

# Homework 1 - Operating Systems (ICS431)

Alfaifi, Ammar

## 1 Linux Terminal

### 1.1 top

It shows live current running processes

```
astroberry@ammar-rpi: ~
top - 16:50:14 up 33 min, 3 users, load average: 0.00, 0.00, 0.00
Tasks: 171 total, 1 running, 170 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.7 us, 3.7 sy, 0.0 ni, 92.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 1821.1 total, 1290.2 free, 241.3 used, 289.6 buff/cache
MiB Swap: 100.0 total, 100.0 free, 0.0 used, 1489.4 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 1259 astrober+ 20   0 10452 3012 2628 R 22.2   0.2   0:00.07 top
   1 root        20   0 33752 8168 6460 S  0.0   0.4   0:04.45 systemd
   2 root        20   0   0     0     0 S  0.0   0.0   0:00.01 kthreadd
   3 root        0 -20   0     0     0 I  0.0   0.0   0:00.00 rcu_gp
   4 root        0 -20   0     0     0 I  0.0   0.0   0:00.00 rcu_par_gp
   7 root        20   0   0     0     0 I  0.0   0.0   0:00.08 kworker/u8:0-events_unbound
   8 root        0 -20   0     0     0 I  0.0   0.0   0:00.00 mm_percpu_wq
   9 root        20   0   0     0     0 S  0.0   0.0   0:00.00 rcu_tasks_rude_
  10 root        20   0   0     0     0 S  0.0   0.0   0:00.00 rcu_tasks_trace
  11 root        20   0   0     0     0 S  0.0   0.0   0:00.16 ksoftirqd/0
  12 root        20   0   0     0     0 I  0.0   0.0   0:00.34 rcu_sched
  13 root        rt    0   0     0     0 S  0.0   0.0   0:00.01 migration/0
  14 root        20   0   0     0     0 S  0.0   0.0   0:00.00 cpuhp/0
  15 root        20   0   0     0     0 S  0.0   0.0   0:00.00 cpuhp/1
  16 root        rt    0   0     0     0 S  0.0   0.0   0:00.01 migration/1
  17 root        20   0   0     0     0 S  0.0   0.0   0:00.21 ksoftirqd/1
  19 root        0 -20   0     0     0 I  0.0   0.0   0:00.00 kworker/1:0H-kblockd
  20 root        20   0   0     0     0 S  0.0   0.0   0:00.00 cpuhp/2
  21 root        rt    0   0     0     0 S  0.0   0.0   0:00.01 migration/2
  22 root        20   0   0     0     0 S  0.0   0.0   0:00.07 ksoftirqd/2
```

### 1.2 htop

Similar to top but with very detailed info about the processes as well as the RAM and CPU usages

```
astroberry@ammar-rpi: ~
1 [ 0.0%] Tasks: 81, 78 thr: 1 running
2 [ 1.3%] Load average: 0.00 0.00 0.00
3 [ 0.0%] Uptime: 00:33:38
4 [ 0.7%]
Mem[|||||] 251M/1.78G
Swp[ ] 0K/100.0M

  PID USER      PRI  NI  VIRT  RES  SHR  S  CPU%  MEM%    TIME+  Command
1260 astrober+ 20   0 8108 2760 2288 R 3.3   0.1   0:00.14 htop
845 astrober+ 20   0 154M 32132 24752 S 0.7   1.7   0:27.59 lxpanel --profile LXDE-astroberry
   1 root        20   0 33752 8168 6460 S  0.0   0.4   0:04.45 /sbin/init splash
 118 root        20   0 21380 7088 6104 S  0.0   0.4   0:00.77 /lib/systemd/systemd-journald
 153 root        20   0 18648 3852 2936 S  0.0   0.2   0:00.67 /lib/systemd/systemd-udev
 388 root        20   0 25512 2740 2432 S  0.0   0.1   0:00.04 /usr/sbin/rsyslogd -n -iNONE
 389 root        20   0 25512 2740 2432 S  0.0   0.1   0:00.00 /usr/sbin/rsyslogd -n -iNONE
 390 root        20   0 25512 2740 2432 S  0.0   0.1   0:00.06 /usr/sbin/rsyslogd -n -iNONE
 371 root        20   0 25512 2740 2432 S  0.0   0.1   0:00.15 /usr/sbin/rsyslogd -n -iNONE
 373 root        39  19 11776 4492 3884 S  0.0   0.2   0:00.06 /usr/sbin/alsactl -E HOME=/run/alsa -s -
 382 messagebu 20   0 6976 3872 3012 S  0.0   0.2   0:01.10 /usr/bin/dbus-daemon --system --address=
 540 root        20   0 65764 13196 11476 S  0.0   0.7   0:00.04 /usr/sbin/NetworkManager --no-daemon
 544 root        20   0 65764 13196 11476 S  0.0   0.7   0:00.15 /usr/sbin/NetworkManager --no-daemon
 387 root        20   0 65764 13196 11476 S  0.0   0.7   0:00.99 /usr/sbin/NetworkManager --no-daemon
 400 root        20   0 7948 2216 2040 S  0.0   0.1   0:00.02 /usr/sbin/cron -f
 406 root        20   0 27656 80 0 S  0.0   0.0   0:00.13 /usr/sbin/rngd -r /dev/hwrng
 407 root        20   0 27656 80 0 S  0.0   0.0   0:00.00 /usr/sbin/rngd -r /dev/hwrng
F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Nice F9Kill F10Quit
```