

# Shell, Console, and Terminal



# Shell

- **Shell** is the interface that allows a user to interact with OS
  - CLI
  - GUI
- **Login shell** is the program that runs when a user connects to the system
- When the user quits the login shell (or ends the program), the user is logged out
- Example of Shell programs: bash, sh, csh, kshn, zsh, fish

# Terminal

- Text input and output
- Original terminal devices were “teletypewriter” (TTY)
- Terminal is now a software version of TTY
  - Terminal emulator software (examples: MobaXterm, PuTTY, Terminus)

```
Ubuntu 18.04.4 LTS comp2018vm1 tty1
comp2018vm1 login: Rectangular Snip
```



By Jamie - Flickr: Telex machine TTY, CC BY 2.0,  
<https://commons.wikimedia.org/w/index.php?curid=19282428>

“... This particular machine was used by a furniture store to order stock...”

For a demo see: <https://youtu.be/OVdoU-BqFHY>

# Terminal

- Local terminal
  - keyboard and screen
  - Via a Console device (serial, special console ports, proprietary management consoles, etc.)
- Remote Login (network protocols)
  - Using protocols such as Telnet, rlogin, SSH
  - Terminal device is virtual (VTY) or pseudo-terminal (PTY)



# Console



- Console is **screen and keyboard (hardware)**
  - Console is the device and terminal is the software program displayed inside the console

- A computer that is used for management of other computers and servers may be called a “console”



By Jason Scott - Flickr: IMG\_9976, CC BY 2.0,  
<https://commons.wikimedia.org/w/index.php?curid=29457452>  
DEC VT100 terminal at the Living Computer Museum connected  
to the museum's DEC PDP-11/70

# Remote Terminal

- Telnet
- rlogin (rsh/rcp)
- SSH
  - Encrypted
  - Server/client identification
  - Password or crypto key-based authentication
  - SSH client connects to an sshd (SSH Daemon) server
- PTY (Pseudo-terminal)
- Since Linux is multiuser, multiple users can log into a system multiple times, and simultaneously (**multi-session**)