

BI694

Bioinformatics & Phylogenetics

Winter Semester 2017

WEEK 2

Today we will install Vmware virtual machines

→ Copy VMware installer and Ubuntu disk image to your computer

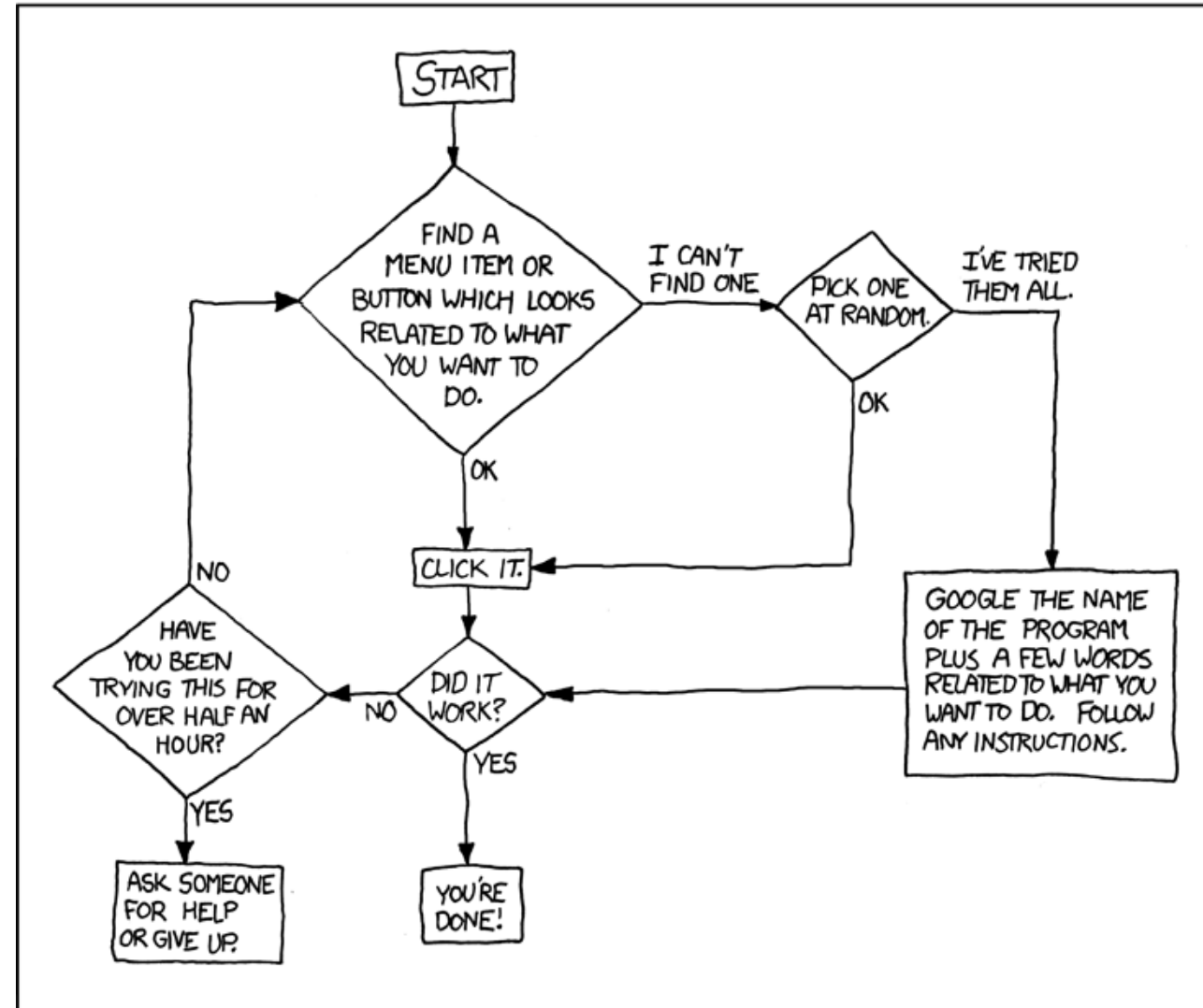
Why are we using Ubuntu?

- Actively developed and supported
- Based on Debian
- Large amount of software packaged and readily available through repositories
- I picked a lightweight version of it to limit resource usage

I'll walk you through the installation, but...

DEAR VARIOUS PARENTS, GRANDPARENTS, CO-WORKERS,
AND OTHER "NOT COMPUTER PEOPLE."

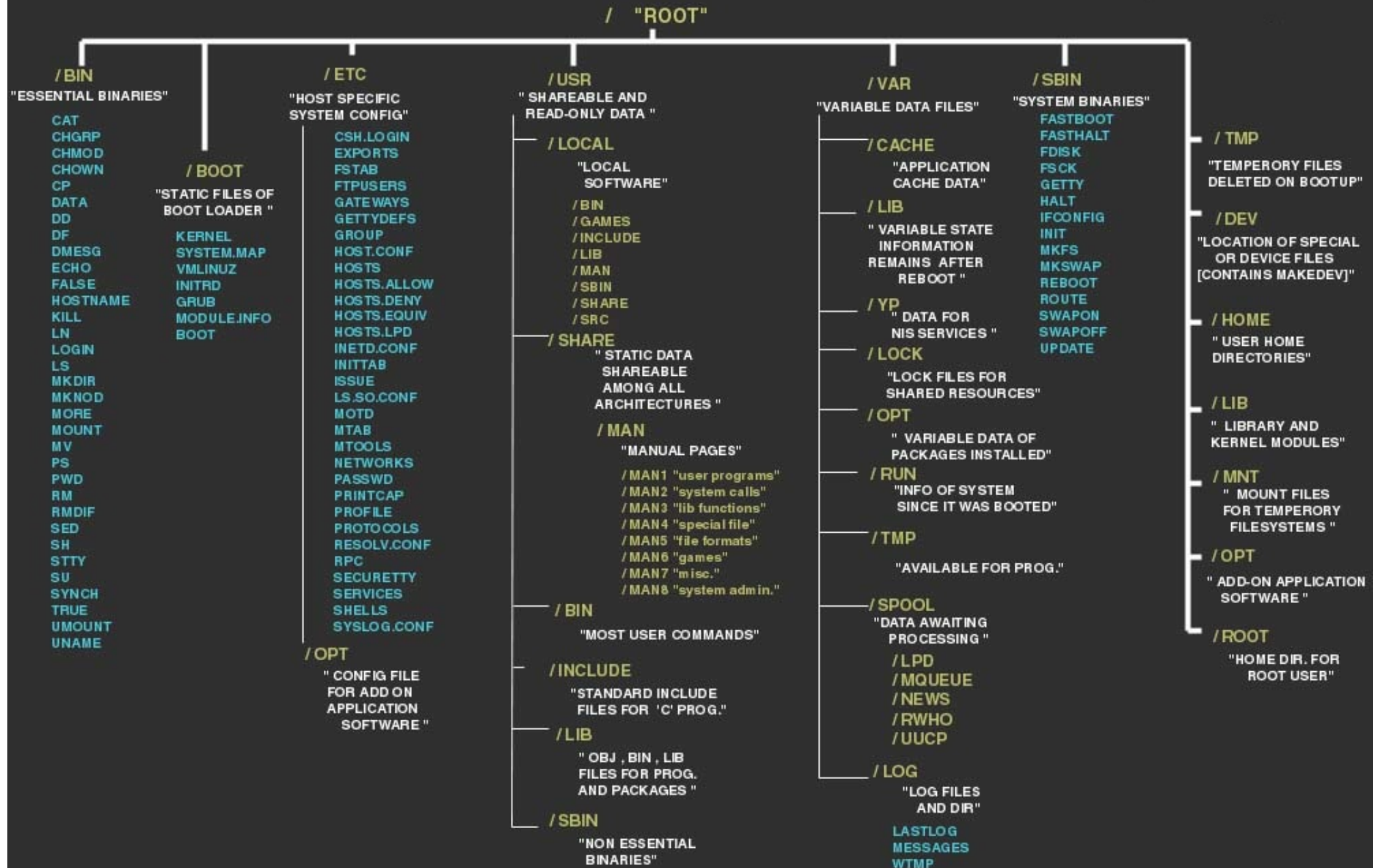
WE DON'T MAGICALLY KNOW HOW TO DO EVERYTHING IN EVERY
PROGRAM. WHEN WE HELP YOU, WE'RE USUALLY JUST DOING THIS:

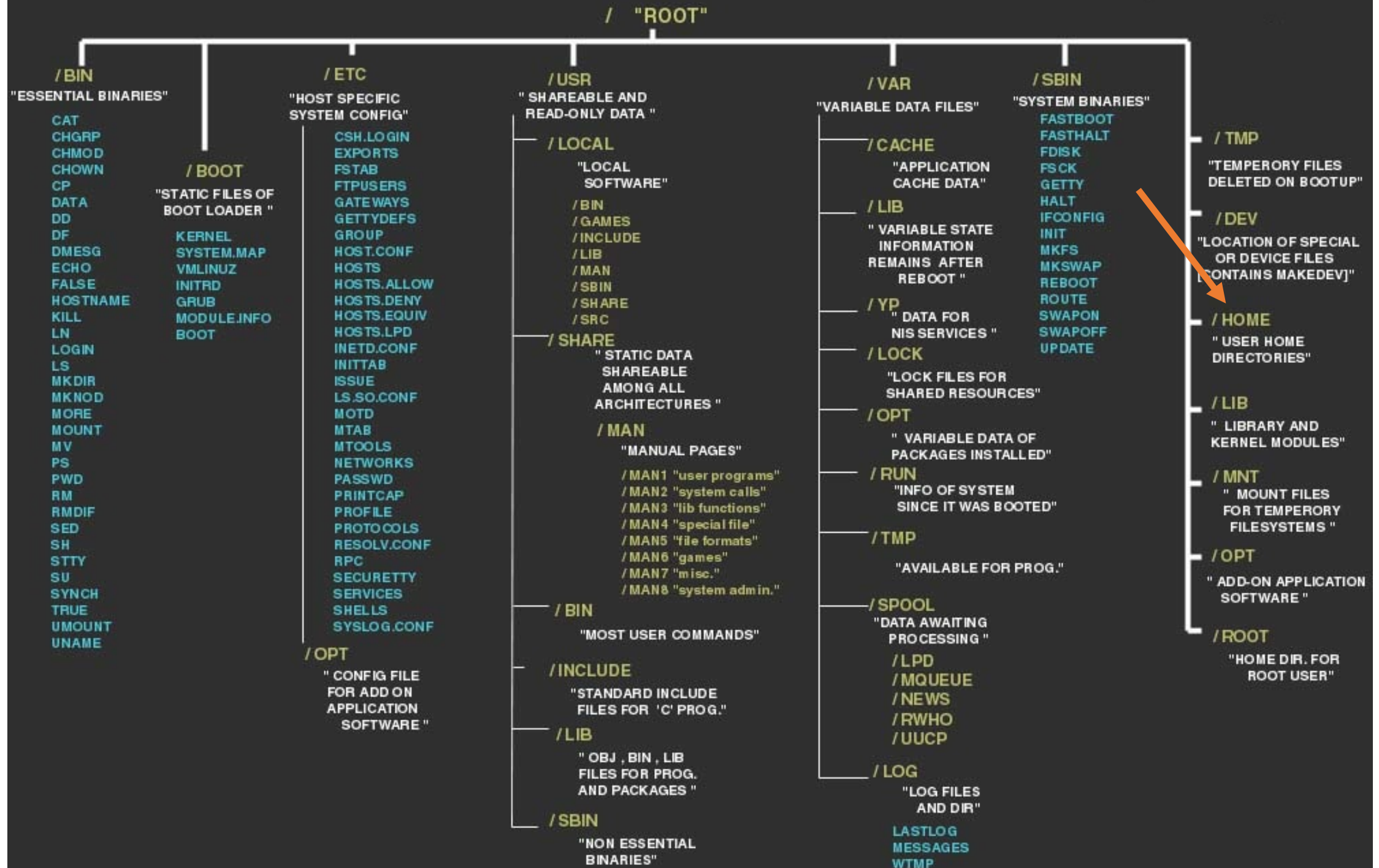


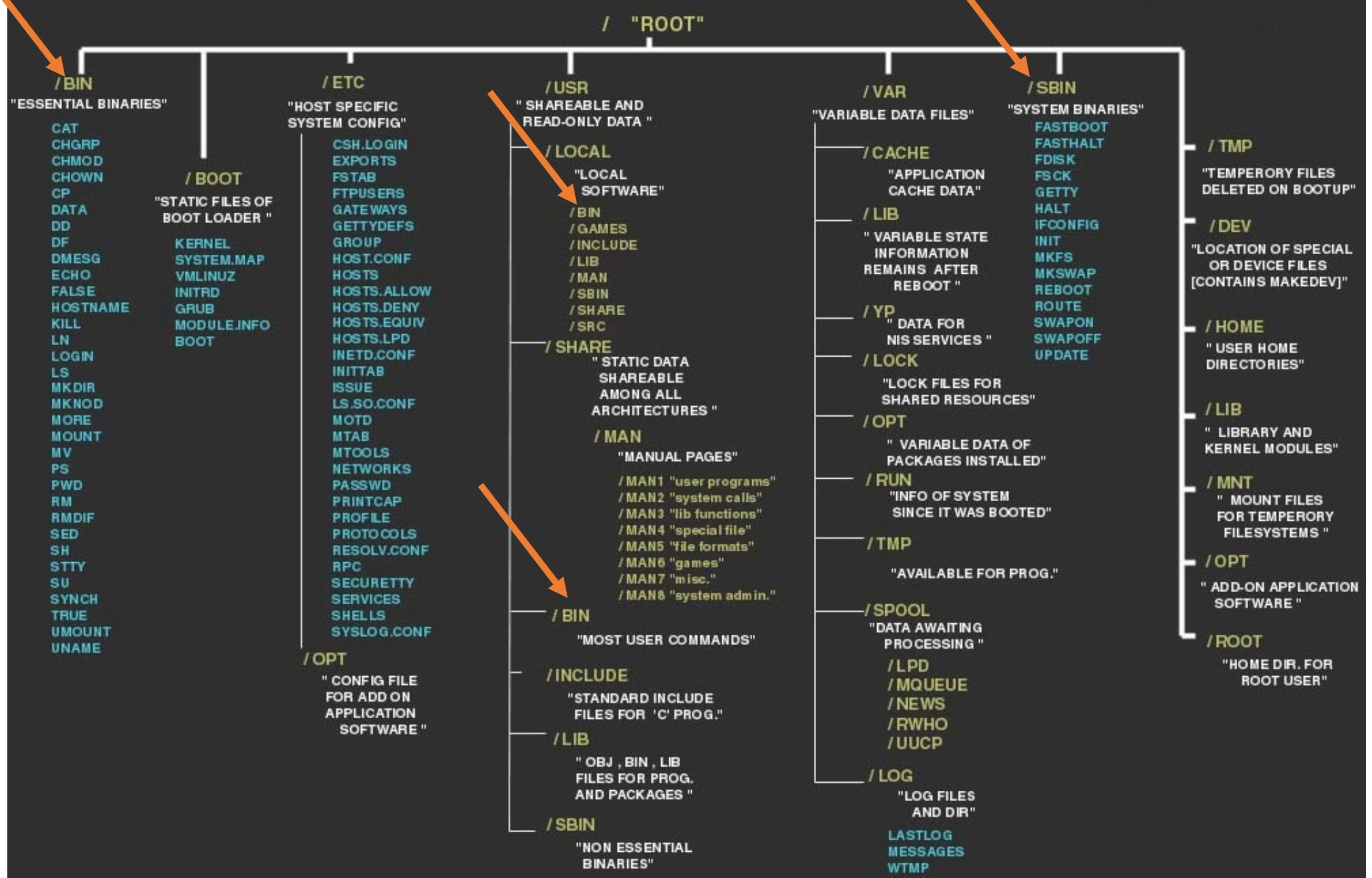
PLEASE PRINT THIS FLOWCHART OUT AND TAPE IT NEAR YOUR SCREEN.
CONGRATULATIONS; YOU'RE NOW THE LOCAL COMPUTER EXPERT!

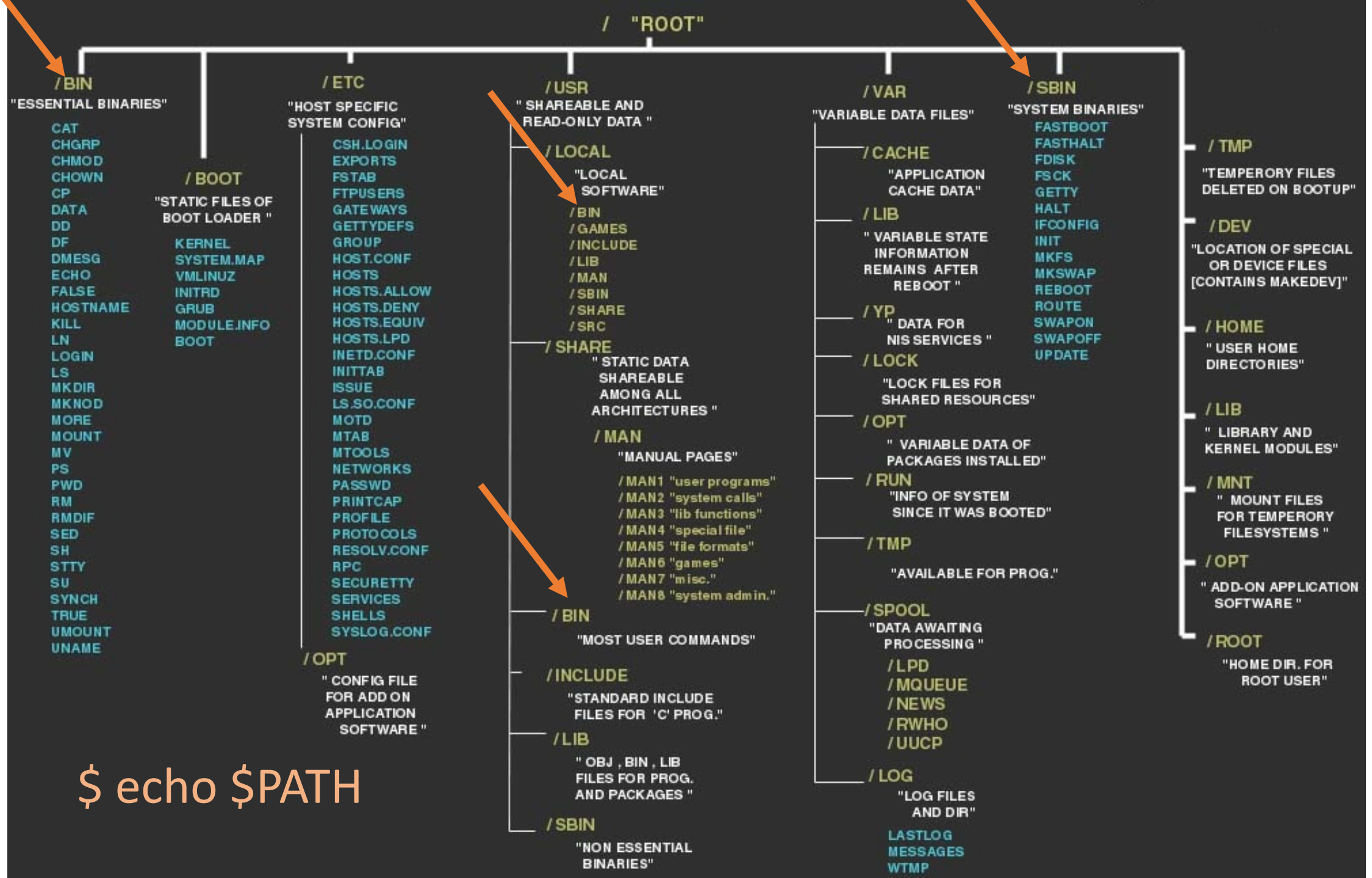
Linux file system structure

- Everything in Linux is a file – including harddrives
- no C:, D:, etc drives...

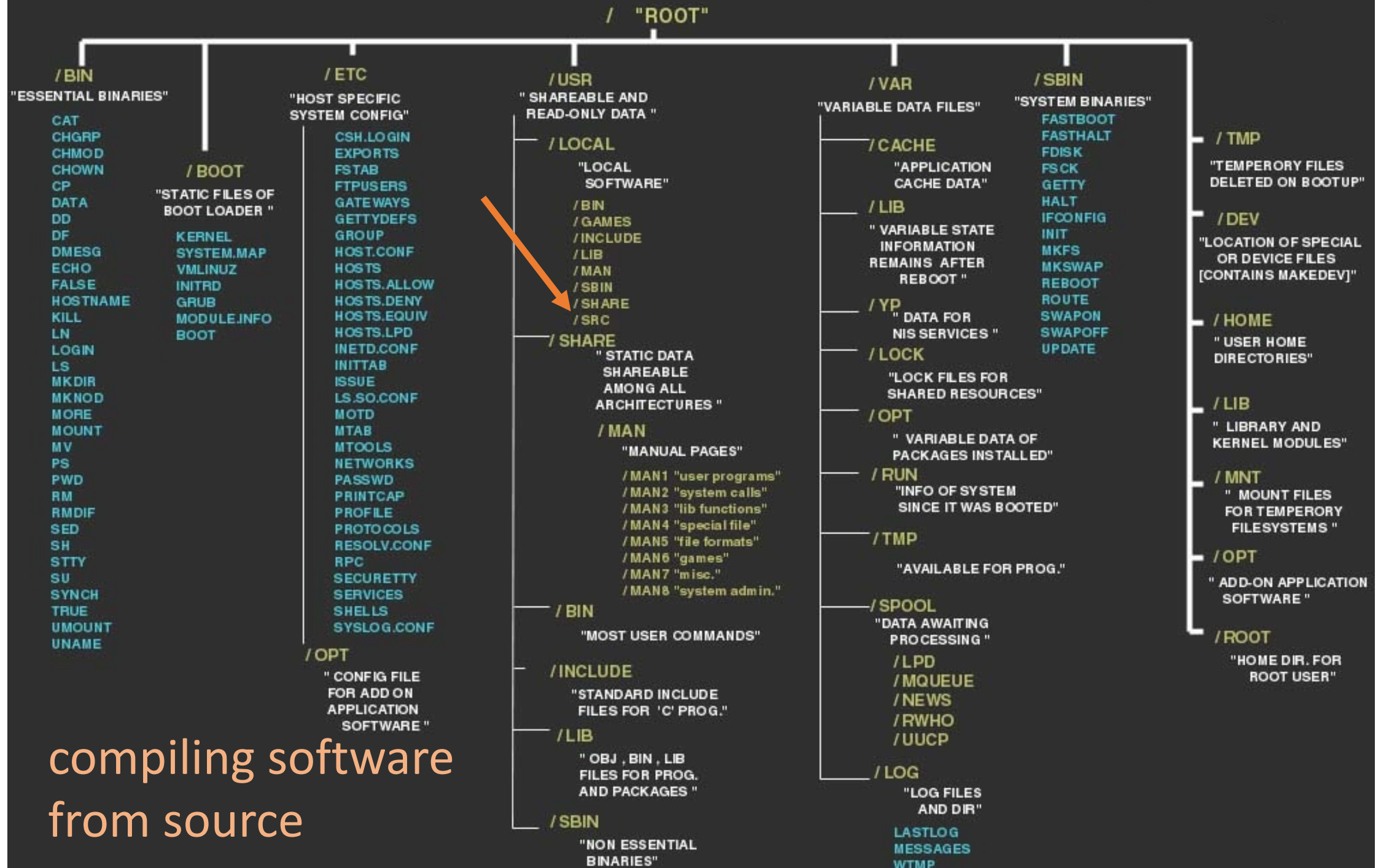








\$ echo \$PATH



How to get around the system?

- pwd
- cd
- ls
- mkdir (-p)
- rm
- touch
- man pages

How to get around the system?

- Absolute path: /home/user/directory
- Relative path: ./directory
- How about traversing down the directory tree? ../

No white spaces!

How do we deal with spaces in file names?

- Escape them with \
- We will come back to quotes later

File permissions

High level of access control!

- chown
- chmod
- **r=4 w=2 x=1**
- Owner: $rw\text{-}x=4+2+1=7$
- Group: $r\text{-}x=4+0+1=5$
- Other: $r\text{-}x=4+0+1=5$

```
devnet@lostlap ~ $ ls -l
```

total 32							
drwxr-xr-x	4	devnet	devnet	4096	2009-09-28	05:13	Desktop
drwxr-xr-x	6	devnet	devnet	4096	2009-09-25	07:23	Documents
drwxr-xr-x	49	devnet	devnet	4096	2009-09-25	07:23	Music
drwxr-xr-x	2	devnet	devnet	4096	2009-09-25	07:11	Network
drwxr-xr-x	2	devnet	devnet	4096	2009-09-25	07:04	Pictures
drwxr-xr-x	2	devnet	devnet	4096	2009-09-25	07:11	Public
drwxr-xr-x	2	devnet	devnet	4096	2009-09-25	07:11	Templates
drwxr-xr-x	2	devnet	devnet	4096	2009-09-25	07:11	Videos

File Type

User Permissions

Group Permissions

Other Permissions

of Hard Links

User / Owner

Group

Size

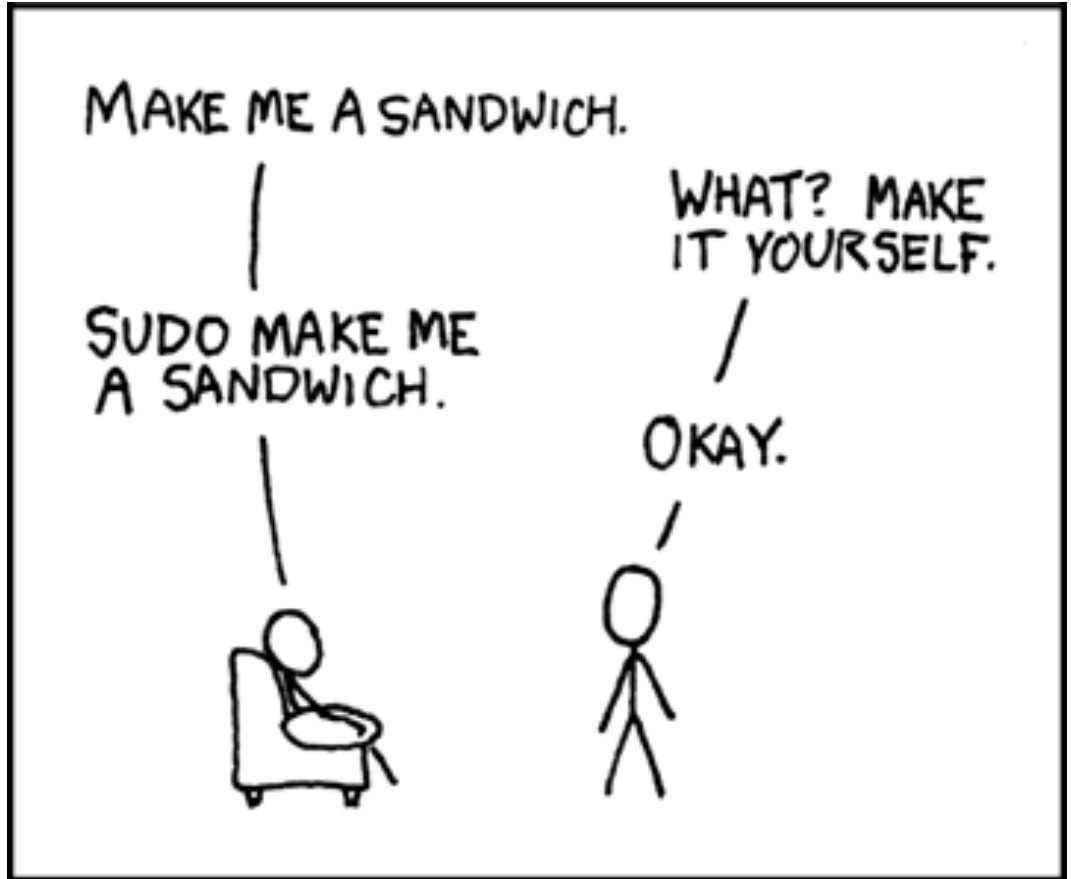
Date

File or Directory Name

d - directory
r - readable
w - writeable
x - executable

Regular versus super user

- Users have limited power
→ you cannot mess up the system; only your own files!
- Sometimes you need more authority:
→ sudo
→ su root



Package manager

- Package managers (keep track of dependencies)
- apt-get update
- apt-get upgrade
- apt-cache search
- install seaview

System monitoring tools

- Install htop
- Memory and CPU usage
- What is SWAP?
- Killing process – ctrl-c, ps, htop