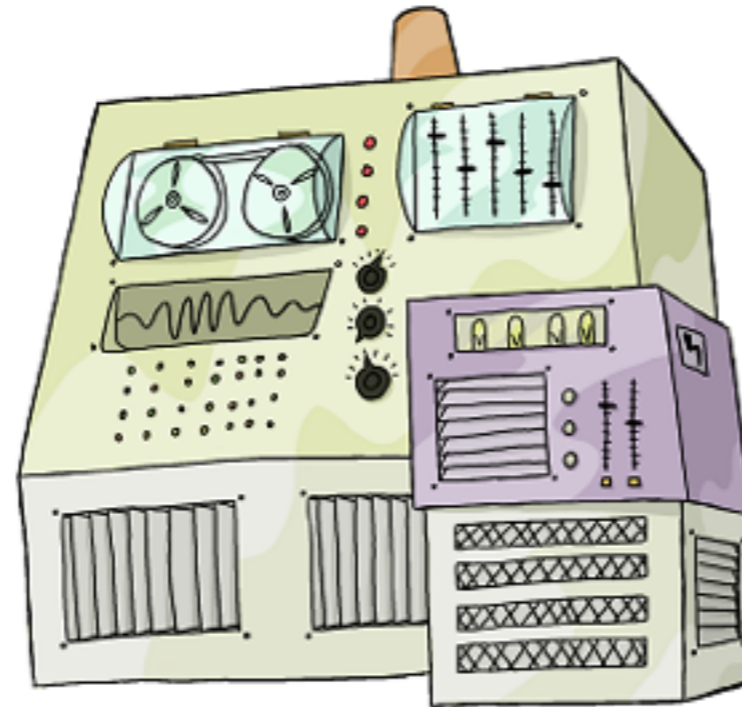


Introduction to Unix Shell

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Renom**

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Structural Genomics Group (CRG)*

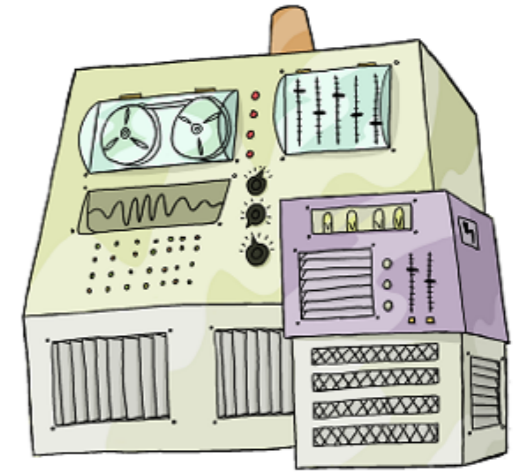


Run
Programs

Store
Data

Communicate
with each other

Interact
with us



Interact
with us

Rewiring

Typewriter

WIMP

Speech

Telepathy

user logs in



user logs in
user types command



user logs in
user types command
**computer executes command
and prints output**



user logs in
user types command
computer executes command
and prints output
user types another command



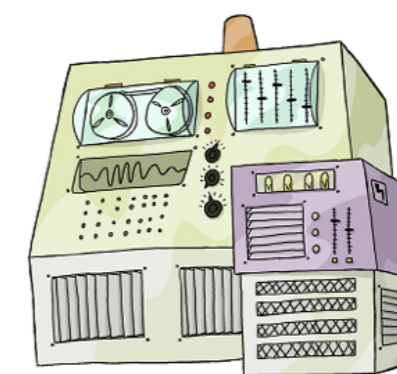
user logs in
user types command
computer executes command
and prints output
user types another command
**computer executes command
and prints output**



user logs in
user types command
computer executes command
and prints output
user types another command
computer executes command
and prints output
:
user logs off



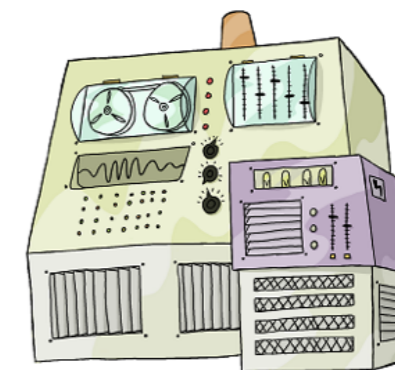
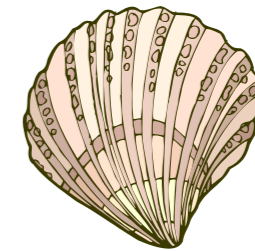
user logs in
user types command
computer executes command
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user types another command
computer executes command
and prints output
:
user logs off



user logs in
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user logs off



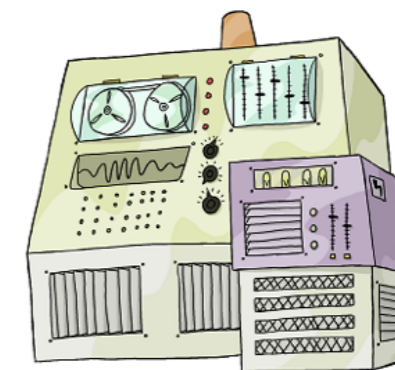
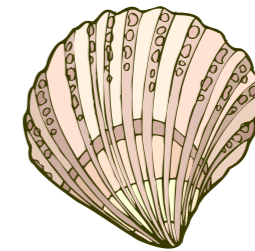
shell

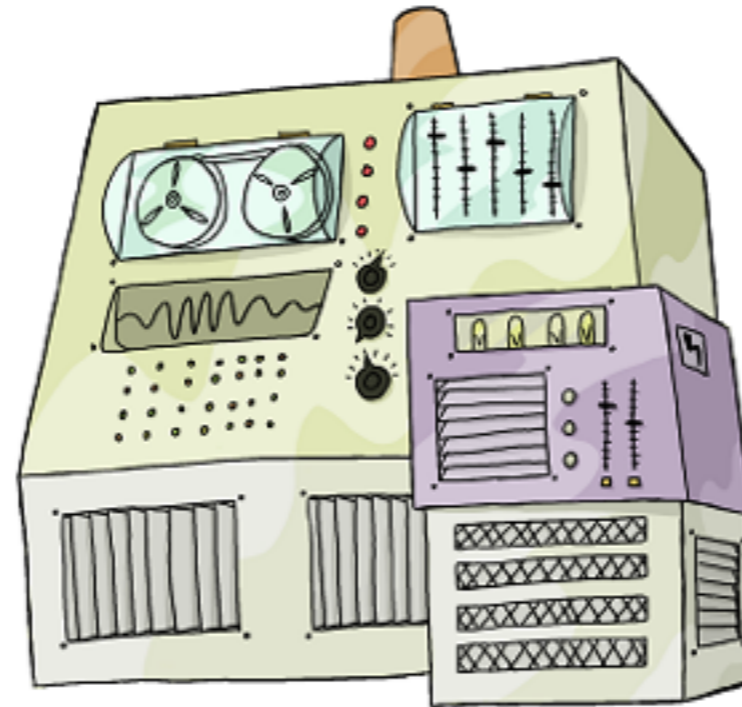


user logs in
user types command
computer executes command
and prints output
user types another command
computer executes command
and prints output
:
user logs off



shell



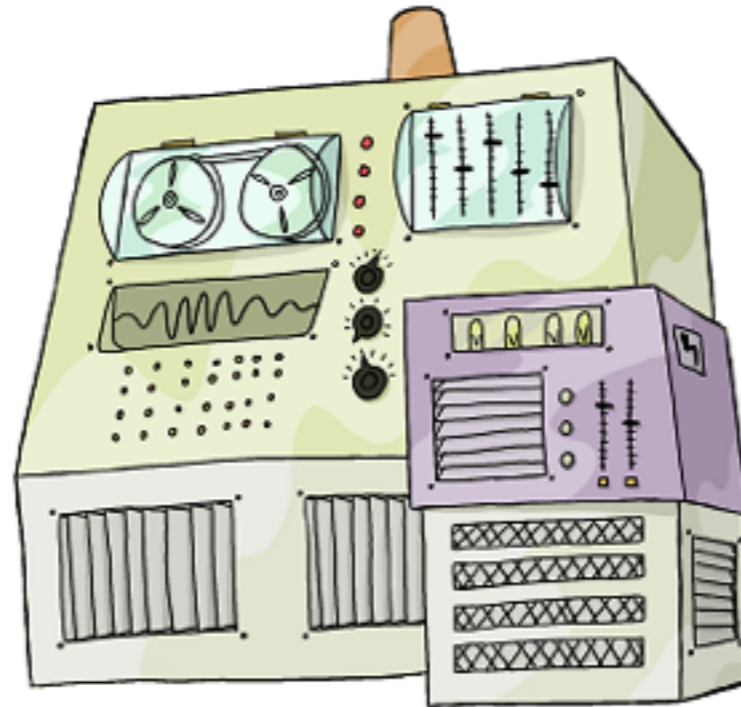


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Run

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shell

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Why shell is important in the context of scientific software

- Lowest layer of interaction with computer in linux
 - Faster computing by avoiding intermediate layers
- No need for 3rd party software installations
- Usual interaction with computation clusters common in high demanding processing

login: **vlad**

password: *********

\$ _____ shell prompt

login: **vlad**

password: *********

\$

_____ shell prompt

like Python's >>> and ...

login: vlad

password: ****

\$ whoami _____ check user ID

login: **vlad**

password: *********

\$ whoami

check user ID

shell finds the **whoami** program

login: **vlad**

password: *********

\$ whoami

check user ID

shell finds the **whoami** program

runs it

login: **vlad**

password: *********

\$ whoami

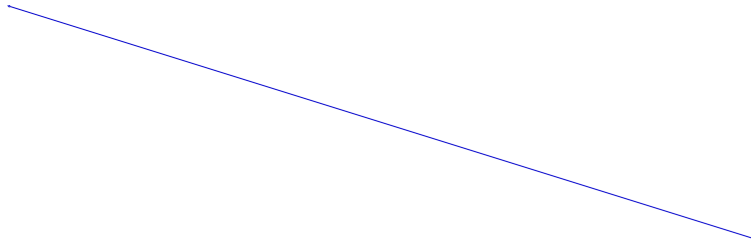
vlad

check user ID

shell finds the **whoami** program

runs it

prints its output



login: **vlad**

password: *********

\$ whoami

vlad

\$

check user ID

shell finds the **whoami** program

runs it

prints its output

displays a new prompt

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

_____ what is the *working directory*

login: vlad

password: ****

\$ whoami

vlad

\$ pwd

what is the *working directory*
the directory used when no other
directory is explicitly specified

login: vlad

password: ****

\$ whoami

vlad

\$ pwd

/home/vlad

\$

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$



root

/

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$



root

/

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$



root

/

login: **vlad**

password: *********

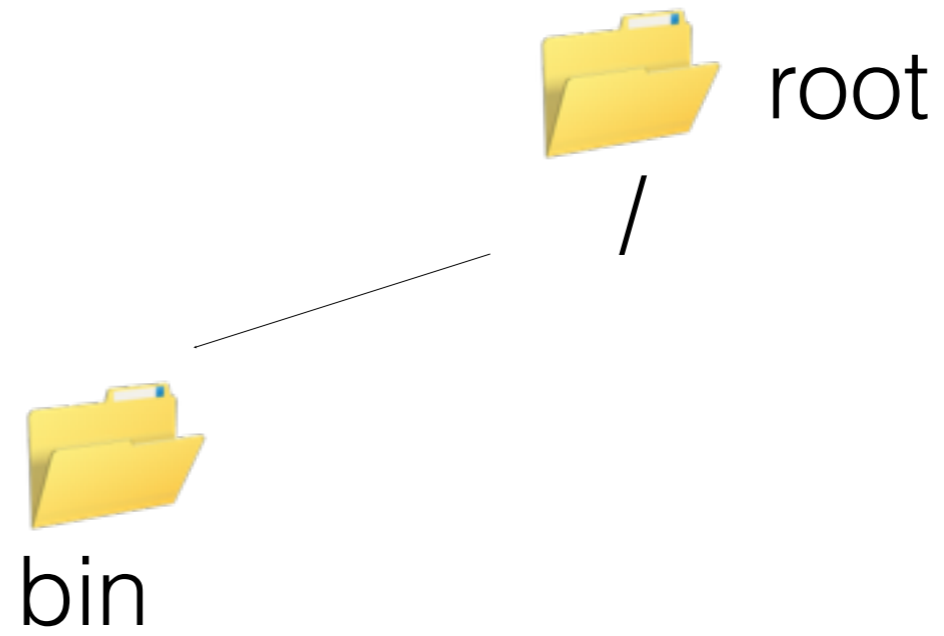
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

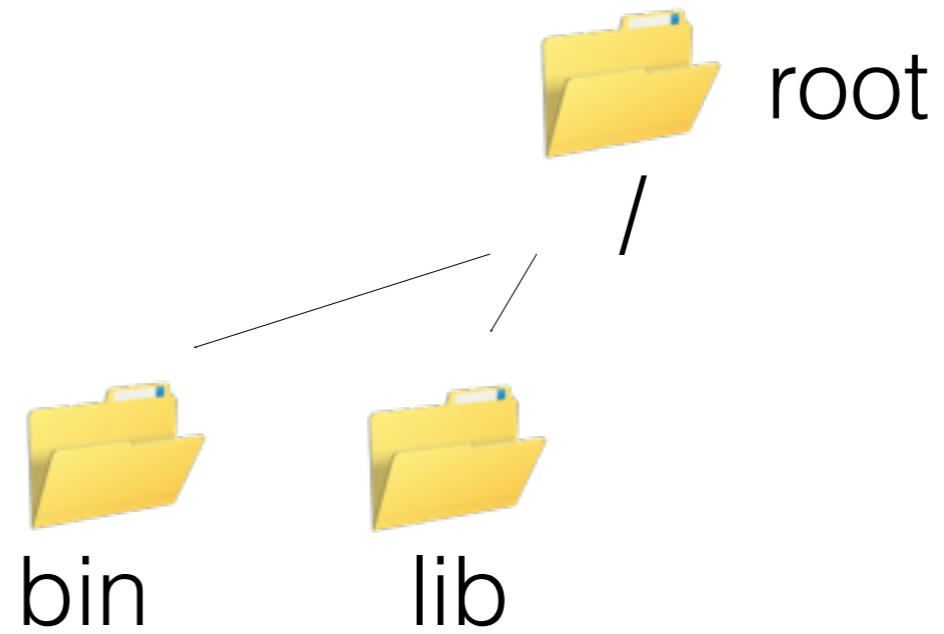
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

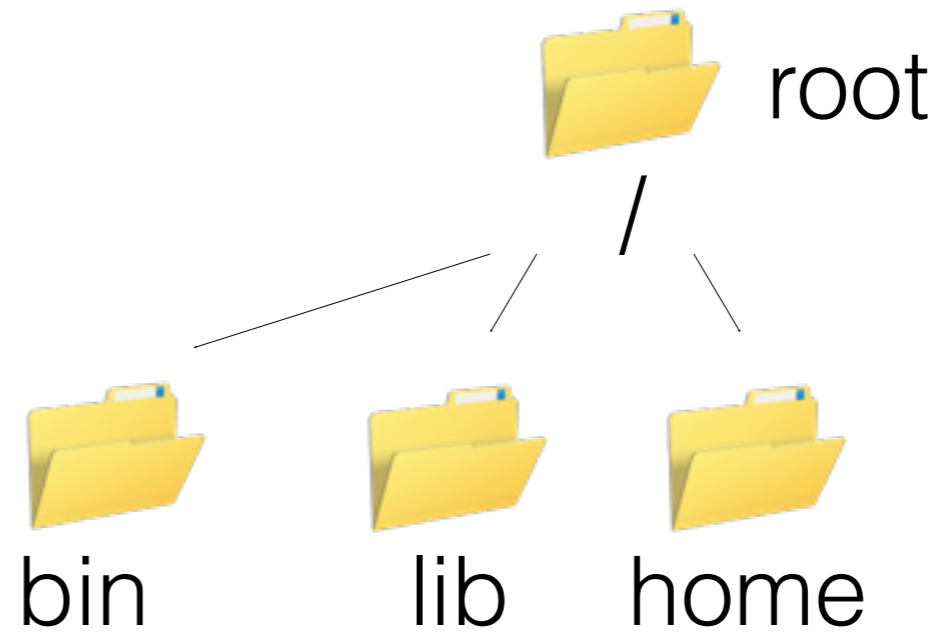
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

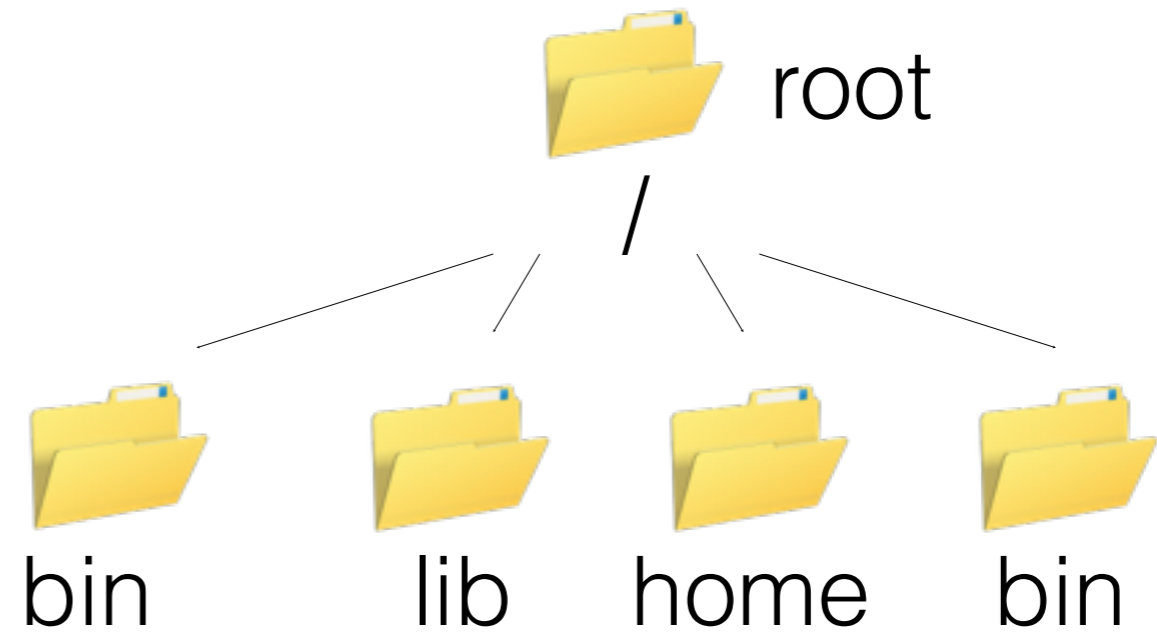
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

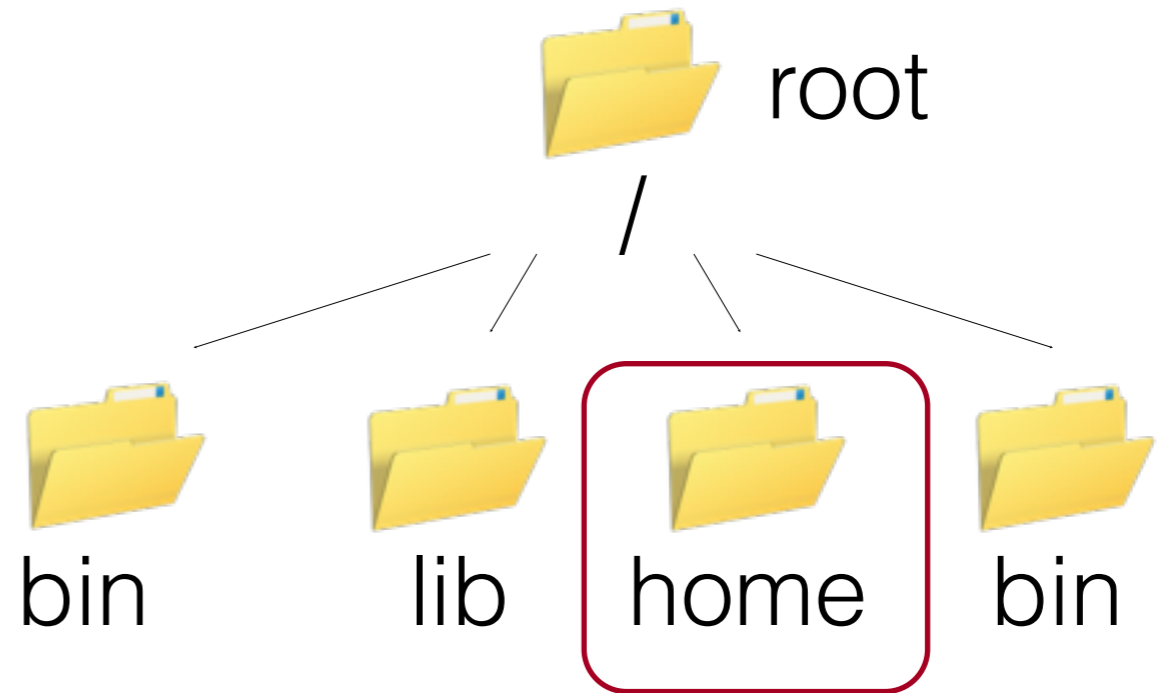
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

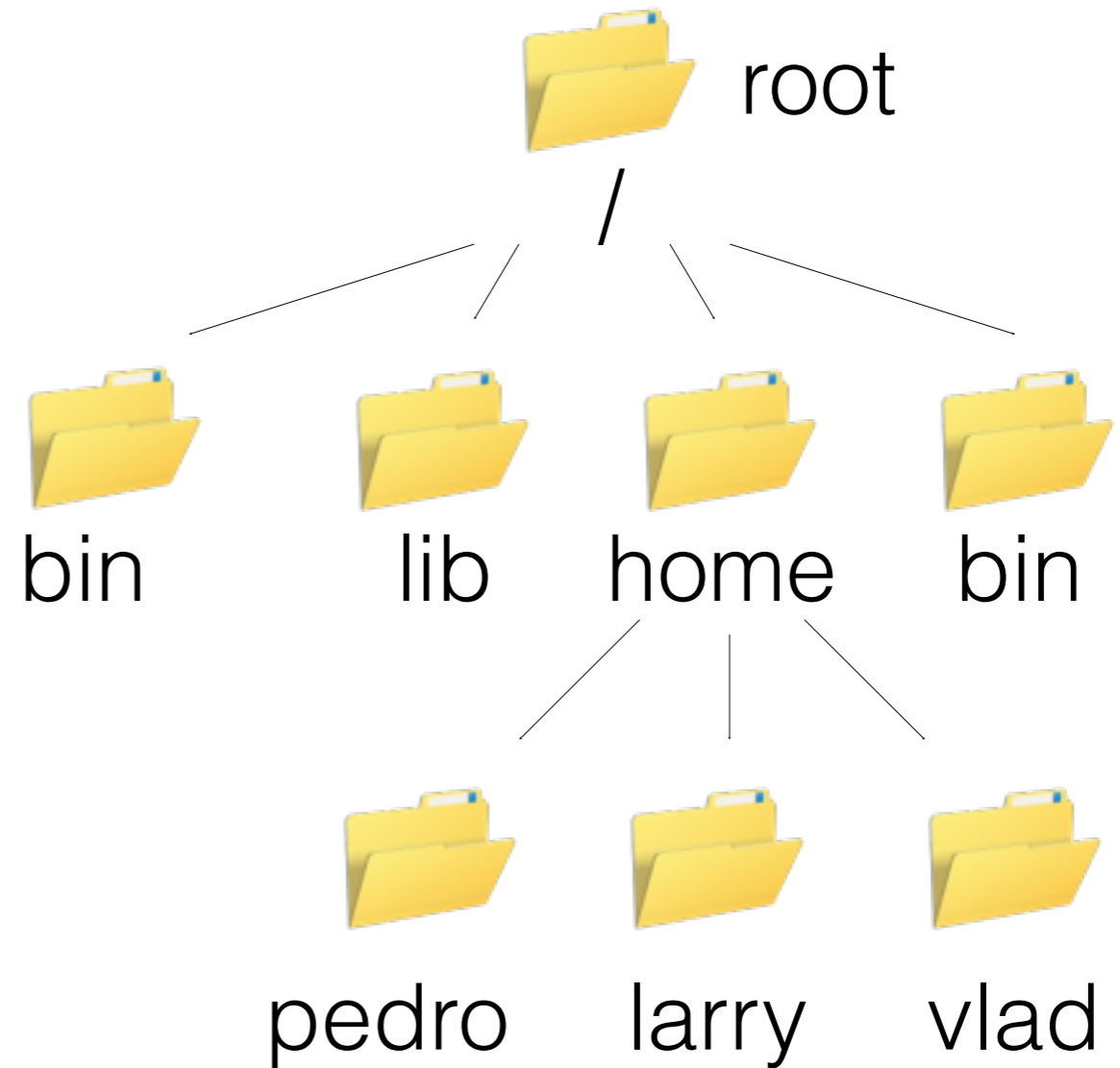
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

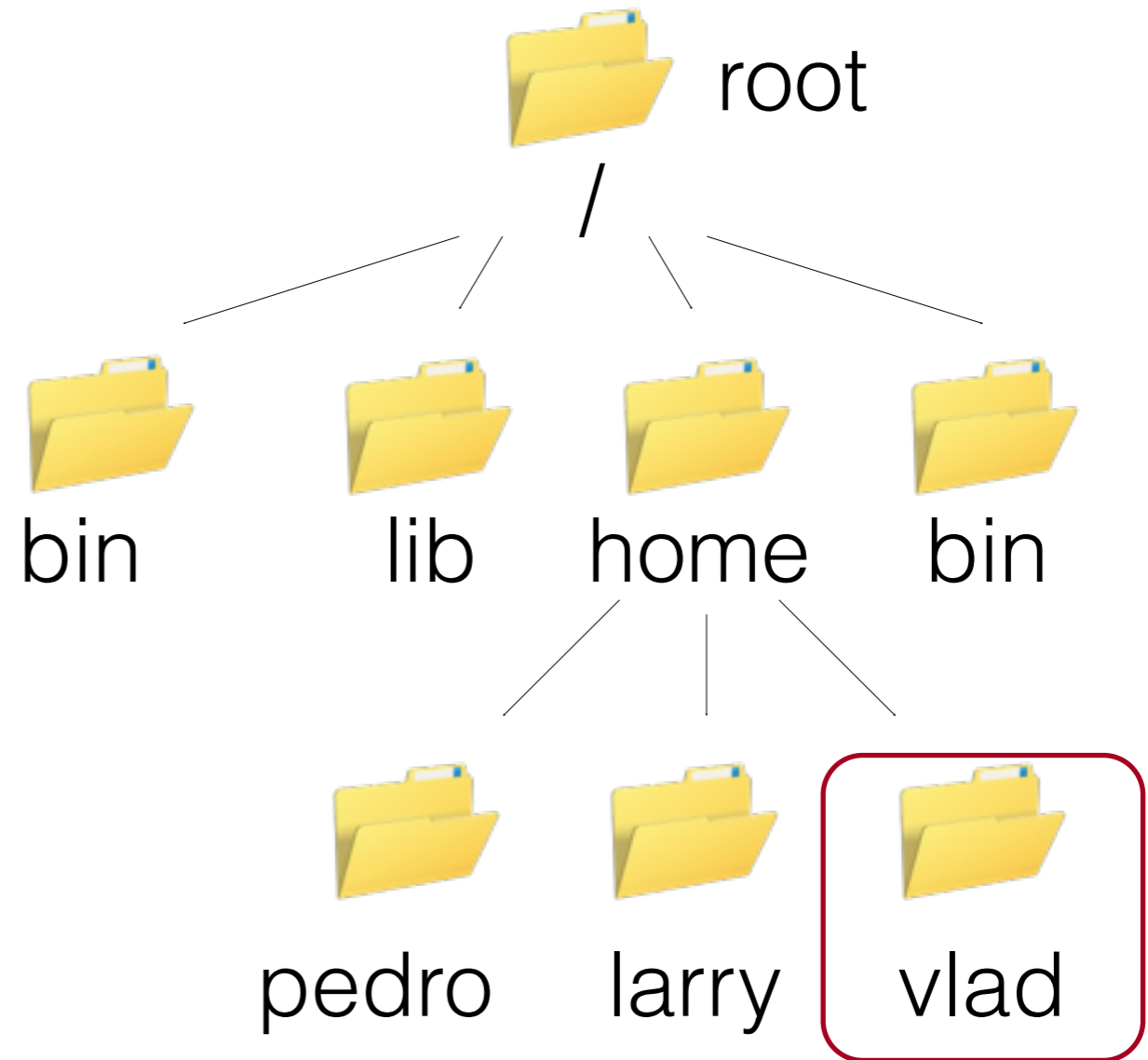
\$ whoami

vlad

\$ pwd

/home/vlad

\$



login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$ ls

_____ stands for "listing"

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$ ls

stands for "listing"
sadly more memorable than
most command names

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$ ls

bin data mail music

notes.txt papers

\$

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$ ls -F

bin/ data/ mail/ music/

notes.txt papers/

\$

an argument or flag modifying
the command's behavior

login: **vlad**

password: *********

\$ whoami

vlad

\$ pwd

/home/vlad

\$ ls -F

bin/ data/ mail/ music/
notes.txt papers/

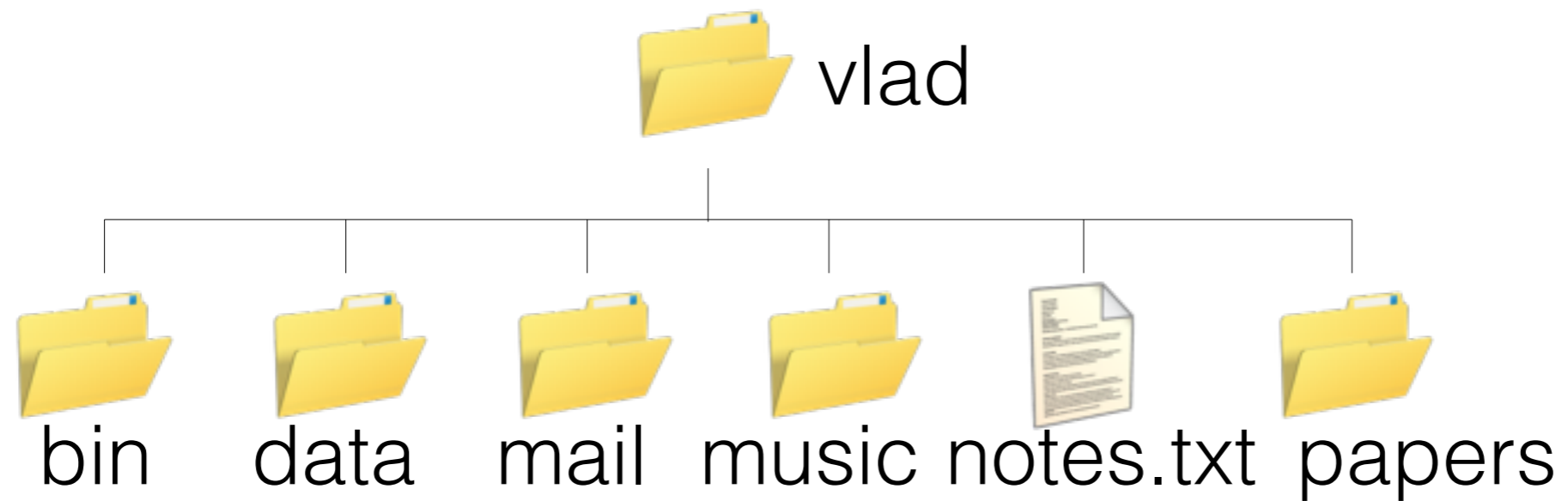
\$

adds a trailing '/' to
directory names



\$ ls -F

**bin/ data/ mail/ music/
notes.txt papers/**

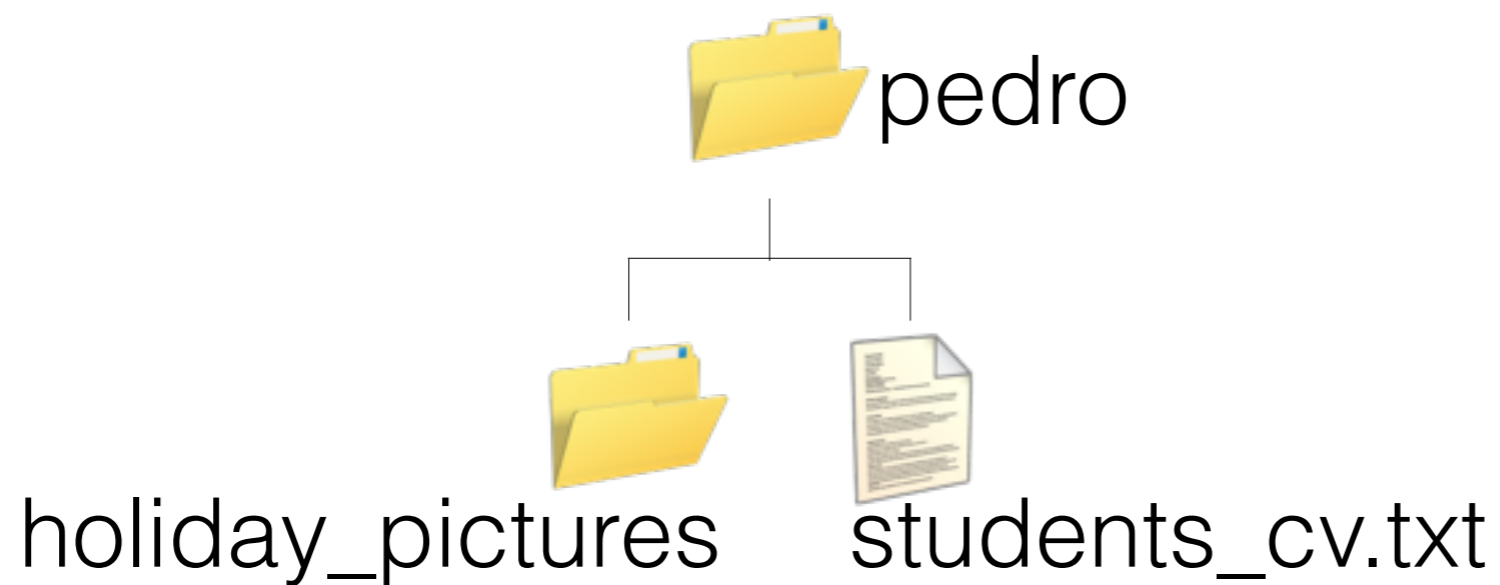


```
$ pwd
```

```
/home/vlad
```

```
$ ls /home/pedro -F
```

```
holidayPictures/ students_cv.txt
```



```
$ ls ../pedro -F
```

```
holidayPictures/ students_cv.txt
```

Lets start!!

Command	Description	Example	Action
pwd	print working directory	pwd	path and name of working dir. I am in now
ls	list contents of directory	ls	list contents of current dir.
		ls test/	list contents of the test dir. that hangs from the working dir.
		ls -lh	vertical list of dir. contents
cd	change directory	cd	go to home directory (same as cd /home/user or cd ~/)
		cd /home/user/Docs	go to the Docs directory
		cd ..	go to parent directory
mkdir	make directory	mkdir test	creates directory test/
rmdir	remove directory	rmdir test	remove test/ if empty
rm	remove file	rm test.txt	remove test.txt file
cp	copy	cp fileA fileB	copy fileA to fileB
mv	move or rename file or directory	mv a b	change name from a to b
		mv a ..	move a to parent directory
more	see file content	more a.txt	see contents of a.txt page by page
cat	see file content	cat a.txt	see contents of a.txt page, all the file at once
head/tail	see first/last lines of a file	head -n 10 a.txt	see the first 10 lines a file a.txt (last 10 would be with tail)
zcat	like cat but fir zipped files	zcat a.txt.gz head	see first 10 lines of a compressed file a.txt.gz
nano	simple text editor!	nano a.txt	edit a.txt (ctrl-X to exit)
firefox	a web browser	firefox a.html or firefox a.jpg	use web browser to view file
ssh	connect to a remote server	ssh student@172.17.133.110	go to the home folder of "student" in a given server
scp	copy from a remote server	scp -r student@172.17.133.110:~/test .	copy test directory from remote server at current pwd
man	manual on a command	man ls	manual page for the 'ls' command