000000000
reserved
Jul 25 09:03:09 19it006 kernel: BIOS-e820: [mem 0x000000000000f0000-0x000000000
reserved
[root@19it006 ~]#
```

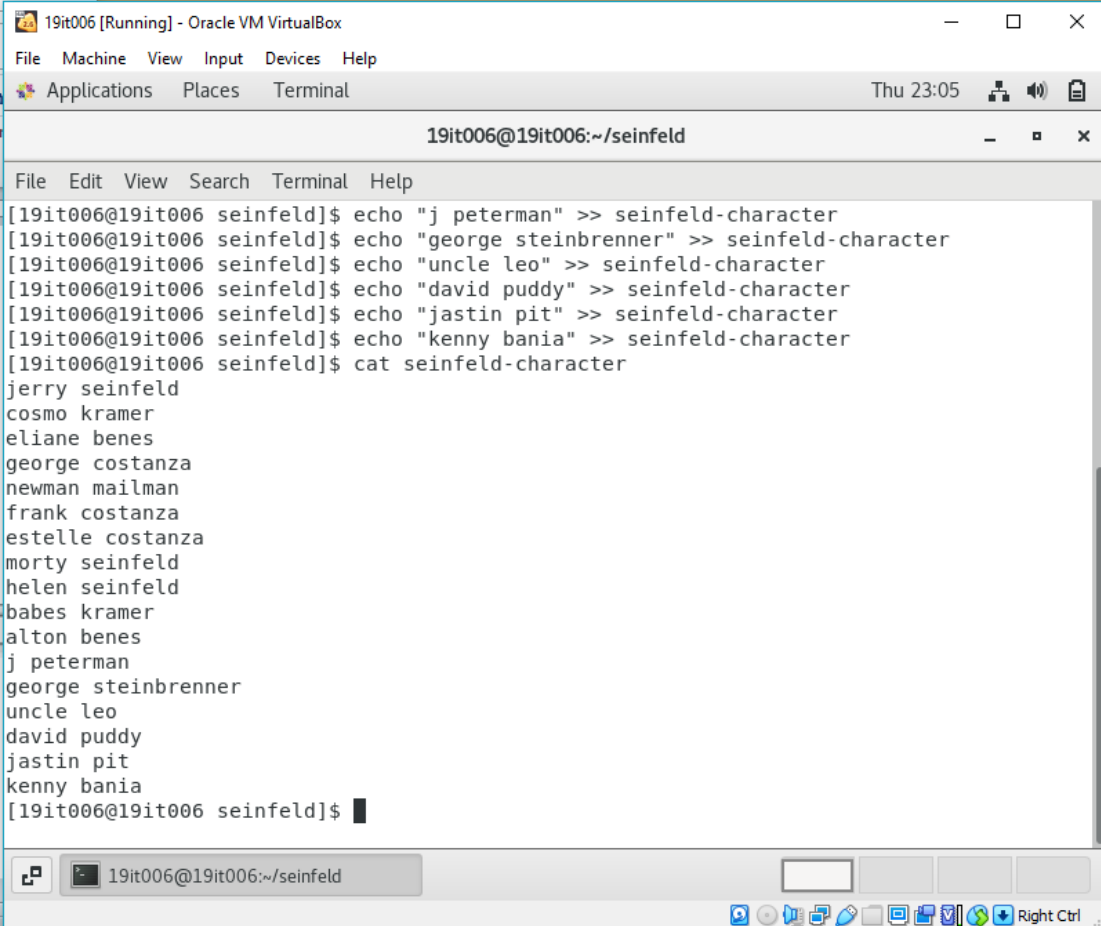
- View the last 20 lines of mesg-new file and output to a file name mesg-t20



The screenshot shows a terminal window titled "19it006 [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". The terminal output shows the prompt "root@19it006:~" and a series of log messages. The messages include network configuration details for "NetworkManager[817]" and "dhclient[948]", and systemd service activation logs for "nm-dispatcher" and "Network Manager Script Dispatcher Service". The logs show the system successfully activating the service and starting the dispatcher.

```
pln 24 (255.255.255.0)
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6903] dhcp4 (
gateway 192.168.43.1
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6904] dhcp4 (
lease time 3600
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6905] dhcp4 (
hostname '19it006'
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6905] dhcp4 (
nameserver '192.168.43.1'
Sep 15 06:46:39 19it006 NetworkManager[817]: <info> [1631702799.6906] dhcp4 (
state changed bound -> bound
Sep 15 06:46:39 19it006 dbus[702]: [system] Activating via systemd: service na
reedesktop.nm_dispatcher' unit='dbus-org.freedesktop.nm-dispatcher.service'
Sep 15 06:46:39 19it006 dhclient[948]: bound to 192.168.43.33 -- renewal in 15
s.
Sep 15 06:46:39 19it006 systemd: Starting Network Manager Script Dispatcher Se
Sep 15 06:46:40 19it006 dbus[702]: [system] Successfully activated service 'or
ktop.nm_dispatcher'
Sep 15 06:46:40 19it006 nm-dispatcher: req:1 'dhcp4-change' [enp0s3]: new requ
ripts)
Sep 15 06:46:40 19it006 systemd: Started Network Manager Script Dispatcher Ser
Sep 15 06:46:40 19it006 nm-dispatcher: req:1 'dhcp4-change' [enp0s3]: start ru
ered scripts
```

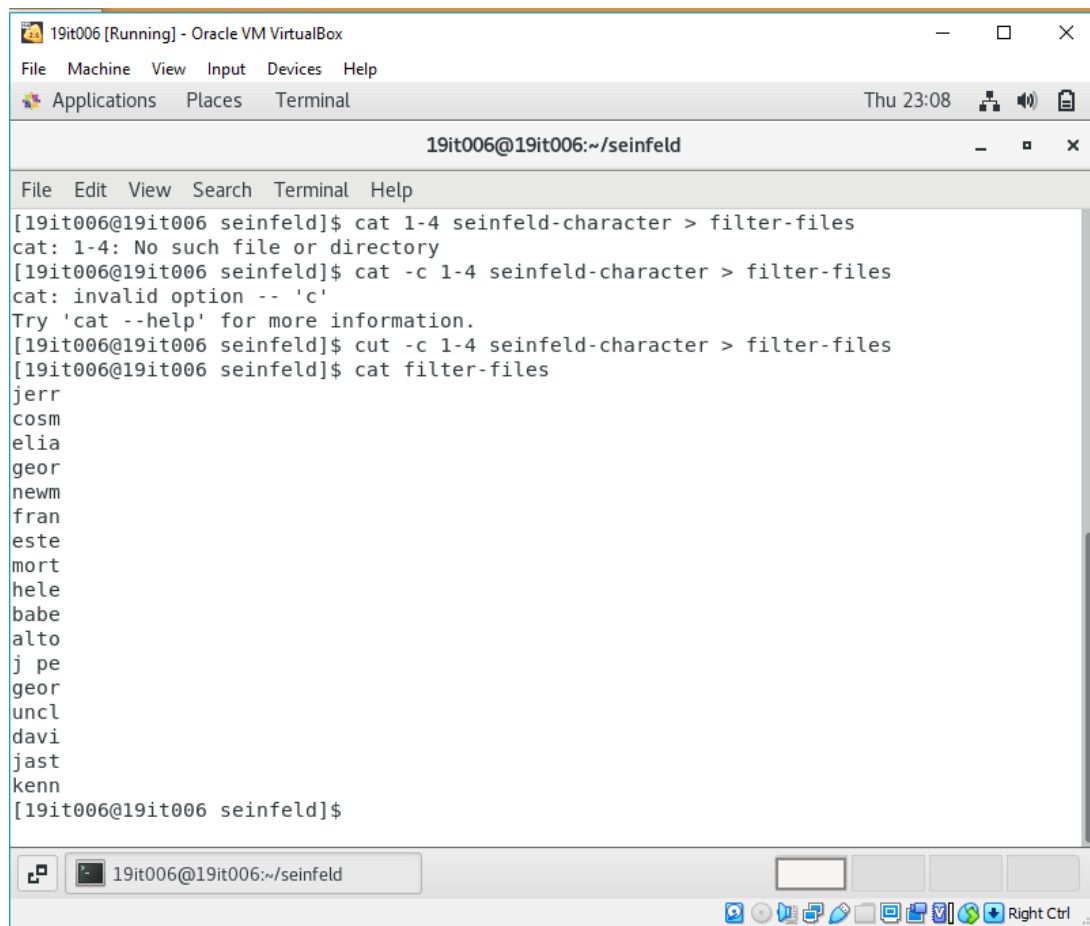
- Exit out of root user
- Go to seinfeld directory in your home directory and create a new file "seinfeld-character"
- Add text to seinfeld-character file using echo command. Each character should be in one line, "Jerry Seinfeld, Cosmo Kramer, Eliane Benes, George Costanza, Newman Mailman, Frank Costanza, Estelle Costanza, Morty Seinfeld, Helen Seinfeld, Babes Kramer, Alton Benes, J Peterman, George Steinbrenner, Uncle Leo, David Puddy, Justin Pit and Kenny Bania"



```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 23:05
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 seinfeld]$ echo "j peterman" >> seinfeld-character
[19it006@19it006 seinfeld]$ echo "george steinbrenner" >> seinfeld-character
[19it006@19it006 seinfeld]$ echo "uncle leo" >> seinfeld-character
[19it006@19it006 seinfeld]$ echo "david puddy" >> seinfeld-character
[19it006@19it006 seinfeld]$ echo "jastin pit" >> seinfeld-character
[19it006@19it006 seinfeld]$ echo "kenny bania" >> seinfeld-character
[19it006@19it006 seinfeld]$ cat seinfeld-character
jerry seinfeld
cosmo kramer
eliane benes
george costanza
newman mailman
frank costanza
estelle costanza
morty seinfeld
helen seinfeld
babes kramer
alton benes
j peterman
george steinbrenner
uncle leo
david puddy
jastin pit
kenny bania
[19it006@19it006 seinfeld]$
```

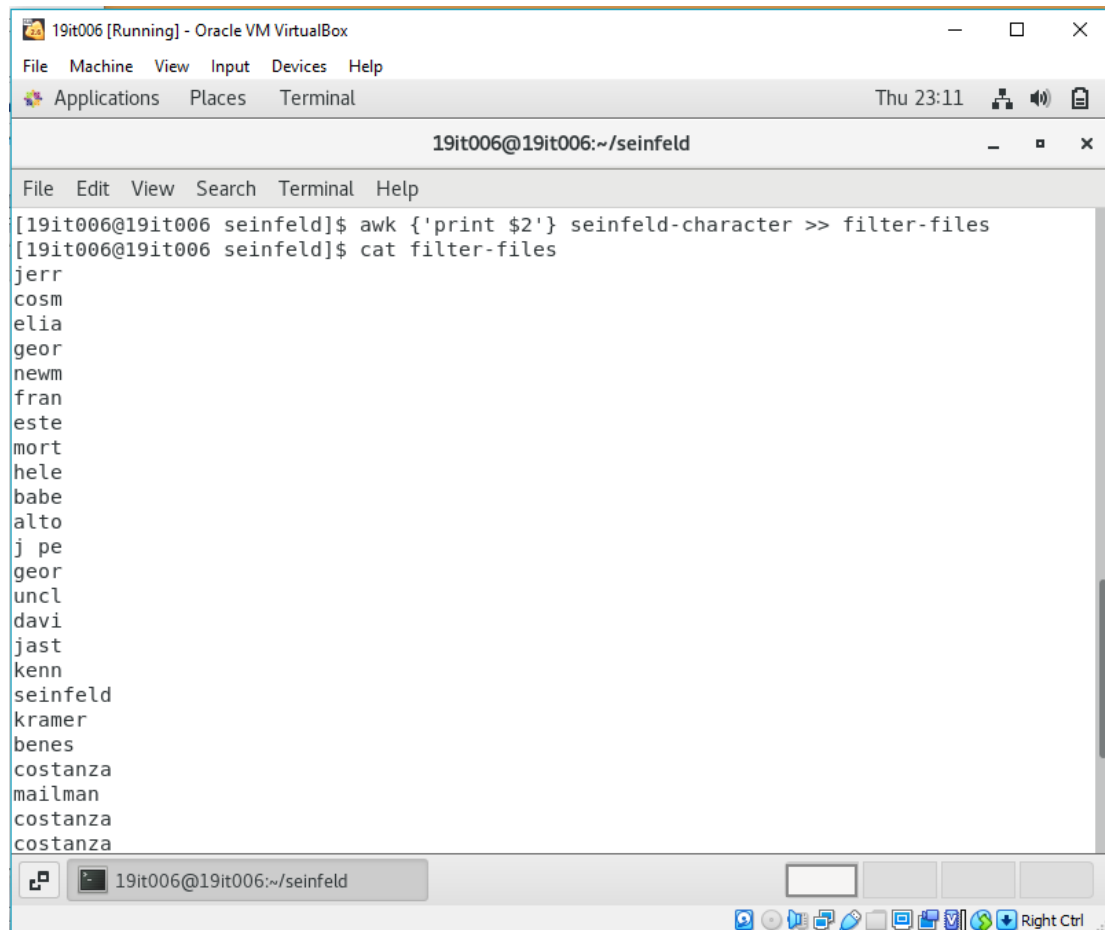


- Use cut command to cut the first 4 letters of each line from seinfeld-characters file and output to a different file name (name = filter-files)



```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 23:08
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 seinfeld]$ cat 1-4 seinfeld-character > filter-files
cat: 1-4: No such file or directory
[19it006@19it006 seinfeld]$ cat -c 1-4 seinfeld-character > filter-files
cat: invalid option -- 'c'
Try 'cat --help' for more information.
[19it006@19it006 seinfeld]$ cut -c 1-4 seinfeld-character > filter-files
[19it006@19it006 seinfeld]$ cat filter-files
jerr
cosm
elia
geor
newm
fran
este
mort
hele
babe
alto
j pe
geor
uncl
davi
jast
kenn
[19it006@19it006 seinfeld]$
```

- Use awk command to get only the 2nd column of seinfeld-characters and output to the filters-files without removing any other text from it

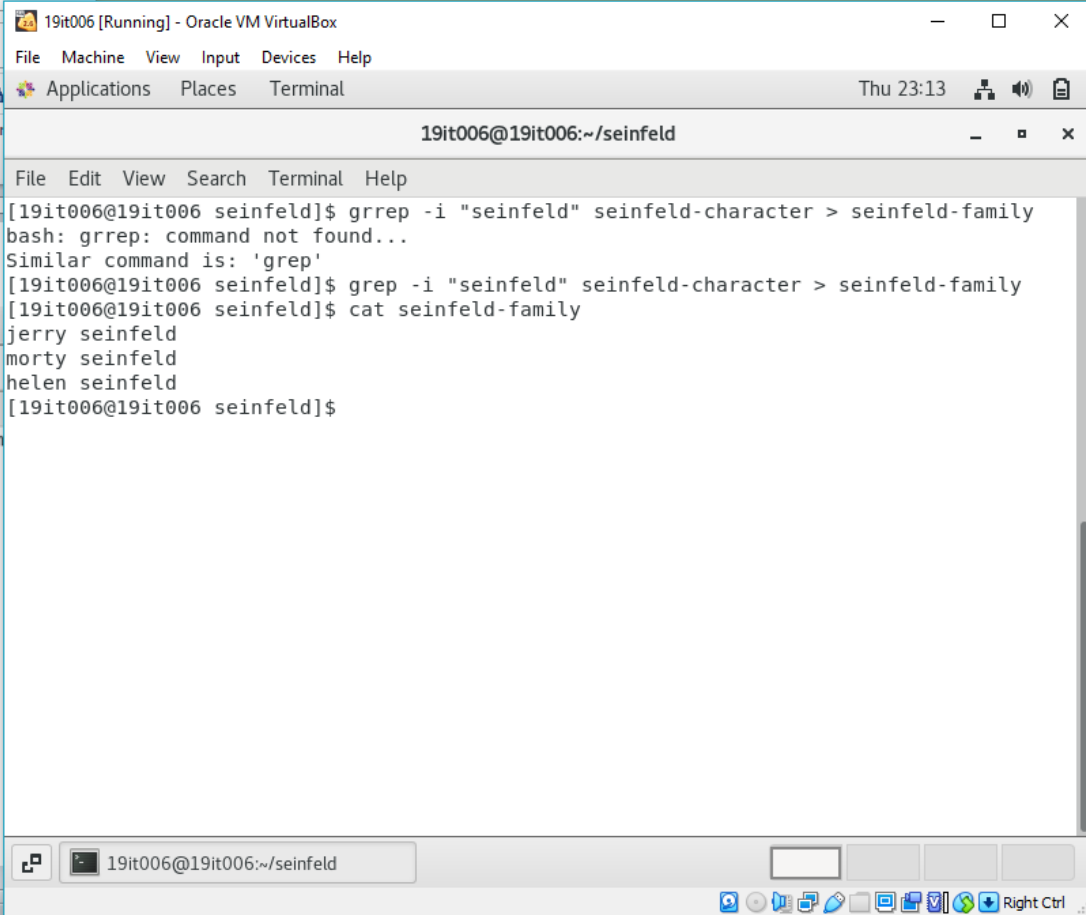


The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal prompt is "19it006@19it006:~/seinfeld". The user enters the command `awk {'print $2'} seinfeld-character >> filter-files`. The prompt changes to "19it006@19it006 seinfeld" and the user enters `cat filter-files`. The output of the command is a list of names: jerr, cosm, elia, geor, newm, fran, este, mort, hele, babe, alto, j pe, geor, uncl, davi, jast, kenn, seinfeld, kramer, benes, costanza, mailman, costanza, and costanza.

```
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 seinfeld]$ awk {'print $2'} seinfeld-character >> filter-files
[19it006@19it006 seinfeld]$ cat filter-files
jerr
cosm
elia
geor
newm
fran
este
mort
hele
babe
alto
j pe
geor
uncl
davi
jast
kenn
seinfeld
kramer
benes
costanza
mailman
costanza
costanza
```

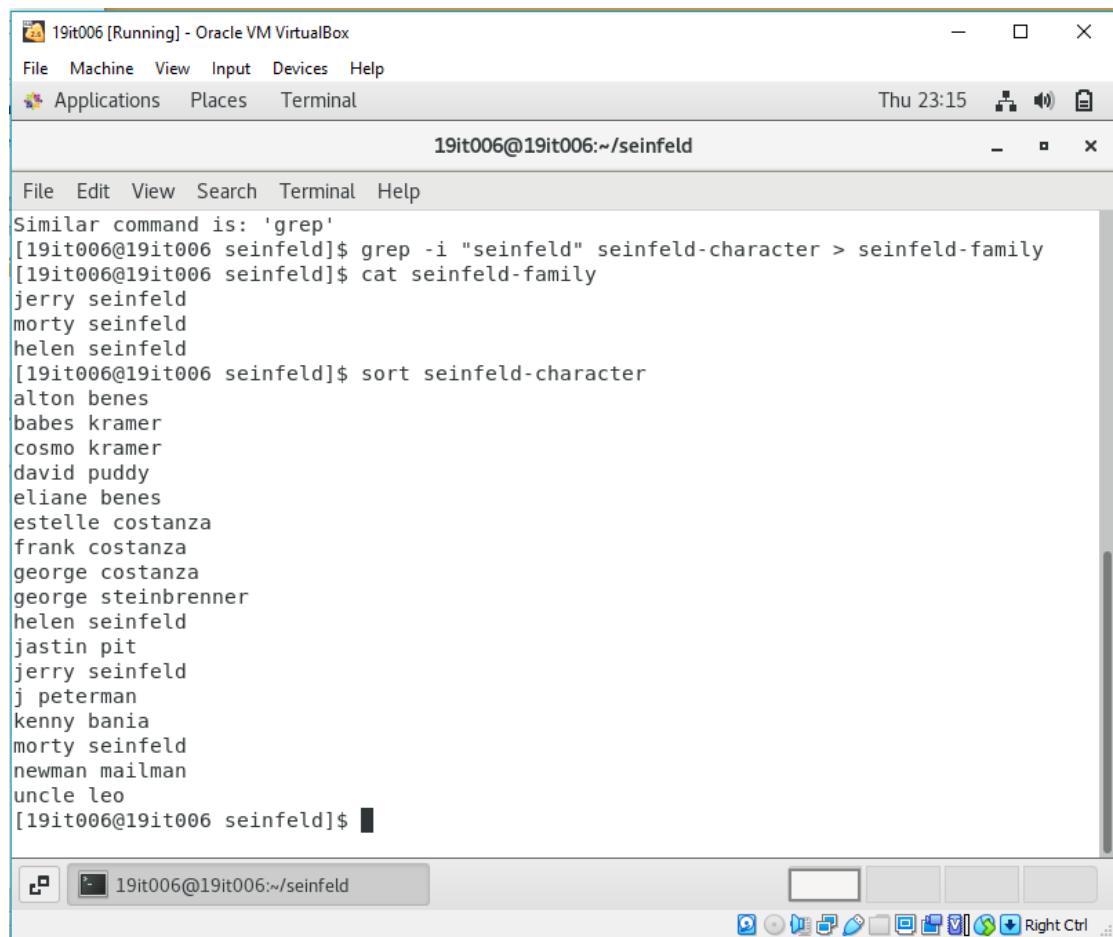


- Use grep command to only grep seinfeld and output to a new file call it seinfeld-family



```
19it006 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal Thu 23:13
19it006@19it006:~/seinfeld
File Edit View Search Terminal Help
[19it006@19it006 seinfeld]$ grrep -i "seinfeld" seinfeld-character > seinfeld-family
bash: grrep: command not found...
Similar command is: 'grep'
[19it006@19it006 seinfeld]$ grep -i "seinfeld" seinfeld-character > seinfeld-family
[19it006@19it006 seinfeld]$ cat seinfeld-family
jerry seinfeld
morty seinfeld
helen seinfeld
[19it006@19it006 seinfeld]$
```

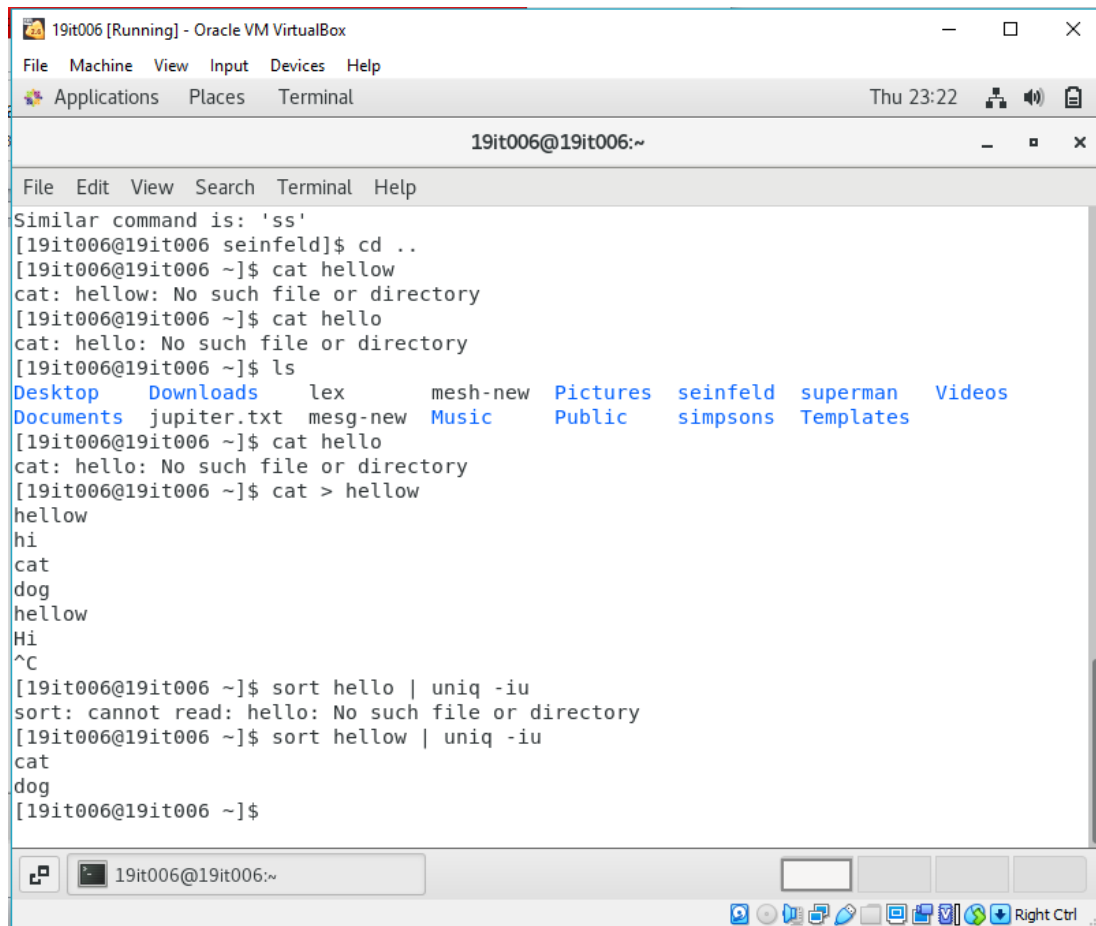
- Use sort command, uniq and wc command to practice whichever way you like by creating new files or working with existing files



The screenshot shows a terminal window titled "19it006 [Running] - Oracle VM VirtualBox". The terminal prompt is "19it006@19it006:~/seinfeld". The user has executed the following commands and received the following output:

```
Similar command is: 'grep'
[19it006@19it006 seinfeld]$ grep -i "seinfeld" seinfeld-character > seinfeld-family
[19it006@19it006 seinfeld]$ cat seinfeld-family
jerry seinfeld
morty seinfeld
helen seinfeld
[19it006@19it006 seinfeld]$ sort seinfeld-character
alton benes
babes kramer
cosmo kramer
david puddy
eliane benes
estelle costanza
frank costanza
george costanza
george steinbrenner
helen seinfeld
jastin pit
jerry seinfeld
j peterman
kenny bania
morty seinfeld
newman mailman
uncle leo
[19it006@19it006 seinfeld]$
```

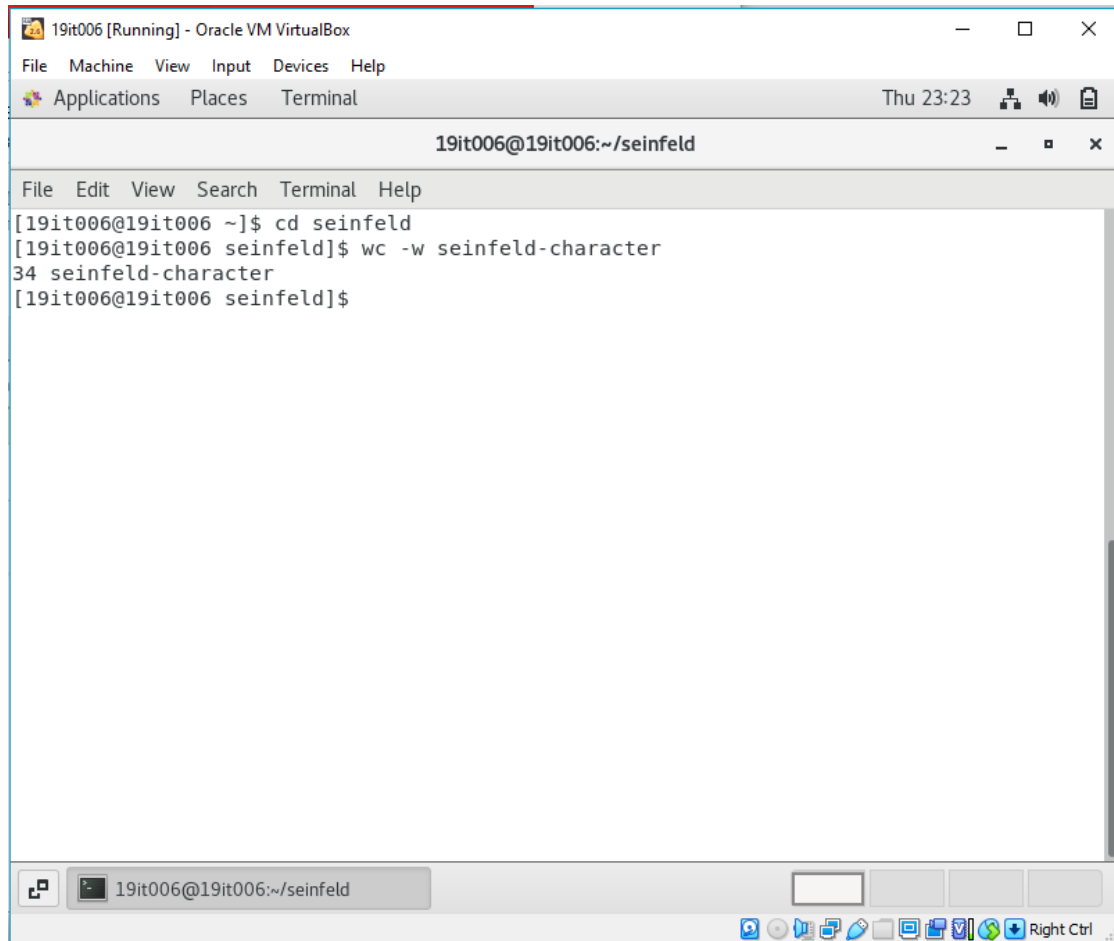
The terminal window includes a menu bar (File, Machine, View, Input, Devices, Help) and a toolbar (Applications, Places, Terminal). The status bar at the bottom shows the current directory and a "Right Ctrl" button.



The screenshot shows a VirtualBox window titled "19it006 [Running] - Oracle VM VirtualBox". Inside the window is a terminal application titled "19it006@19it006:~". The terminal displays the following commands and output:

```
Similar command is: 'ss'
[19it006@19it006 seinfeld]$ cd ..
[19it006@19it006 ~]$ cat hellow
cat: hellow: No such file or directory
[19it006@19it006 ~]$ cat hello
cat: hello: No such file or directory
[19it006@19it006 ~]$ ls
Desktop  Downloads  lex        mesh-new  Pictures  seinfeld  superman  Videos
Documents  jupiter.txt  mesg-new  Music     Public   simpsons  Templates
[19it006@19it006 ~]$ cat hello
cat: hello: No such file or directory
[19it006@19it006 ~]$ cat > hellow
hellow
hi
cat
dog
hellow
Hi
^C
[19it006@19it006 ~]$ sort hello | uniq -iu
sort: cannot read: hello: No such file or directory
[19it006@19it006 ~]$ sort hellow | uniq -iu
cat
dog
[19it006@19it006 ~]$
```

The terminal window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The status bar at the bottom shows the time "Thu 23:22" and system icons. The bottom of the VirtualBox window shows a taskbar with various icons and a "Right Ctrl" button.



The screenshot shows a VirtualBox window titled "19it006 [Running] - Oracle VM VirtualBox". Inside the window is a terminal application with a menu bar (File, Edit, View, Search, Terminal, Help) and a title bar "19it006@19it006:~/seinfeld". The terminal displays the following commands and output:

```
[19it006@19it006 ~]$ cd seinfeld
[19it006@19it006 seinfeld]$ wc -w seinfeld-character
34 seinfeld-character
[19it006@19it006 seinfeld]$
```

The terminal window has a status bar at the bottom showing the current directory "19it006@19it006:~/seinfeld" and a "Right Ctrl" button.