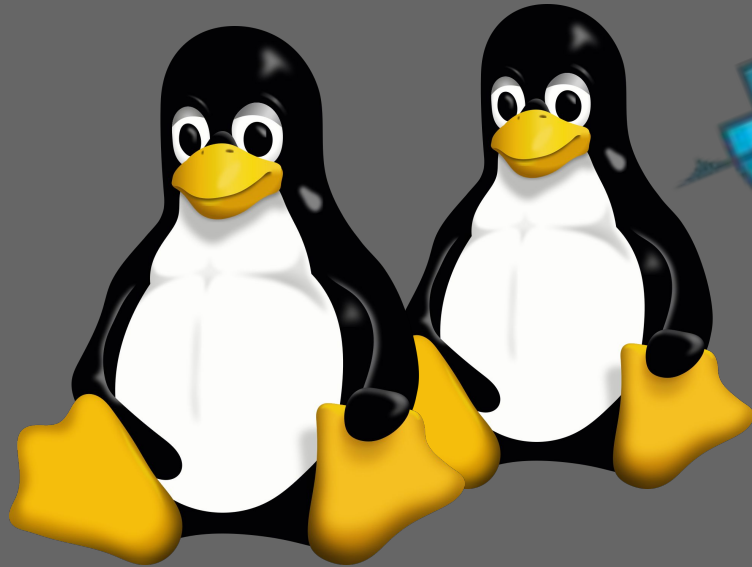
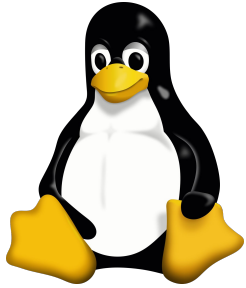


CPE 470 - Linux & Docker Intro

Taught by Francisco Wilken



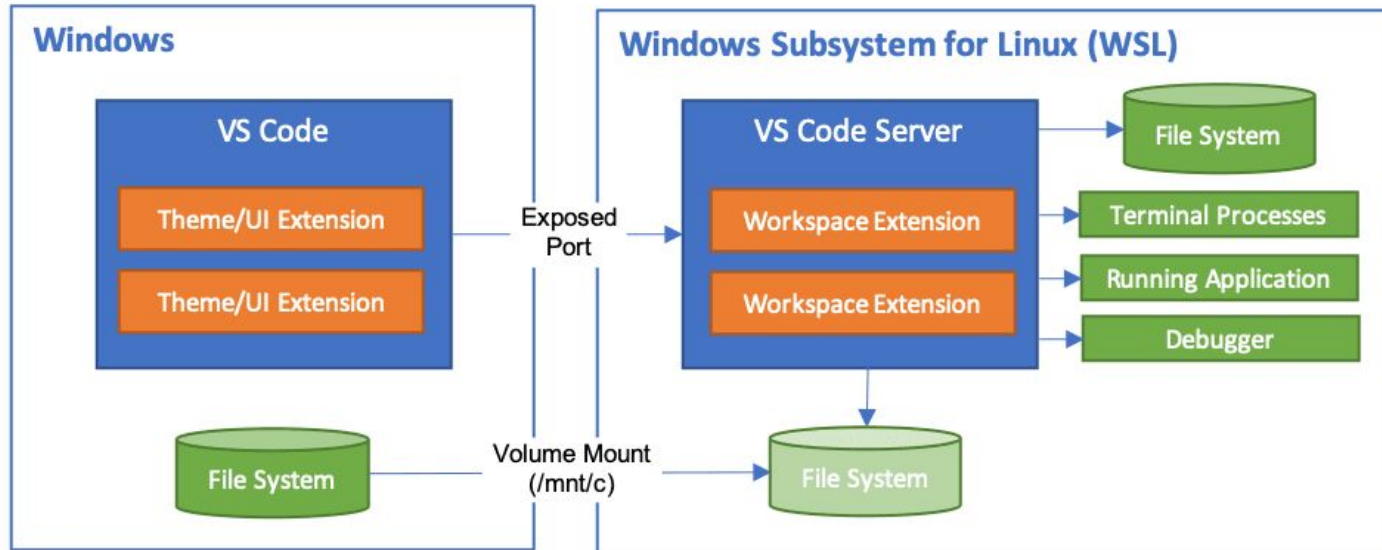
Linux?



- Open Source Operating System
 - Just like Windows or Mac OS
- Open Source Tools are all built to run best on Linux!
- Often navigated using the Command Line
- ~~● SIMULATION~~
~~Run Simulation~~
- There will not be a Run Simulation Button

What is WSL?

- WSL is a linux virtual machine
 - Has a separate file system
- Can connect to it using VS Code WSL Extension



Spawning In



- When opening a new terminal, you end up in your home directory:
 - `home/<your username>`
 - `home/asic` for example
- This home folder is represented by the variable `~`

```
justfran@ciscoserver:~$
```

`>`

Who you are

Machine Name

Where you are

Moving Around (cd)

Moving Down the Tree

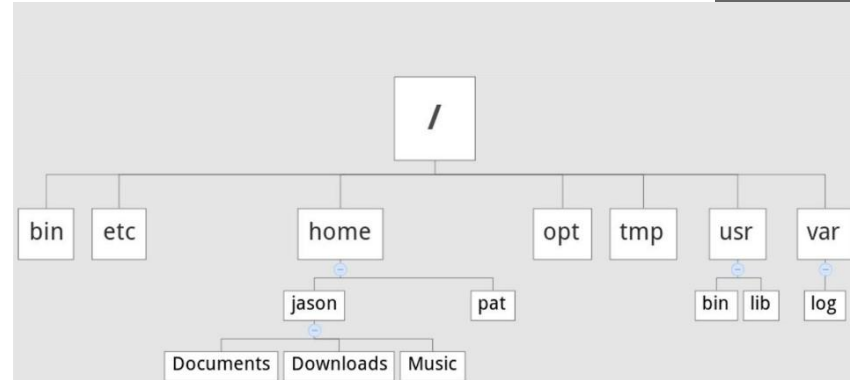
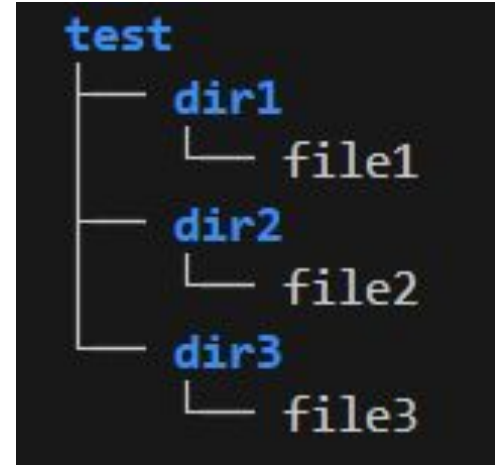
- Use **cd <dirname>** to move around
 - **cd test** to move from ~ to test
 - **cd dir1** to move from test to dir1

Moving Up the Tree

- **cd ..** to go up a directory
- **cd ~** to go to your home directory

Combine Multiple directories to form a path:

- **cd ~/test/dir1** to end up in dir1
- **cd ../../** to end up back in ~



Doing Things

View Contents of Directory

```
(venv) justfran@ciscoserver:~$ ls test  
dir1 dir2 dir3
```

- Use **ls** to view contents of current directory
 - **ls test** to view contents of test

Viewing your Current Path

```
(venv) justfran@ciscoserver:~/test$ pwd  
/home/justfran/test
```

- Use **pwd** to print your current path

Making a Directory

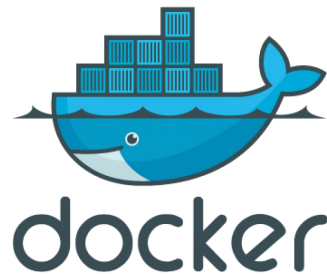
- Use **mkdir <dirname>** to create a directory
 - **mkdir test/test3**

Any Many More!

- **touch <filename>** to create an empty file
- **cp <source> <destination>** to copy a file
 - **cp -r <source> <destination>** to copy a directory

What is Docker?

- A way of distributing software while avoiding version and library issues
- What if instead of just sending around binaries, we sent the entire environment?



Docker Image

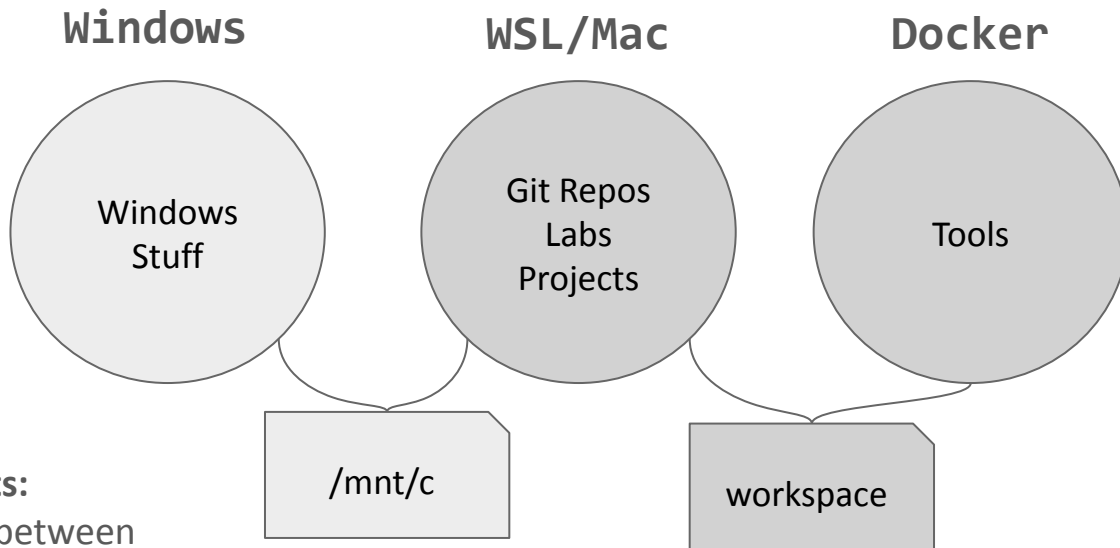
- Includes an OS (often a Linux distro)
- Includes filesystems, configuration, environment
- Read Only
 - Modifying a running container does not edit the base image

Docker Container

- A runnable instance of an image
- Files are not persistent
 - Created files will be destroyed when the container ends

Docker & Files

2-3 Seperate File Systems!

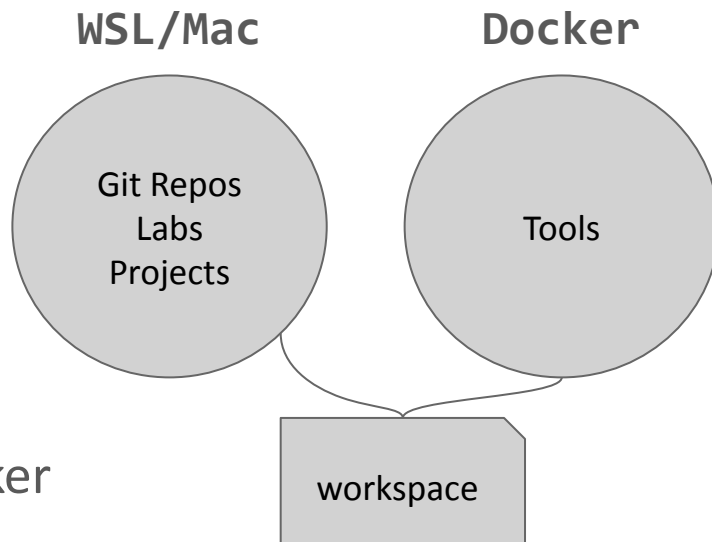


Shared Mounts:

Act as portals between
each file system

Using the Workspace

- Make sure all of your files are saved within the **workspace** folder
- `~/workspace` within docker maps to `asic-tools/workspace` outside the docker



In summary, anything outside the workspace folder will not persist between container runs.

*The workspace mount is specific to our container setup. This is not universal