ME 701 – Development of Computer Applications In Mechanical Engineering
Homework 1 – Due 9/1/2017
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Problem 1 – Open-Source Software

A life goal of mine has been to climb every 14er in Colorado. For Christmas one year, I received a GoPro and have been documenting my trips ever since. I don't think it'd be worth the dime to buy a fancy software package just to tie together video clips, so I've been using Windows Movie Maker; however, it's buggy and I've been looking for an alternative. The program OpenShot looks like it functions about the exact same, and is included in the software repository. It allows for animated titles and transitions as well as basic video editing.

Problem 2 – Command-Line Utilities

1. Command: `lscpu`

   Output:
```
Architecture:  x86_64
CPU op-mode(s):  32-bit, 64-bit
Byte Order:  Little Endian
CPU(s): 28
On-line CPU(s) list:  0-27
Thread(s) per core:  1
Core(s) per socket:  14
Socket(s):  2
NUMA node(s):  2
Vendor ID: GenuineIntel
CPU family:  6
Model:  63
Model name:  Intel(R) Xeon(R) CPU E5-2683 v3 @ 2.00GHz
Stepping:  2
CPU MHz: 1204.921
CPU max MHz:  3000.0000
CPU min MHz:  1200.0000
BogoMIPS: 4001.26
Virtualization:  VT-x
L1d cache:  32K
L1i cache:  32K
L2 cache:  256K
L3 cache:  35840K
NUMA node0 CPU(s):  0-13
NUMA node1 CPU(s):  14-27
Flags:  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc
arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmperf eagerfpu
```

```
pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm
pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c
rdrand lahf_lm abm epb tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust
bmi1 avx2 smep bmi2 erms invpcid cqm xsaveopt cqm_llc cqm_occup_llc dtherm ida
arat pln pts
```

2. Command: `ps aux -sort -pcpu` Lists the programs using the most processing.
   Output:

```
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
john 4449 9.1 0.6 2247320 224256 ?  Sl 10:13 0:26 /usr/lib/firefo
john 3403 8.7 1.3 2450612 480868 ?  Sl 09:55 1:57 /usr/lib/firefo
john 3478 7.6 1.1 2399640 397204 ?  Sl 09:55 1:41 /usr/lib/firefo
john 3697 5.1 1.2 8672380 424076 ?  Sl 09:56 1:06 /usr/lib/firefo
john 4707 3.1 0.1 492708 36844 ?  Sl 10:17 0:00 /usr/lib/gnome-
root 1689 2.6 0.4 443668 144440 tty8 Ss+ 09:47 0:48 /usr/lib/xorg/X
john 3615 2.5 0.6 2188668 232312 ?  Sl 09:55 0:34 /usr/lib/firefo
john 2572 1.9 0.7 1676332 247928 ?  Rl 09:49 0:34 cinnamon -repl
john 2754 1.8 0.6 1385092 217372 ?  Sl 09:49 0:31 /usr/lib/slack/
```

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   Command: `ps aux -sort -pmem` Lists the programs using the most memory.
   Output:

```
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
john 3403 8.2 1.4 2449120 499104 ?  Sl 09:55 2:10 /usr/lib/firefox/firefox
john 3697 7.0 1.1 8696860 395344 ?  Sl 09:56 1:48 /usr/lib/firefox/firefox -contentproc
-childID 3 -isForBrowser -intPrefs 5:50|6:-1|18:0|28:1000|33:20|34:10|43:128|44:10000|49:0
john 3478 6.5 1.0 2399824 382404 ?  Sl 09:55 1:44 /usr/lib/firefox/firefox -contentproc
-childID 1 -isForBrowser -intPrefs 5:50|6:-1|18:0|28:1000|33:20|34:10|43:128|44:10000|49:0
john 2572 1.9 0.7 1676332 249632 ?  Sl 09:49 0:38 cinnamon -replace
john 3615 2.4 0.6 2185596 235956 ?  Sl 09:55 0:38 /usr/lib/firefox/firefox -contentproc
-childID 2 -isForBrowser -intPrefs 5:50|6:-1|18:0|28:1000|33:20|34:10|43:128|44:10000|49:0
john 2623 0.8 0.6 5115968 222312 ?  Ssl 09:49 0:15 /home/john/.dropbox-dist/dropbox-lnx.x8
_64-33.4.23/dropbox
john 2754 1.6 0.6 1376896 217472 ?  Sl 09:49 0:31 /usr/lib/slack/slack -type=renderer
-disable-pinch -no-sandbox -primordial-pipe-token=D31B61B9F3AFB5046E42CCE69CC74BDD
-lang=en-US -stand
john 4449 5.0 0.6 2247320 217080 ?  Sl 10:13 0:27 /usr/lib/firefox/firefox -contentproc
-childID 5 -isForBrowser -intPrefs 5:50|6:-1|18:0|28:1000|33:20|34:10|43:128|44:10000|49:0
john 2752 0.5 0.6 1366656 213728 ?  Sl 09:49 0:10 /usr/lib/slack/slack -type=renderer
-disable-pinch -no-sandbox -primordial-pipe-token=EE41881716F54A0A6F0A622B8E5A234D
-lang=en-US -stand
```

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