

DATE.....

Experiment-7

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

For CPU bound

# include &lt;stdio.h&gt;

# include &lt;time.h&gt;

void main()

{

clock\_t start

double sum

start = clock();

int i, num = 1, primes = 0;

while (num &lt;= 10000000)

{

i = 2;

while (i &lt;= num)

if (num % i == 0)

break;

i++;

}

if (i == num)

primes++;

printf("%d primes no. calculated in", primes);

num++;

}

end = clock();

}

```

top - 12:04:56 up 31 min, 1 user, load average: 1.16, 0.40, 0.43
Tasks: 295 total, 1 running, 288 sleeping, 0 stopped, 6 zombie
MiB Mem : 1045.6 total, 44.5 free, 1286.0 used, 476.5 buffers
MiB Swap: 2140.0 total, 2056.4 free, 83.6 used, 562.3 avail Mem

  PID PPID  PID TID          Ti  Tm    S    CPU   Mem    D    User      Command
 1687 student 20  0 4670018 163204 6760 1  0.0  0.2  0:00.16  sleep
 3543 apt 28  5 33368 8948 7636 1  2.3  0.4  0:13.81  sleep
 3647 student 30 10 731640 165872 97104 1  1.0  0.3  0:14.40  update-
 2583 student 20  0 572190 49322 26732 1  0.7  0.5  0:12.37  gnome-
 3804 student 20  0 23866 4884 3324 0  0.7  0.2  0:00.08  top
 23 root 20  0 0 0 0 1  0.3  0.0  0:00.00  bash
 285 root 20  0 0 0 0 1  0.3  0.0  0:00.00  bash
 567 systemd 20  0 16824 5934 5134 1  0.3  0.3  0:01.06  systemd
 889 message 20  0 11066 5812 3729 1  0.3  0.1  0:02.07  dbus-da
 1720 student 20  0 9824 5184 3584 1  0.3  0.1  0:01.01  dbus-da
 2223 student 20  0 364032 77600 21360 1  0.3  0.3  0:01.46  systemd
 2812 student 20  0 218040 39580 16970 1  0.3  0.0  0:00.57  systemd
 2450 student 20  0 1605412 46476 33832 1  0.3  0.1  0:01.02  glib
 3490 root 20  5 213496 105812 46466 1  0.3  0.3  0:02.00  light
 1 root 20  0 147928 12760 7764 1  0.0  0.0  0:01.73  systemd
 2 root 20  0 0 0 0 0 0.0  0.0  0:00.00  bash
 3 root 0 20 0 0 0 0 0.0  0.0  0:00.00  root
  
```



For I/O bound

# include &lt;stdio.h&gt;

# include &lt;time.h&gt;

int main() {

{  
int j, k, n;

while (1) {

printf("Enter any number");

scanf("%d", &amp;k);

printf("\n Enter any no:");

scanf("%d", &amp;j);

n = k % j;

printf("%d", n);

time\_t sawtime;

struct tm \* timeinfo

time(&amp;sawtime);

timeinfo = local time(&amp;sawtime);

printf("\n Current local time &amp; date: %s", asctime(timeinfo));

}  
}

```

student@student-ubuntu-mach: ~
$ gcc test2.c -o test2
$ ./test2
Enter any number: 4
Current local time and date: Thu Dec 9 12:12:40 2022
Enter any number: 5
Enter any number: 7
Current local time and date: Thu Dec 9 12:12:40 2022
Enter any number: 5
Enter any number: 9
Current local time and date: Thu Dec 9 12:14:30 2022
Enter any number: 11

```

Task	PID	PPID	UID	GID	Mem	Swap	IO	Time	State	Command
top	1	0	root	root	0	0	0	0	running	top
bash	2	1	root	root	0	0	0	0	running	bash
python3	3	1	root	root	0	0	0	0	running	python3
python3	4	3	root	root	0	0	0	0	running	python3
python3	5	4	root	root	0	0	0	0	running	python3
python3	6	5	root	root	0	0	0	0	running	python3
python3	7	6	root	root	0	0	0	0	running	python3
python3	8	7	root	root	0	0	0	0	running	python3
python3	9	8	root	root	0	0	0	0	running	python3
python3	10	9	root	root	0	0	0	0	running	python3
python3	11	10	root	root	0	0	0	0	running	python3
python3	12	11	root	root	0	0	0	0	running	python3
python3	13	12	root	root	0	0	0	0	running	python3
python3	14	13	root	root	0	0	0	0	running	python3
python3	15	14	root	root	0	0	0	0	running	python3
python3	16	15	root	root	0	0	0	0	running	python3
python3	17	16	root	root	0	0	0	0	running	python3
python3	18	17	root	root	0	0	0	0	running	python3
python3	19	18	root	root	0	0	0	0	running	python3
python3	20	19	root	root	0	0	0	0	running	python3
python3	21	20	root	root	0	0	0	0	running	python3
python3	22	21	root	root	0	0	0	0	running	python3
python3	23	22	root	root	0	0	0	0	running	python3
python3	24	23	root	root	0	0	0	0	running	python3
python3	25	24	root	root	0	0	0	0	running	python3
python3	26	25	root	root	0	0	0	0	running	python3
python3	27	26	root	root	0	0	0	0	running	python3
python3	28	27	root	root	0	0	0	0	running	python3
python3	29	28	root	root	0	0	0	0	running	python3
python3	30	29	root	root	0	0	0	0	running	python3
python3	31	30	root	root	0	0	0	0	running	python3
python3	32	31	root	root	0	0	0	0	running	python3
python3	33	32	root	root	0	0	0	0	running	python3
python3	34	33	root	root	0	0	0	0	running	python3
python3	35	34	root	root	0	0	0	0	running	python3
python3	36	35	root	root	0	0	0	0	running	python3
python3	37	36	root	root	0	0	0	0	running	python3
python3	38	37	root	root	0	0	0	0	running	python3
python3	39	38	root	root	0	0	0	0	running	python3
python3	40	39	root	root	0	0	0	0	running	python3
python3	41	40	root	root	0	0	0	0	running	python3
python3	42	41	root	root	0	0	0	0	running	python3
python3	43	42	root	root	0	0	0	0	running	python3
python3	44	43	root	root	0	0	0	0	running	python3
python3	45	44	root	root	0	0	0	0	running	python3
python3	46	45	root	root	0	0	0	0	running	python3
python3	47	46	root	root	0	0	0	0	running	python3
python3	48	47	root	root	0	0	0	0	running	python3
python3	49	48	root	root	0	0	0	0	running	python3
python3	50	49	root	root	0	0	0	0	running	python3
python3	51	50	root	root	0	0	0	0	running	python3
python3	52	51	root	root	0	0	0	0	running	python3
python3	53	52	root	root	0	0	0	0	running	python3
python3	54	53	root	root	0	0	0	0	running	python3
python3	55	54	root	root	0	0	0	0	running	python3
python3	56	55	root	root	0	0	0	0	running	python3
python3	57	56	root	root	0	0	0	0	running	python3
python3	58	57	root	root	0	0	0	0	running	python3
python3	59	58	root	root	0	0	0	0	running	python3
python3	60	59	root	root	0	0	0	0	running	python3
python3	61	60	root	root	0	0	0	0	running	python3
python3	62	61	root	root	0	0	0	0	running	python3
python3	63	62	root	root	0	0	0	0	running	python3
python3	64	63	root	root	0	0	0	0	running	python3
python3	65	64	root	root	0	0	0	0	running	python3
python3	66	65	root	root	0	0	0	0	running	python3
python3	67	66	root	root	0	0	0	0	running	python3
python3	68	67	root	root	0	0	0	0	running	python3
python3	69	68	root	root	0	0	0	0	running	python3
python3	70	69	root	root	0	0	0	0	running	python3
python3	71	70	root	root	0	0	0	0	running	python3
python3	72	71	root	root	0	0	0	0	running	python3
python3	73	72	root	root	0	0	0	0	running	python3
python3	74	73	root	root	0	0	0	0	running	python3
python3	75	74	root	root	0	0	0	0	running	python3
python3	76	75	root	root	0	0	0	0	running	python3
python3	77	76	root	root	0	0	0	0	running	python3
python3	78	77	root	root	0	0	0	0	running	python3
python3	79	78	root	root	0	0	0	0	running	python3
python3	80	79	root	root	0	0	0	0	running	python3
python3	81	80	root	root	0	0	0	0	running	python3
python3	82	81	root	root	0	0	0	0	running	python3
python3	83	82	root	root	0	0	0	0	running	python3
python3	84	83	root	root	0	0	0	0	running	python3
python3	85	84	root	root	0	0	0	0	running	python3
python3	86	85	root	root	0	0	0	0	running	python3
python3	87	86	root	root	0	0	0	0	running	python3
python3	88	87	root	root	0	0	0	0	running	python3
python3	89	88	root	root	0	0	0	0	running	python3
python3	90	89	root	root	0	0	0	0	running	python3
python3	91	90	root	root	0	0	0	0	running	python3
python3	92	91	root	root	0	0	0	0	running	python3
python3	93	92	root	root	0	0	0	0	running	python3
python3	94	93	root	root	0	0	0	0	running	python3
python3	95	94	root	root	0	0	0	0	running	python3
python3	96	95	root	root	0	0	0	0	running	python3
python3	97	96	root	root	0	0	0	0	running	python3
python3	98	97	root	root	0	0	0	0	running	python3
python3	99	98	root	root	0	0	0	0	running	python3
python3	100	99	root	root	0	0	0	0	running	python3