→Experiment - 7

→Write a CPU bound C program and a I/O bound C program and observe the effect of their CPU share using the top command and its variants.

```
26848 prime numbers calculated
26848 prime numbers calculated
26848 prime numbers calculated
26848 prime numbers calculated
```

```
top - 10:53:44 up 21 min,  1 user,  load average: 2.44, 1.00, 0.63
Tasks: 216 total,   3 running, 213 sleeping,   0 stopped,   0 zombie
%Cpu(s): 24.9 us, 24.1 sy,  0.0 ni, 49.3 id,  0.0 wa,  0.0 hi,  1.7 si,  0.0 st
MiB Mem :  10900.6 total,   8737.4 free,    762.2 used,   1400.9 buff/cache
MiB Swap:   2048.0 total,   2048.0 free,      0.0 used.   9862.0 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   3310 sayeum    20   0    2772    940    852 R 100.0   0.0   0:58.64 a.out
   1725 sayeum    20   0 4974636 357864 139476 S  54.5   3.2   4:33.80 gnome-s+
   2296 sayeum    20   0  570540  61032  43168 R  24.6   0.5   2:18.12 gnome-t+
```

→CPU bound C program

```
73result=8163result=1053result=2421result=697result=8967result=929result=6816res
ult=5316result=11343result=1402result=2970result=4574result=3243result=659result
=4523result=4073result=8163result=1053result=2421result=697result=8967result=929
result=6816result=5316result=11343result=1402result=2970result=4574result=3243re
sult=659result=4523result=4073result=8163result=1053result=2421result=697result=
8967result=929result=6816result=5316result=11343result=1402result=2970result=457
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2970result=4574result=3243result=659result=4523result=4073result=8163result=1053
result=2421result=697result=8967result=929result=6816result=5316result=11343resu
lt=1402result=2970result=4574result=3243result=659result=4523result=4073result=8
163result=1053result=2421result=697result=8967result=929result=6816result=5316re
sult=11343result=1402result=2970result=4574result=3243result=659result=4523resul
t=4073result=8163result=1053result=2421result=697result=8967result=929result=681
6result=5316result=11343result=1402result=2970result=4574result=3243result=659re
sult=4523result=4073result=8163result=1053result=2421result=697result=8967result
```

```
top - 10:36:57 up 4 min,  1 user,  load average: 1.97, 0.99, 0.40
Tasks: 221 total,   2 running, 219 sleeping,   0 stopped,   0 zombie
%Cpu(s): 10.5 us, 13.0 sy,  0.3 ni, 75.1 id,  0.3 wa,  0.0 hi,  0.8 si,  0.0 st
MiB Mem :  10900.6 total,   9292.0 free,    756.8 used,    851.8 buff/cache
MiB Swap:   2048.0 total,   2048.0 free,      0.0 used.   9869.9 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2296 sayeum    20   0  570072  60168  42700 R  54.8   0.5   1:22.81 gnome-t+
   1725 sayeum    20   0 4958904 355940 138952 S  25.6   3.2   1:27.50 gnome-s+
   2488 sayeum    20   0    2772    980    892 S  15.6   0.0   0:25.79 a.out
```

→I/O bound C program

```
sayeum@sayeum:~/new/hello$ ./a.out

Enter any number : 48
Enter any number : 34
14
Current local time and date : Sun Nov 20 11:01:50 2022

Enter any number :
```

```
top - 11:02:27 up 30 min,  1 user,  load average: 0.55, 0.78, 0.68
Tasks: 211 total,   1 running, 210 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.8 us,  0.8 sy,  0.0 ni, 98.4 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :  10900.6 total,   8728.9 free,    768.8 used,   1402.9 buff/cache
MiB Swap:   2048.0 total,   2048.0 free,      0.0 used.   9854.7 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   3573 sayeum    20   0    2772   1076    984 S   0.0   0.0   0:00.00 a.out
   3577 sayeum    39  19  408512  32164  25540 S   0.0   0.3   0:00.07 tracker+
```