init - Receives PID of 1. program that runs when Linux starts. init will launch several processes and call init scripts.

**Process Related Commands**

- **ps** - list processes for the current user on the current terminal
- **pstree** - lists the processes in a tree structure identifying parent processes
- **top** - dynamically lists the top processes running
- **jobs** - lists the jobs run from this terminal
- **bg** - put a program in the background
- **fg** - put a program in the foreground
- **kill** - kills a process based on the PID
- **killall** - kills a process based on the name
- **shutdown**
- **poweroff**
- **reboot**
- **halt**

**key commands**

- **ctrl-c** kills a process
- **ctrl-z** puts a process in the background without killing it

**ps options**

- **a** - list all processes
- **x** - lift the BSD style
- **u** - list processes for all users example: ps aux
- **o** - customize the process list

```bash
ps xao pid,ppid,comm # will list all processes sorted in columns listed for pid, ppid (the parent), and the command
```

**kill**

```bash
kill -9 pid # will kill a process ID
```
**shutdown options**

System Shutdown and Restart commands

```
sudo shutdown -r time message
  Example: sudo shutdown -r +5 "Server will restart in 5 minutes. Please save your work."

down - leaves the machine powered on
  Example: sudo shutdown -h now
  Example: sudo halt

Poweroff
  Example: sudo poweroff
  Example: shutdown -p now

Reboot
  Example: sudo reboot
  Example: sudo shutdown -r now

Example: sudo shutdown -r 00:35 # reboots the machine at 09:35am
```