بسم الله الرحمن الرحيم

LINUX COMMANDS

Feel free

Description of some Linux commands
OS Laboratory – Exercise 1

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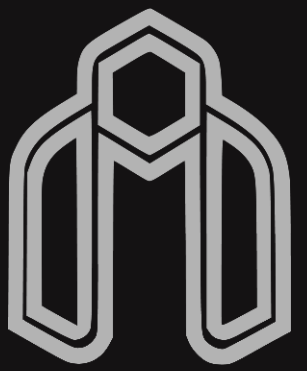


man

ls

rm

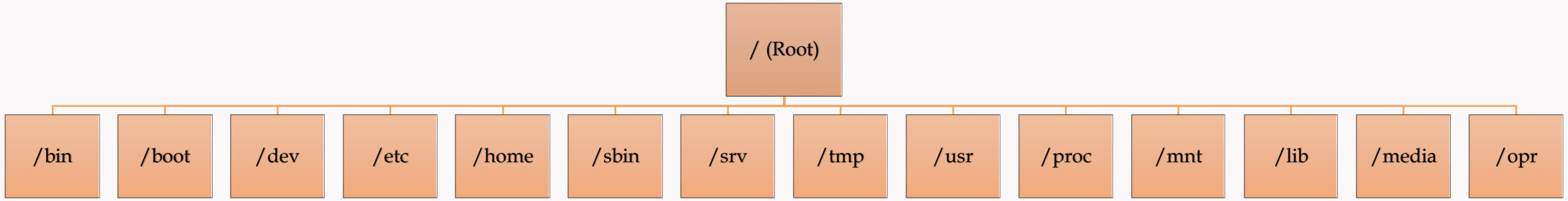
cp

cd

info

pwd

FHS Diagram


/ (Root)
/bin
/boot
/dev
/etc
/home
/sbin
/srv
/tmp
/usr
/proc
/mnt
/lib
/media
/opr

ls

ls stands for List – This command shows list of files in directory.
Structure :
ls [FLAGS] [DIRECTORY]

-l => (Long listing) => shows directory, size, date
-a => (All) => show hidden files with a dot(.), like .Videos
-lh => (Long Human readable list) => show sizes with human readable format
-F => add "/" character at the end of directory
-r => display files in reverse order
-R => (Recursively) list with sub-directories, very long listing directory trees
-ltr => show the lastest modification
-lS => sort size in order
--version => show ls version
--help => show help page

ls

-n => display UID and GID

* => list the contents of directory with it's sub-directories

~ => list the contents in the user's home directory

.. => List of contents in the parent folder

```
File  Edit  View  Terminal  Tabs  Help
mosfazli@pop-os:/media/mosfazli/SSD$ ls
'$RECYCLE.BIN'                          'audio_2021-05-10_20-03-02.mp3 48000.pek'  "Danial's Buying One.txt"  'make file'              'shutdown system'
 11F46F2696C2                            audio_2021-05-10_20-03-02.ogg             "Danial's.txt"             Mehran.txt               Site
 1.png                                  'bad crypo.docx'                            Games                     Moblie.xlsx              sudo
 2.png                                   Calendar-1400-Full.pdf                     GitHub                   'Movies That I See.xlsx' 'System Volume Information'
 3.png                                   cam                                      'high perfomance.png'     'New Text Document.txt'   target2.docx
 Aldec                                   CYMERA_20201112_171752.jpg               'ideas for work.docx'      pagefile.sys             video_2021-05-10_20-02-49.mp4
 audio_2021-05-10_20-03-02.mp3          'Daily Jobs'                               IMG_20210819_091303.jpg   Programming              'video_2021-05-10_20-02-49.mp4 48000.pek'
'audio_2021-05-10_20-03-02.mp3 48000.cfa'  Daily.pdf                              linkedin.png               Programs                 VMs
mosfazli@pop-os:/media/mosfazli/SSD$ ls -l
total 5148152
drwxrwxrwx 1 mosfazli mosfazli          0 Oct  6 10:08 '$RECYCLE.BIN'
-rwxrwxrwx 1 mosfazli mosfazli         40 Mar  8  2021  11F46F2696C2
-rwxrwxrwx 1 mosfazli mosfazli     671830 May 21 15:43  1.png
-rwxrwxrwx 1 mosfazli mosfazli     373719 Feb 28  2021  2.png
-rwxrwxrwx 1 mosfazli mosfazli     300645 Feb 28  2021  3.png
drwxrwxrwx 1 mosfazli mosfazli          0 Oct 10 10:22  Aldec
-rwxrwxrwx 1 mosfazli mosfazli      91245 May 10 20:03  audio_2021-05-10_20-03-02.mp3
-rwxrwxrwx 1 mosfazli mosfazli    2359296 May 11 01:49 'audio_2021-05-10_20-03-02.mp3 48000.cfa'
-rwxrwxrwx 1 mosfazli mosfazli       9284 May 11 01:49 'audio_2021-05-10_20-03-02.mp3 48000.pek'
-rwxrwxrwx 1 mosfazli mosfazli      88827 May 10 20:03  audio_2021-05-10_20-03-02.ogg
-rwxrwxrwx 1 mosfazli mosfazli      12072 Sep 11 20:10 'bad crypo.docx'
-rwxrwxrwx 1 mosfazli mosfazli     334374 Apr  9  2021  Calendar-1400-Full.pdf
drwxrwxrwx 1 mosfazli mosfazli      16384 Oct 11 19:50  cam
-rwxrwxrwx 1 mosfazli mosfazli     577207 Nov 12  2020  CYMERA_20201112_171752.jpg
drwxrwxrwx 1 mosfazli mosfazli       4096 Sep  8 23:45 'Daily Jobs'
-rwxrwxrwx 1 mosfazli mosfazli     122475 Sep  5 10:37  Daily.pdf
-rwxrwxrwx 1 mosfazli mosfazli        330 Jul 21 22:39 "Danial's Buying One.txt"
-rwxrwxrwx 1 mosfazli mosfazli        218 Aug 15 13:37 "Danial's.txt"
drwxrwxrwx 1 mosfazli mosfazli          0 Oct  6 23:20  Games
drwxrwxrwx 1 mosfazli mosfazli          0 Apr 13  2021  GitHub
-rwxrwxrwx 1 mosfazli mosfazli     655350 Feb  5  2021 'high perfomance.png'
-rwxrwxrwx 1 mosfazli mosfazli      14308 Jul 11 19:52 'ideas for work.docx'
-rwxrwxrwx 1 mosfazli mosfazli     951850 Aug 22 23:42  IMG_20210819_091303.jpg
-rwxrwxrwx 1 mosfazli mosfazli     557505 Feb 15  2021  linkedin.png
-rwxrwxrwx 1 mosfazli mosfazli         19 Sep 27 13:29 'make file'
-rwxrwxrwx 1 mosfazli mosfazli         51 Aug 28 22:25  Mehran.txt
-rwxrwxrwx 1 mosfazli mosfazli      12301 Sep  1 10:43  Moblie.xlsx
-rwxrwxrwx 1 mosfazli mosfazli      10906 Sep  4 11:40 'Movies That I See.xlsx'
-rwxrwxrwx 1 mosfazli mosfazli        119 Jul 15 23:03 'New Text Document.txt'
-rwxrwxrwx 1 mosfazli mosfazli 5242880000 Oct 15 15:51  pagefile.sys
drwxrwxrwx 1 mosfazli mosfazli       8192 Oct 10 10:23  Programming
drwxrwxrwx 1 mosfazli mosfazli      12288 Oct 12 13:48  Programs
-rwxrwxrwx 1 mosfazli mosfazli         16 Sep 27 13:42 'shutdown system'
drwxrwxrwx 1 mosfazli mosfazli          0 Jun 16 20:47  Site
-rwxrwxrwx 1 mosfazli mosfazli         34 Sep 27 13:17  sudo
drwxrwxrwx 1 mosfazli mosfazli       4096 Aug 14 18:29 'System Volume Information'
-rwxrwxrwx 1 mosfazli mosfazli      14426 Sep 11 20:56  target2.docx
-rwxrwxrwx 1 mosfazli mosfazli   21538789 May 10 10:56  video_2021-05-10_20-02-49.mp4
-rwxrwxrwx 1 mosfazli mosfazli      44104 May 11 01:59 'video_2021-05-10_20-02-49.mp4 48000.pek'
drwxrwxrwx 1 mosfazli mosfazli          0 Oct 15 16:15  VMs
mosfazli@pop-os:/media/mosfazli/SSD$
```

```
File  Edit  View  Terminal  Tabs  Help
-rwxrwxrwx 1 mosfazli mosfazli 120K Sep  5 10:37  Daily.pdf
-rwxrwxrwx 1 mosfazli mosfazli  330 Jul 21 22:39 "Danial's Buying One.txt"
-rwxrwxrwx 1 mosfazli mosfazli  218 Aug 15 13:37 "Danial's.txt"
drwxrwxrwx 1 mosfazli mosfazli    0 Oct  6 23:20  Games
drwxrwxrwx 1 mosfazli mosfazli    0 Apr 13  2021  GitHub
-rwxrwxrwx 1 mosfazli mosfazli 640K Feb  5  2021 'high perfomance.png'
-rwxrwxrwx 1 mosfazli mosfazli  14K Jul 11 19:52 'ideas for work.docx'
-rwxrwxrwx 1 mosfazli mosfazli 930K Aug 22 23:42  IMG_20210819_091303.jpg
-rwxrwxrwx 1 mosfazli mosfazli 545K Feb 15  2021  linkedin.png
-rwxrwxrwx 1 mosfazli mosfazli   19 Sep 27 13:29 'make file'
-rwxrwxrwx 1 mosfazli mosfazli   51 Aug 28 22:25  Mehran.txt
-rwxrwxrwx 1 mosfazli mosfazli  13K Sep  1 10:43  Moblie.xlsx
-rwxrwxrwx 1 mosfazli mosfazli  11K Sep  4 11:40 'Movies That I See.xlsx'
-rwxrwxrwx 1 mosfazli mosfazli  119 Jul 15 23:03 'New Text Document.txt'
-rwxrwxrwx 1 mosfazli mosfazli 4.9G Oct 15 15:51  pagefile.sys
drwxrwxrwx 1 mosfazli mosfazli 8.0K Oct 10 10:23  Programming
drwxrwxrwx 1 mosfazli mosfazli  12K Oct 12 13:48  Programs
-rwxrwxrwx 1 mosfazli mosfazli   16 Sep 27 13:42 'shutdown system'
drwxrwxrwx 1 mosfazli mosfazli    0 Jun 16 20:47  Site
-rwxrwxrwx 1 mosfazli mosfazli   34 Sep 27 13:17  sudo
drwxrwxrwx 1 mosfazli mosfazli 4.0K Aug 14 18:29 'System Volume Information'
-rwxrwxrwx 1 mosfazli mosfazli  15K Sep 11 20:56  target2.docx
-rwxrwxrwx 1 mosfazli mosfazli  21M May 10 10:56  video_2021-05-10_20-02-49.mp4
-rwxrwxrwx 1 mosfazli mosfazli  44K May 11 01:59 'video_2021-05-10_20-02-49.mp4 48000.pek'
drwxrwxrwx 1 mosfazli mosfazli    0 Oct 15 16:15  VMs
mosfazli@pop-os:/media/mosfazli/SSD$ cd ../
mosfazli@pop-os:/media/mosfazli$ ls
 9A98C94998C9249B   EE5C-6E50  'Games and Movies'   Net   SSD   University
mosfazli@pop-os:/media/mosfazli$ cd University/
mosfazli@pop-os:/media/mosfazli/University$ ls
'$RECYCLE.BIN'       'Backup Windows 10'  'COD Fun'    FFOutput  'Setup Tools'                TeachPrime   University
 1911Ir6MO_720p.mp4   Bluetooth           Documents    Records   'System Volume Information'  Temp         UploadFile
mosfazli@pop-os:/media/mosfazli/University$ cd Documents/
mosfazli@pop-os:/media/mosfazli/University/Documents$ ls
 Cardmelli.docx    Cardmelli.pdf  'MostafaFazli - Copy.jpg'   Shenasnameh~1.jpg   Shenasnameh.jpg   Shenasnameh.png   ShowStdPic.jpg
'Card Melli.jpg'  'em Mail'        MostafaFazli.jpg           Shenasnameh.docx    Shenasnameh.pdf   ShowStdPic.gif   'Student Card University.jpg'
mosfazli@pop-os:/media/mosfazli/University/Documents$ ls -alth
total 20M
drwxrwxrwx 1 mosfazli mosfazli 4.0K Oct 15 15:53  ..
drwxrwxrwx 1 mosfazli mosfazli    0 Oct 10 13:49 'em Mail'
drwxrwxrwx 1 mosfazli mosfazli 4.0K Oct 10 13:49  .
-rwxrwxrwx 1 mosfazli mosfazli 240K Sep  7 19:44  Cardmelli.pdf
-rwxrwxrwx 1 mosfazli mosfazli 341K Sep  7 19:44  Cardmelli.docx
-rwxrwxrwx 1 mosfazli mosfazli  14K Aug 26 12:33 'MostafaFazli - Copy.jpg'
-rwxrwxrwx 1 mosfazli mosfazli  23K Jul 15 00:51  MostafaFazli.jpg
-rwxrwxrwx 1 mosfazli mosfazli 228K Jul 13 00:32  ShowStdPic.gif
-rwxrwxrwx 1 mosfazli mosfazli  62K Jul 13 00:32  ShowStdPic.jpg
-rwxrwxrwx 1 mosfazli mosfazli  91K Jul 13 00:31 'Card Melli.jpg'
-rwxrwxrwx 1 mosfazli mosfazli 208K Jul 13 00:30  Shenasnameh.jpg
-rwxrwxrwx 1 mosfazli mosfazli 166K Jul 13 00:30  Shenasnameh~1.jpg
-rwxrwxrwx 1 mosfazli mosfazli 827K Jul 13 00:30  Shenasnameh.png
-rwxrwxrwx 1 mosfazli mosfazli  77K Jul 13 00:28 'Student Card University.jpg'
-rwxrwxrwx 1 mosfazli mosfazli 426K Jun 25 23:54  Shenasnameh.pdf
-rwxrwxrwx 1 mosfazli mosfazli  18M Jun 25 23:54  Shenasnameh.docx
mosfazli@pop-os:/media/mosfazli/University/Documents$
```

man

Man stands for Manual command, it used to display the manual of any command in terminal.

Structure :

man [OPTION]... [COMMAND NAME]...

Without option => display the whole manual of the command

[Section Number] [command] => when manual of command has mutilplie sections this option show specific section

-f [command] => display all man pages about manual

-a [command] => display all the available manual pages in succession

-w [command] => show location which the manual page of command in computer

-I [command] => it will be case sensitive for commands

info

As the name implies it stands for Information, it gives you detailed information for command.

Structure:

Info [OPTION] [MENU ITEM]

-a [command] => display all matching manuals

-k [command] => display all strings that manuals are same search string an all indices of all manuals and display it.

-d [command] => add DIR to INFOPATH and display the same.

-w [command] => print location of the info file

--help => show help page for info command

- This command is not installed by default on some Linux operating systems.
- For install this command write “sudo apt install info” in Terminal.

NAME

ls - list directory contents

SYNOPSIS

ls [OPTION]... [FILE]...

DESCRIPTION

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
with **-l**, scale sizes by SIZE when printing them; e.g., '--block-size=M'; 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 'always' (default if omitted), 'auto', or 'never'; 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**

```
unix_chkpwd (8)      - Helper binary that verifies the password of the current user
unlink (1)           - call the unlink function to remove the specified file
update-ca-certificates (8) - update /etc/ssl/certs and ca-certificates.crt
update-initramfs.conf (5) - configuration file for update-initramfs
update-locale (8)    - Modify global locale settings
uri (7)              - uniform resource identifier (URI), including a URL or URN
URI::ldap (3pm)      - LDAP Uniform Resource Locators
URI::URL (3pm)       - Uniform Resource Locators
url (7)              - uniform resource identifier (URI), including a URL or URN
urn (7)              - uniform resource identifier (URI), including a URL or URN
user-dirs.conf (5)   - configuration for xdg-user-dirs-update
user.conf.d (5)      - System and session service manager configuration files
usermod (8)          - modify a user account
utime (2)            - change file last access and modification times
utimes (2)           - change file last access and modification times
uuid (3)             - DCE compatible Universally Unique Identifier library
uuidparse (1)        - a utility to parse unique identifiers
validlocale (8)      - Test if a given locale is available
variables (5)        - Format of specifying variable names to SNMP tools.
verify (1ssl)        - Utility to verify certificates
veritysetup (8)      - manage dm-verity (block level verification) volumes
vgcfgbackup (8)      - Backup volume group configuration(s)
vgcfgrestore (8)     - Restore volume group configuration
vimdiff (1)          - edit two, three or four versions of a file with Vim and show differences
wctype (3)           - wide-character classification
wpa_supplicant.conf (5) - configuration file for wpa_supplicant
x509 (1ssl)          - Certificate display and signing utility
x509 (7ssl)          - X.509 certificate handling
x509v3_config (5ssl) - X509 V3 certificate extension configuration format
x86_64-linux-gnu-ar (1) - create, modify, and extract from archives
xbiff (1)            - mailbox flag for X
xcalc (1)            - scientific calculator for X
xdg-user-dirs-update (1) - Update XDG user dir configuration
xdriinfo (1)         - query configuration information of DRI drivers
xfce4-dict (1)       - a client program to query different dictionaries
xfce4-notifyd-config (1) - configuration GUI for xfce4-notifyd
xinput (1)           - utility to configure and test X input devices
xkeyboard-config (7) - XKB data description files
xmag (1)             - magnify parts of the screen
xml2-config (1)      - script to get information about the installed version of GNOME-XML
xmodmap (1)          - utility for modifying keymaps and pointer button mappings in X
xorg.conf (5)        - configuration files for Xorg X server
xorg.conf.d (5)      - configuration files for Xorg X server
Xsession.options (5) - configuration options for Xsession (5)
xsetwacom (1)        - commandline utility to query and modify wacom driver settings.
XStandards (7)       - X Window System Standards and Specifications
Xwrapper.config (5)  - Xorg X server binary wrapper
xzdiff (1)           - compare compressed files
zdiff (1)            - compare compressed files
mosfazli@pop-os:~/Downloads/test$ man ls
mosfazli@pop-os:~/Downloads/test$ info ifconfig
mosfazli@pop-os:~/Downloads/test$ info -a ifconfig
mosfazli@pop-os:~/Downloads/test$ info -w ifconfig
*manpages*
mosfazli@pop-os:~/Downloads/test$
```

rm

rm command stands for Remove and it used for remove files or folders.

Structure:

rm [OPTION] FILE

-i => ask user to make sure about delete file. You can write Y for Yes and N for No

-f => (Force) => remove the file forcefully

-r => performs a tree walk and will delete all files and sub-directories recursively of parent directory

-version => display the version of rm command

-- for remove files that have a ‘-’ in the first of names

cp

cp command stands for Copy, this command copy files.

Structure:

cp [OPTION] [SOURCE FILE 1] [SOURCE FILE 2] ([SOURCE FILE 3]) ([DESTONATION FILE])

-if we use just one source file and destination file, it copy contents of source file into destination file.

-if use some source files and one destination file, it copy contents of all source files into destination file.

-R [SOURCE FILE] [DESTONATION FILE] => copy all files of the source directory into destination directory.

-i => (Interactive) => warns you about overwriting

-b => (Backup) => create backup of destination file in the same folder with different name and format.

-f => (Force) => if you need to permission for copy, use this command.

-p => (Preserve) => show time of the last data modification and time of last access.

File Edit View Terminal Tabs Help

```
mosfazli@pop-os:~/Downloads$ mkdir test
mosfazli@pop-os:~/Downloads$ ls
 google-chrome-stable_current_amd64.deb  'protonvpn-stable-release_1.0.1-1_all (1).deb'   protonvpn-stable-release_1.0.1-1_all.deb   test   windscribe-cli_1.4-51_amd64.deb
mosfazli@pop-os:~/Downloads$ cd test
mosfazli@pop-os:~/Downloads/test$ touch a.txt
mosfazli@pop-os:~/Downloads/test$ a.txt
a.txt: command not found
mosfazli@pop-os:~/Downloads/test$ cat a.txt
Hello, Im mostafa Fazli, this is test for os labratory !!!
mosfazli@pop-os:~/Downloads/test$ ls
a.txt
mosfazli@pop-os:~/Downloads/test$ cp a.txt b.txt
mosfazli@pop-os:~/Downloads/test$ ls
a.txt  b.txt
mosfazli@pop-os:~/Downloads/test$
```

pwd

pwd stands for Print Working Directory, this command show the location of you are there.

Structure:

pwd [OPTION]

-l prints the symbolic path

-p prints the actual path

*This command uses for special folders like system folders)

File Edit View Terminal Tabs Help

```
mosfazli@pop-os:~$ cd /media
mosfazli@pop-os:/media$ cd mosfazli
mosfazli@pop-os:/media/mosfazli$ cd University/
mosfazli@pop-os:/media/mosfazli/University$ pwd
/media/mosfazli/University
mosfazli@pop-os:/media/mosfazli/University$ pwd -L
/media/mosfazli/University
mosfazli@pop-os:/media/mosfazli/University$
```

cd

cd command uses for change directory, this command usually used by two ways:

-with absolute address like cd /home/”USERNAME”/Documents

-with relative address like cd Documents

Structure:

cd [OPTION]

../ => switch directory one level up

../../ => switch directory two level up

../(folder name) => switch directory up to observe folder name

- => change directory to the percious working directory

~ (this option like write nothing) => it change directory to home directory, In the other words it works like write nothing

File Edit View Terminal Tabs Help

```
mosfazli@pop-os:~$ cd /media/mosfazli/SSD
mosfazli@pop-os:/media/mosfazli/SSD$ cd
mosfazli@pop-os:~$ cd /media
mosfazli@pop-os:/media$ cd mosfazli
mosfazli@pop-os:/media/mosfazli$ cd SSD
mosfazli@pop-os:/media/mosfazli/SSD$ cd ../
mosfazli@pop-os:/media/mosfazli$ cd SSD
mosfazli@pop-os:/media/mosfazli/SSD$ cd ../../
mosfazli@pop-os:/media$ cd /media/mosfazli/SSD
mosfazli@pop-os:/media/mosfazli/SSD$ cd -
/media
mosfazli@pop-os:/media$ cd ~
mosfazli@pop-os:~$
```

fhs

fhs stands for File Hierarchy Structure (or Standard), it defines directory contents in Unix-like operating systems.

All file and directories appear under the root directory that shows with /

Some of this files and folders may be different in different Linux distributions.

/ (Root): root directory of the entire file system hierarchy.

The only root user has the right to write under this directory

/bin : commands that need to be available in single-user mode; for all users like cat, ls, ping, man.

Contains binary executables

fhs

/boot : Boot loader files like kernels, initrd.

Kernel initrd, vmlinux, grub files are located under /boot

You can change bootloader in this folder.

/dev : Essential device files like /dev/

These include terminal devices, usb, or any device attached to the system.

Example: /dev/tty1, /dev/usbmon0

/etc : Host-specific system-wide configuration files.

Contains configuration files required by all programs.

fhs

/home : saved files, personal settings, etc.

Home directories for all users to store their personal files.

/lib : Libraries essential for the binaries in /bin/ and /sbin/.

Library filenames are either ld or lib

/media : Mount points for removable media such as CD-ROMs or Floppy drivers.

Temporary mount directory for removable devices.

/mnt : Temporarily mounted filesystems.

fhs

/opt : Optional application software packages.

Contains add-on applications from individual vendors.

/sbin : Essential system binaries like init.

Just like /bin, /sbin also contains binary executables.

The linux commands located under this directory are used typically by system administrator, for system maintenance purpose.

/srv : Site-specific data served by this system, such as data and scripts for web servers, data offered by FTP servers, and repositories for version control systems.

srv stands for service.

Contains server specific services related data.

fhs

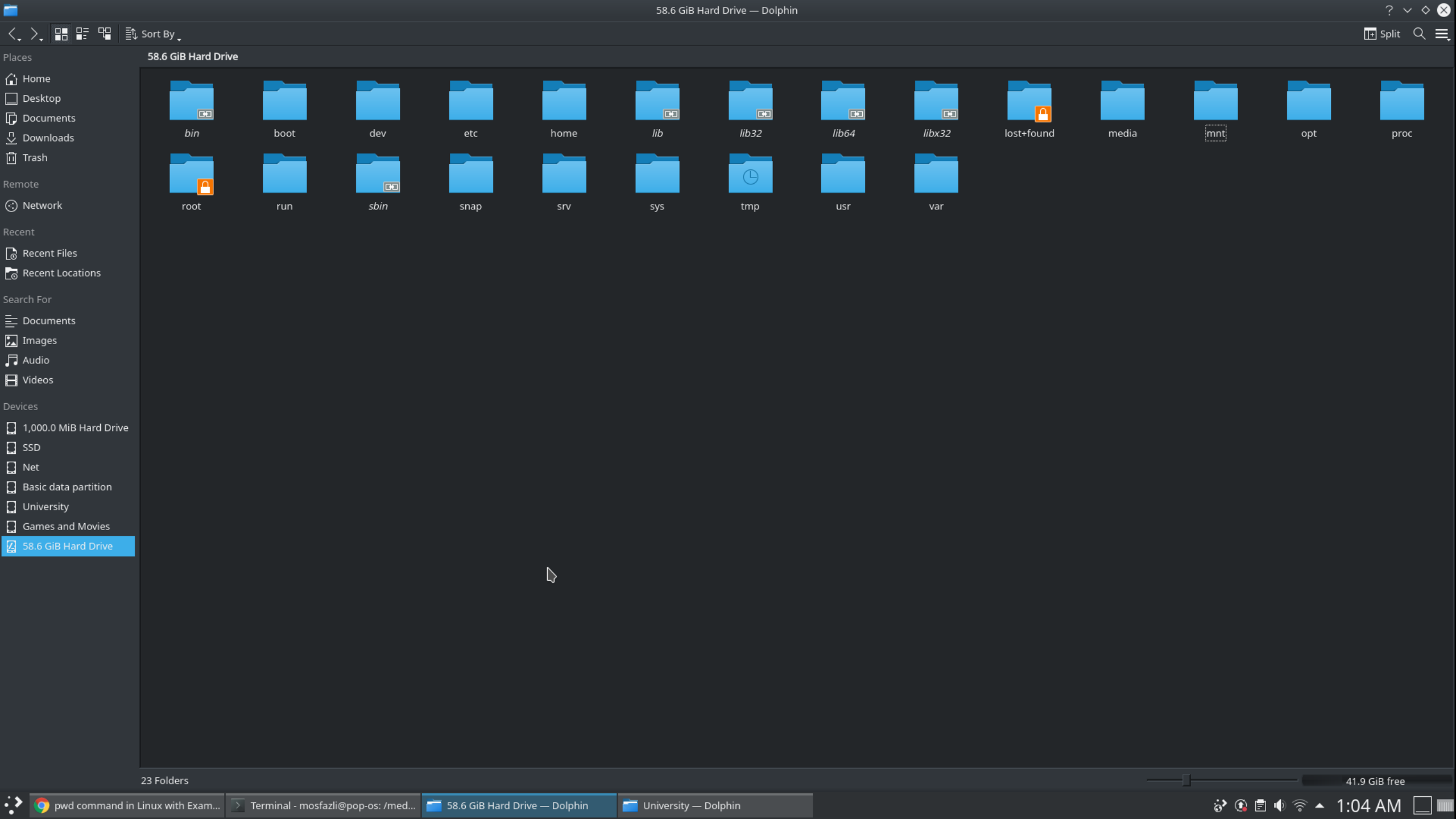
/tmp : Temporary files. may be severely size restricted.

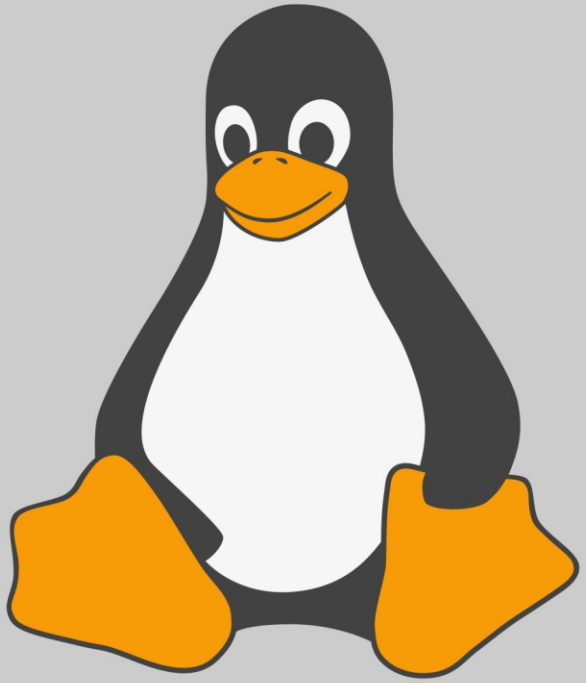
Files under this directory are deleted when system is rebooted.

/usr : Secondary hierarchy for read-only user data; contains the majority of (multi-)user utilities and applications.

/proc : Proccess of linux, like system monitor located in this folder

Contains information about system process.


58.6 GiB Hard Drive — Dolphin
Sort By
Split
Places
Home
Desktop
Documents
Downloads
Trash
Remote
Network
Recent
Recent Files
Recent Locations
Search For
Documents
Images
Audio
Videos
Devices
1,000.0 MiB Hard Drive
SSD
Net
Basic data partition
University
Games and Movies
58.6 GiB Hard Drive
58.6 GiB Hard Drive
bin
boot
dev
etc
home
lib
lib32
lib64
libx32
lost+found
media
mnt
opt
proc
root
run
sbin
snap
srv
sys
tmp
usr
var
23 Folders
41.9 GiB free
pwd command in Linux with Exam...
Terminal - mosfazli@pop-os: /med...
58.6 GiB Hard Drive — Dolphin
University — Dolphin
1:04 AM



LINUX