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

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

**kill**

`kill -9 pid` # will kill a process ID
killall xclock # will kill the xclocy process

**shutdown options**

System Shutdown and Restart commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Example</th>
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<tbody>
<tr>
<td><code>shutdown -r time message</code></td>
<td>Reboot with a specified time and message</td>
<td><code>sudo shutdown -r +5 &quot;Server will restart in 5 minutes. Please save your work.&quot;</code></td>
</tr>
<tr>
<td><code>halt -h now</code></td>
<td>Leaves the machine powered on</td>
<td><code>sudo shutdown -h now</code></td>
</tr>
<tr>
<td><code>Poweroff</code></td>
<td></td>
<td><code>sudo poweroff</code></td>
</tr>
<tr>
<td><code>Reboot</code></td>
<td></td>
<td><code>sudo reboot</code></td>
</tr>
</tbody>
</table>

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