Red Hat System Administration I

Lab1

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2. What is the difference between cat and more command?

`cat` and `more` commands are both used to display the contents of a file in the terminal

`cat`:

- Displays the entire content of a file at once.
- Useful for viewing small files.

  Note : also can be used to concatenate multiple files and display them together.

  If we try : cat /etc/passwd

```
[nada_mohamed2243@localhost ~]$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
tss:x:59:59:Account used for TPM access:/:/usr/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
sssd:x:997:995:User for sssd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
geoclue:x:996:994:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/:/sbin/nologin
pipewire:x:995:992:PipeWire System Daemon:/run/pipewire:/usr/sbin/nologin
libstoragemgmt:x:989:989:daemon account for libstoragemgmt:/:/usr/sbin/nologin
cockpit-wsinstance:x:988:988:User for cockpit-ws instances:/nonexisting:/sbin/nologin
flatpak:x:987:987:User for flatpak system helper:/:/sbin/nologin
colord:x:986:986:User for colord:/var/lib/colord:/sbin/nologin
setroubleshoot:x:985:985:SELinux troubleshoot server:/var/lib/setroubleshoot:/usr/sbin/nologin
clevis:x:984:984:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/usr/sbin/nologin
gdm:x:42:42::/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:983:983::/run/gnome-initial-setup/:/sbin/nologin
chrony:x:982:982:chrony system user:/var/lib/chrony:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/usr/sbin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/usr/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
nada_mohamed2243:x:1000:1000:nada_mohamed2243:/home/nada_mohamed2243:/bin/bash
[nada_mohamed2243@localhost ~]$ ^C
```

`more`:

- Displays the content of a file one screen at a time(all the file) and we can use the keyboard to show the full content (e.g., spacebar to move to the next page, q to quit).
- Useful for viewing large files.
- If we try : more /etc/passwd

```
[nada_mohamed2243@localhost ~]$ more /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
tss:x:59:59:Account used for TPM access:/:/usr/sbin/nologin
systemd-coredump:x:999:997:systemd Core Dumper:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:998:996:User for polkitd:/:/sbin/nologin
sssd:x:997:995:User for sssd:/:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
geoclue:x:996:994:User for geoclue:/var/lib/geoclue:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/:/sbin/nologin
pipewire:x:995:992:PipeWire System Daemon:/run/pipewire:/usr/sbin/nologin
libstoragemgmt:x:989:989:daemon account for libstoragemgmt:/:/usr/sbin/nologin
cockpit-wsinstance:x:988:988:User for cockpit-ws instances:/nonexisting:/sbin/nologin
flatpak:x:987:987:User for flatpak system helper:/:/sbin/nologin
colord:x:986:986:User for colord:/var/lib/colord:/sbin/nologin
setroubleshoot:x:985:985:SELinux troubleshoot server:/var/lib/setroubleshoot:/usr/sbin/nologin
clevis:x:984:984:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/usr/sbin/nologin
gdm:x:42:42::/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:983:983::/run/gnome-initial-setup/:/sbin/nologin
chrony:x:982:982:chrony system user:/var/lib/chrony:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/usr/sbin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/usr/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
nada_mohamed2243:x:1000:1000:nada_mohamed2243:/home/nada_mohamed2243:/bin/bash
[nada_mohamed2243@localhost ~]$
```

3. What is the difference between rm and rmdir using man?

rm : → we use man rm

```
              output version information and exit

       By  default, rm does not remove directories.  Use the --recursive (-r or -R) option to remove each listed directory, too, along with all of its
       contents.

       To remove a file whose name starts with a '-', for example '-foo', use one of these commands:

              rm -- -foo

              rm ./-foo

       Note that if you use rm to remove a file, it might be possible to recover some of its contents, given sufficient expertise  and/or  time.   For
       greater assurance that the contents are truly unrecoverable, consider using shred.

AUTHOR
       Written by Paul Rubin, David MacKenzie, Richard M. Stallman, and Jim Meyering.

REPORTING BUGS
       GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
       Report any translation bugs to <https://translationproject.org/team/>

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SEE ALSO
       unlink(1), unlink(2), chattr(1), shred(1)

       Full documentation <https://www.gnu.org/software/coreutils/rm>
       or available locally via: info '(coreutils) rm invocation'

GNU coreutils 8.32                                  August 2024                                       RM(1)
 Manual page rm(1) line 54/85 (END) (press h for help or q to quit)
```
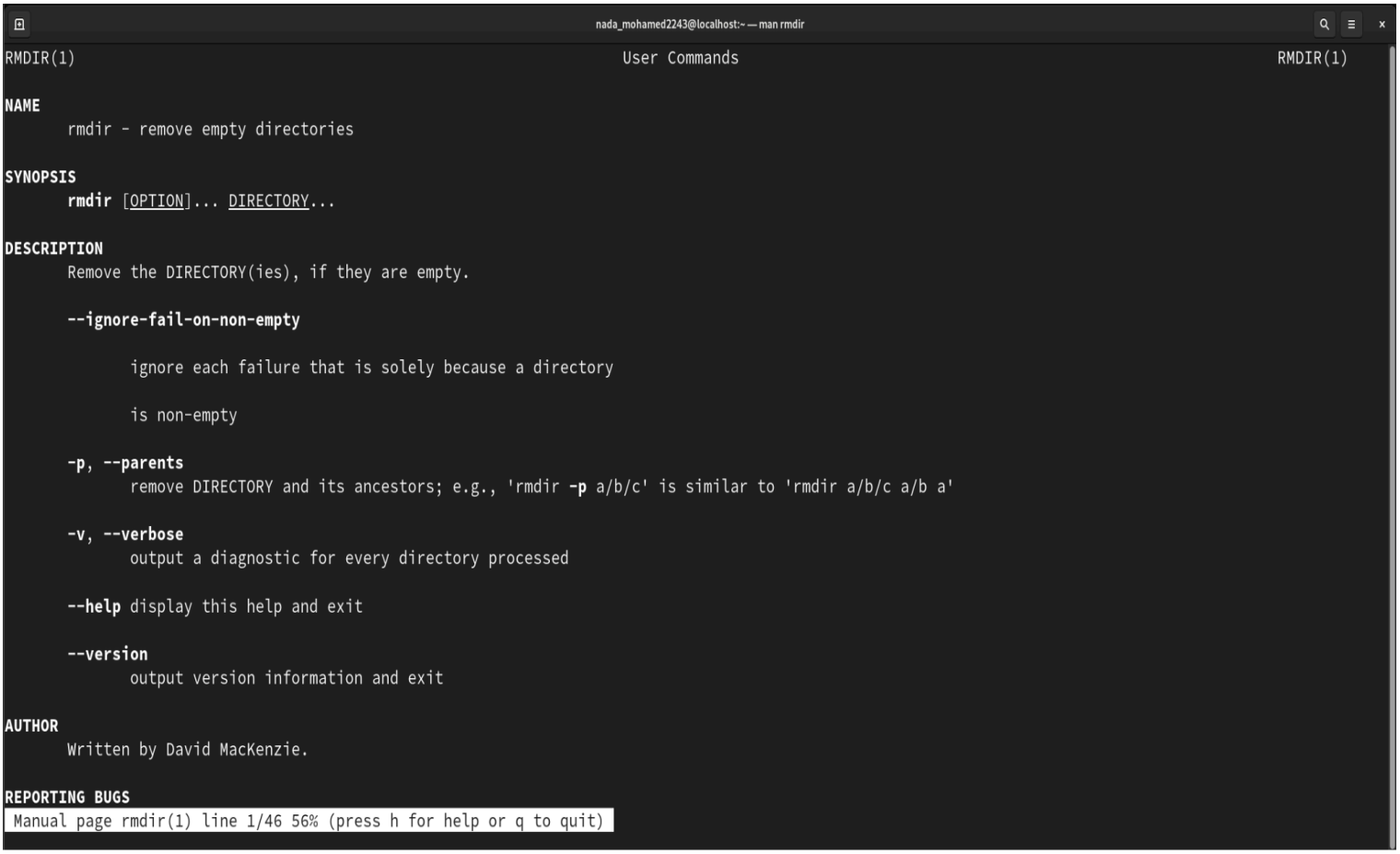

There is another sections contain rm

We can know all by using

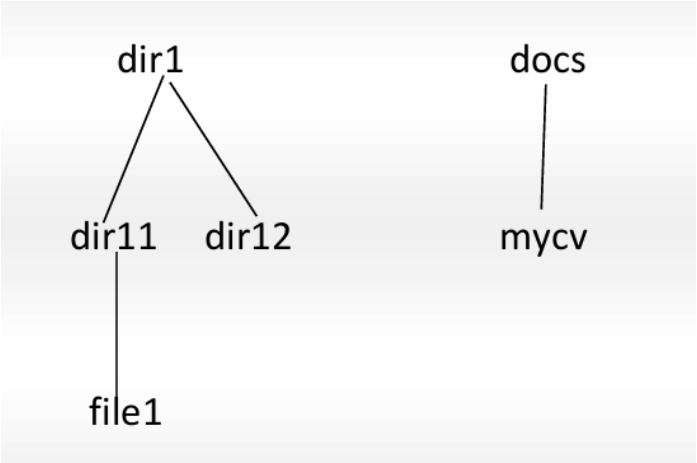
man -a rm

rmdir : → man rmdir



To know all sections that contain rmdir
We can use
man -a rmdir

4. Create the following hierarchy under your home directory:



We can use :

touch → to make files

mkdir → to make directories

pwd → to ensure that we are in home directory

cd → if we don't exist in home directory

```
nada_mohamed2243@localhost:~
[nada_mohamed2243@localhost ~]$
[nada_mohamed2243@localhost ~]$ mkdir dir1
[nada_mohamed2243@localhost ~]$ ls
Desktop  Documents  Music     Public     Videos
dir1     Downloads  Pictures  Templates
[nada_mohamed2243@localhost ~]$ mkdir docs
[nada_mohamed2243@localhost ~]$ ls
Desktop  docs       Downloads  Pictures  Templates
dir1     Documents  Music      Public    Videos
[nada_mohamed2243@localhost ~]$ mkdir dir1/dir11 dir1/dir12
[nada_mohamed2243@localhost ~]$ ls dir1
dir11  dir12
[nada_mohamed2243@localhost ~]$ touch dir1/dir11/file1
[nada_mohamed2243@localhost ~]$ ls dir1/dir11
file1
[nada_mohamed2243@localhost ~]$ touch docs/mycv
[nada_mohamed2243@localhost ~]$ ls docs
mycv
```

ls → to list the content of specific directory

ls -R → show all content from your place as the tree

```
[nada_mohamed2243@localhost ~]$ ls -R
.:
Desktop  docs       Downloads  Pictures  Templates
dir1     Documents  Music      Public    Videos

./Desktop:

./dir1:
dir11  dir12

./dir1/dir11:
file1

./dir1/dir12:

./docs:
mycv

./Documents:

./Downloads:

./Music:

./Pictures:

./Public:

./Templates:

./Videos:
[nada_mohamed2243@localhost ~]$
```

a. Remove dir11 in one-step. What did you notice? And how did you overcome that?

Here if we try to make rmdir dir1/dir11 → will failed because dir11 contain file1 and not empty

```
[nada_mohamed2243@localhost ~]$ rmdir dir1/dir11
rmdir: failed to remove 'dir1/dir11': Directory not empty
[nada_mohamed2243@localhost ~]$
```

To overcome this we can use

rm -r dir1/dir11

```
[nada_mohamed2243@localhost ~]$ rm -r dir1/dir11
[nada_mohamed2243@localhost ~]$ ls dir1
dir12
[nada_mohamed2243@localhost ~]$
```

b. Then remove dir12 using rmdir –p command. State what happened to the hierarchy (Note: you are in your home directory).

Will remove the parent of it (dir1 → that become empty)

```
[nada_mohamed2243@localhost ~]$ rmdir -p dir1/dir12
[nada_mohamed2243@localhost ~]$ ls dir1
ls: cannot access 'dir1': No such file or directory
[nada_mohamed2243@localhost ~]$ ls
Desktop  Documents  Music     Public     Videos
docs     Downloads  Pictures  Templates
[nada_mohamed2243@localhost ~]$
```

c. The output of the command pwd was /home/user. Write the absolute and relative path for the file mycv.

absolute path → /home/user/docs/mycv
relative path → docs/mycv

5. Copy the /etc/passwd file to your home directory making its name is mypasswd.
We can use cp /etc/passwd mypasswd

```
[nada_mohamed2243@localhost ~]$ cp /etc/passwd mypasswd
[nada_mohamed2243@localhost ~]$ ls
Desktop  Documents  Music     Pictures  Templates
docs     Downloads  mypasswd  Public    Videos
[nada_mohamed2243@localhost ~]$
```

6. Rename this new file to be oldpasswd.
We can use mv mypassword oldpassword

```
[nada_mohamed2243@localhost ~]$ mv mypasswd oldpasswd
[nada_mohamed2243@localhost ~]$ ls
Desktop  Documents  Music     Pictures  Templates
docs     Downloads  oldpasswd  Public    Videos
[nada_mohamed2243@localhost ~]$
```

7. You are in /usr/bin, list four ways to go to your home directory.

cd - → like back

cd ~

cd

cd /home/user

cd $HOME

```
[nada_mohamed2243@localhost bin]$ cd ~
[nada_mohamed2243@localhost ~]$ cd ../../usr/bin
[nada_mohamed2243@localhost bin]$ cd
[nada_mohamed2243@localhost ~]$ cd ../../usr/bin
[nada_mohamed2243@localhost bin]$ cd -
/home/nada_mohamed2243
[nada_mohamed2243@localhost ~]$ cd ../../usr/bin
[nada_mohamed2243@localhost bin]$ cd /home/nada_mohamed2243
[nada_mohamed2243@localhost ~]$ cd ../../usr/bin
[nada_mohamed2243@localhost bin]$ cd $HOME
[nada_mohamed2243@localhost ~]$
```

8. List Linux commands in /usr/bin that start with letter w.

We can use ls /user/bin/w*

```
[nada_mohamed2243@localhost ~]$ ls /usr/bin/w*
/usr/bin/w                /usr/bin/which
/usr/bin/wait             /usr/bin/whiptail
/usr/bin/wall             /usr/bin/who
/usr/bin/watch            /usr/bin/whoami
/usr/bin/watchgnupg       /usr/bin/wireplumber
/usr/bin/wavpack          /usr/bin/wnck-urgency-monitor
/usr/bin/wc               /usr/bin/wpctl
/usr/bin/wdctl            /usr/bin/wpexec
/usr/bin/wget             /usr/bin/write
/usr/bin/whatis           /usr/bin/wvgain
/usr/bin/whatis.man-db    /usr/bin/wvtag
/usr/bin/whereis          /usr/bin/wvunpack
[nada_mohamed2243@localhost ~]$
```

9. Display the first 4 lines of /etc/passwd.

We can use head -n 4 /etc/passwd

```
[nada_mohamed2243@localhost ~]$ head -n 4 /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
[nada_mohamed2243@localhost ~]$
```

10. Display the last 7 lines of /etc/passwd.

We can use tail -n 7 /etc/passwd

```
[nada_mohamed2243@localhost ~]$ tail -n 7 /etc/passwd
gdm:x:42:42::/var/lib/gdm:/sbin/nologin
gnome-initial-setup:x:983:983::/run/gnome-initial-setup/:/sbin/nologin
chrony:x:982:982:chrony system user:/var/lib/chrony:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/usr/sbin/nologin
dnsmasq:x:981:981:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/usr/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
nada_mohamed2243:x:1000:1000:nada_mohamed2243:/home/nada_mohamed2243:/bin/bash
[nada_mohamed2243@localhost ~]$
```

11. Display the man pages of passwd the command and the file sequentially in one command.

We can use → man passwd man -s 5 passwd

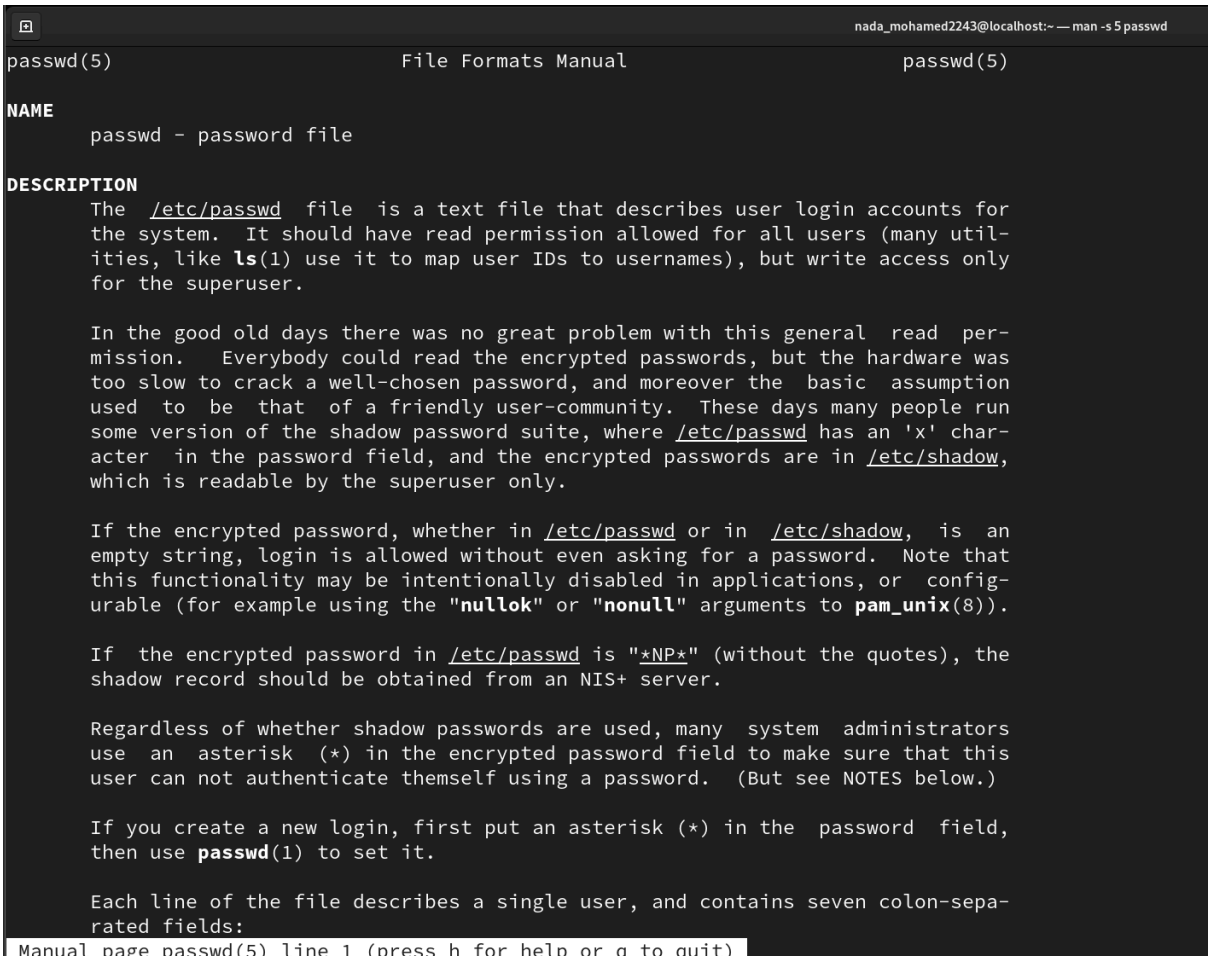
Or to run without enter → man passwd && man -s 5 passwd

```
[nada_mohamed2243@localhost ~]$ man man
[nada_mohamed2243@localhost ~]$ man -a passwd
--Man-- next: passwd(1ossl) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]

--Man-- next: passwd(5) [ view (return) | skip (Ctrl-D) | quit (Ctrl-C) ]

[nada_mohamed2243@localhost ~]$ man passwd && man -s 5 passwd
[nada_mohamed2243@localhost ~]$
```

12. Display the man page of the passwd file.

File → section 5 so we use man -s 5 passwd

```
[nada_mohamed2243@localhost ~]$ man -s 5 passwd
```



13. Display a list of all the commands that contain the keyword passwd in their man page.

We can use → man -k passwd

```
[nada_mohamed2243@localhost ~]$ man -k passwd
passwd: nothing appropriate.
```