

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.

➔ CPU

9991	prime number	calculated
9992	prime number	calculated
9993	prime number	calculated
9994	prime number	calculated
9995	prime number	calculated
9996	prime number	calculated
9997	prime number	calculated
9998	prime number	calculated
9999	prime number	calculated
10000	prime number	calculated

```
khushi@khushi-VirtualBox: ~  
top - 17:18:35 up 1:33, 1 user, load average: 0.31, 0.91, 0.89  
Tasks: 213 total, 1 running, 212 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 0.3 us, 0.5 sy, 0.0 ni, 99.0 id, 0.3 wa, 0.0 hi, 0.0 si, 0.0 st  
MiB Mem : 1975.3 total, 209.7 free, 1204.4 used, 561.2 buff/cache  
MiB Swap: 3050.0 total, 2774.0 free, 276.0 used, 574.2 avail Mem  
  
  PID USER      PR  NI    VIRT    RES    SHR  S  %CPU  %MEM    TIME+  COMMAND  
 1062 khushi    20   0 5162560 232528  68600 S   3.3  11.5   3:55.87 gnome-shell  
 3486 khushi    20   0 3480676 319724 119756 S   1.0  15.8   2:49.66 firefox  
 4363 khushi    20   0 2965688 337220  94752 S   0.7  16.7   0:39.57 Isolated Web Co  
 4641 khushi    20   0 5680924 52636  38876 S   0.7  2.6    0:07.41 gnome-terminal-  
 4389 khushi    20   0 2421144 65880  50860 S   0.3  3.3    0:01.62 Isolated Servic  
 4780 khushi    20   0 21836   3984   3172 R   0.3  0.2    0:00.13 top  
      1 root      20   0 166540  5268  2496 S   0.0  0.3    0:02.36 svstemd
```

➔ CPU bound

```
43Result = 659Result = 4523Result = 4073Result = 8163Result = 1053Result = 2421Result = 697Result = 8967Result = 929  
929Result = 6816Result = 5316Result = 11343Result = 1402Result = 2970Result = 4574Result = 3243Result = 659Result  
lt = 4523Result = 4073Result = 8163Result = 1053Result = 2421Result = 697Result = 8967Result = 929Result = 6816R  
esult = 5316Result = 11343Result = 1402Result = 2970Result = 4574Result = 3243Result = 659Result = 4523Result =  
4073Result = 8163Result = 1053Result = 2421Result = 697Result = 8967Result = 929Result = 6816Result = 5316Result  
= 11343Result = 1402Result = 2970Result = 4574Result = 3243Result = 659Result = 4523Result = 4073Result = 8163R  
esult = 1053Result = 2421Result = 697Result = 8967Result = 929Result = 6816Result = 5316Result = 11343Result = 1  
4029 - 14 - 46309 - 14 - 46340 - 14 - 46341 - 14 - 46342 - 14 - 46343 - 14 - 46344 - 14 - 46345 - 14 - 46346 - 14 - 46347 - 14 - 46348 - 14 - 46349 - 14 - 46350 - 14
```

```
top - 17:32:06 up 1:47, 1 user, load average: 0.24, 0.47, 0.61
Tasks: 214 total, 2 running, 212 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.2 us, 0.3 sy, 0.0 ni, 99.4 id, 0.1 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 1975.3 total, 103.3 free, 1295.9 used, 576.1 buff/cache
MiB Swap: 3050.0 total, 2776.0 free, 274.0 used. 483.5 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1062	khushi	20	0	5465464	277752	70156	S	3.0	13.7	5:40.92	gnome-shell
4687	root	20	0	0	0	0	I	0.7	0.0	0:11.63	kworker/u8:1-flush-8:0
14	root	20	0	0	0	0	R	0.3	0.0	0:06.28	rcu_sched
4363	khushi	20	0	2971832	373968	95124	S	0.3	18.5	0:52.19	Isolated Web Co
4986	khushi	20	0	21844	4088	3264	R	0.3	0.2	0:00.21	top
1	root	20	0	166540	6028	3064	S	0.0	0.3	0:02.42	systemd

➔ I/O bound

```
khushi@khushi-VirtualBox:~$ ./a.out
Enter the any number : 24
Enter the any number : 45
24
Current local time and date: Sun Nov 27 17:46:42 2022
Enter the any number :
```

```
top - 17:45:57 up 2:00, 1 user, load average: 0.11, 0.29, 0.46
Tasks: 206 total, 1 running, 205 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.1 sy, 0.0 ni, 99.8 id, 0.1 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 1975.3 total, 705.8 free, 686.8 used, 582.8 buff/cache
MiB Swap: 3050.0 total, 2806.6 free, 243.3 used. 1112.9 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1062	khushi	20	0	5481568	2800008	69604	S	0.7	13.8	7:41.63	gnome-shell
5210	khushi	20	0	565460	53444	40560	S	0.7	2.6	0:01.83	gnome-terminal-
674	root	20	0	393048	5784	4028	S	0.3	0.3	0:00.41	udisksd
5186	root	20	0	0	0	0	I	0.3	0.0	0:00.25	kworker/0:0-events
5277	khushi	20	0	21832	4076	3268	R	0.3	0.2	0:00.03	top
1	root	20	0	166540	5988	3064	S	0.0	0.3	0:02.44	systemd