Shell, Console, and Terminal

Shell

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

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 called a "console"

Remote Terminal

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