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.

→CPU

```
137131 prime number calculated
137132 prime number calculated
137133 prime number calculated
137134 prime number calculated
top - 22:24:05 up 42 min,  1 user,  load average: 0.71, 0.26, 0.23
Tasks: 221 total,   4 running, 217 sleeping,   0 stopped,   0 zombie
%Cpu(s): 26.9 us,  3.0 sy,  0.0 ni, 69.9 id,  0.0 wa,  0.0 hi,  0.2 si,  0.0 st
MiB Mem :   3923.3 total,   1240.5 free,    975.1 used,   1707.7 buff/cache
MiB Swap:   2090.0 total,   2090.0 free,      0.0 used.   2661.8 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   3772 rakshit   20   0    2772    944    852 R 100.0   0.0   0:21.40 a.out
   1792 rakshit   20   0 5384184 425164 148036 S  42.7  10.6   3:50.76 gnome-shell
   3205 rakshit   20   0  573556  64244  46132 R  17.7   1.6   4:15.32 gnome-terminal-
```

→CPU BOUND

```
ult = 8967Result = 929Result = 6816Result = 5316Result = 11343Result = 1402Result = 2970Result = 4574
Result = 3243Result = 659Result = 4523Result = 4073Result = 8163Result = 1053Result = 2421Result = 69
7Result = 8967Result = 929Result = 6816Result = 5316Result = 11343Result = 1402Result = 2970Result =
4574Result = 3243Result = 659Result = 4523Result = 4073Result = 8163Result = 1053Result = 2421Result
= 697Result = 8967Result = 929Result = 6816Result = 5316Result = 11343Result = 1402Result = 2970Resul
t = 4574Result = 3243Result = 659Result = 4523Result = 4073Result = 8163Result = 1053Result = 2421Res
ult = 697Result = 8967Result = 929Result = 6816Result = 5316Result = 11343Result = 1402Result = 2970R
esult = 4574Result = 3243Result = 659Result = 4523Result = 4073Result = 8163Result = 1053Result = 242
1Result = 697Result = 8967Result = 929Result = 6816Result = 5316Result = 11343Result = 1402Result = 2
top - 22:25:08 up 43 min,  1 user,  load average: 0.88, 0.39, 0.28
Tasks: 222 total,   2 running, 220 sleeping,   0 stopped,   0 zombie
%Cpu(s): 19.8 us,  4.0 sy,  0.0 ni, 76.3 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   3923.3 total,   1237.9 free,    977.1 used,   1708.3 buff/cache
MiB Swap:   2090.0 total,   2090.0 free,      0.0 used.   2659.7 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   3205 rakshit   20   0  574452  64968  46132 R  87.8   1.6   4:39.37 gnome-terminal-
   1792 rakshit   20   0 5384192 425232 148036 S  22.3  10.6   4:10.91 gnome-shell
   3780 rakshit   20   0    2772    988    896 S  20.5   0.0   0:04.64 a.out
```

→I/O BOUND

```
rakshit@RG:~/sample$ ./a.out
Enter any number: 85

Enter any number: 69
16
Current local time and date: Wed Nov 23 22:26:21 2022
Enter any number:




top - 22:26:50 up 45 min,  1 user,  load average: 0.48, 0.46, 0.32
Tasks: 222 total,   1 running, 221 sleeping,   0 stopped,   0 zombie
%Cpu(s):  6.0 us,  0.0 sy,  0.0 ni, 94.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   3923.3 total,   1237.8 free,    977.9 used,   1707.7 buff/cache
MiB Swap:   2090.0 total,   2090.0 free,      0.0 used.   2659.0 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   3781 root      20   0       0      0      0 I   0.0   0.0   0:03.24 kworker/u10:2-events_unbound
   3782 rakshit   20   0   21864   4208   3348 R   0.0   0.1   0:00.98 top
   3793 rakshit   20   0    2772   1048    960 S   0.0   0.0   0:00.00 a.out
```