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Experiment : 8

1.) Write a cpu bound c program and a input output bound c program and observe the effect of their cpu share using the top command and its variants.

- C Program



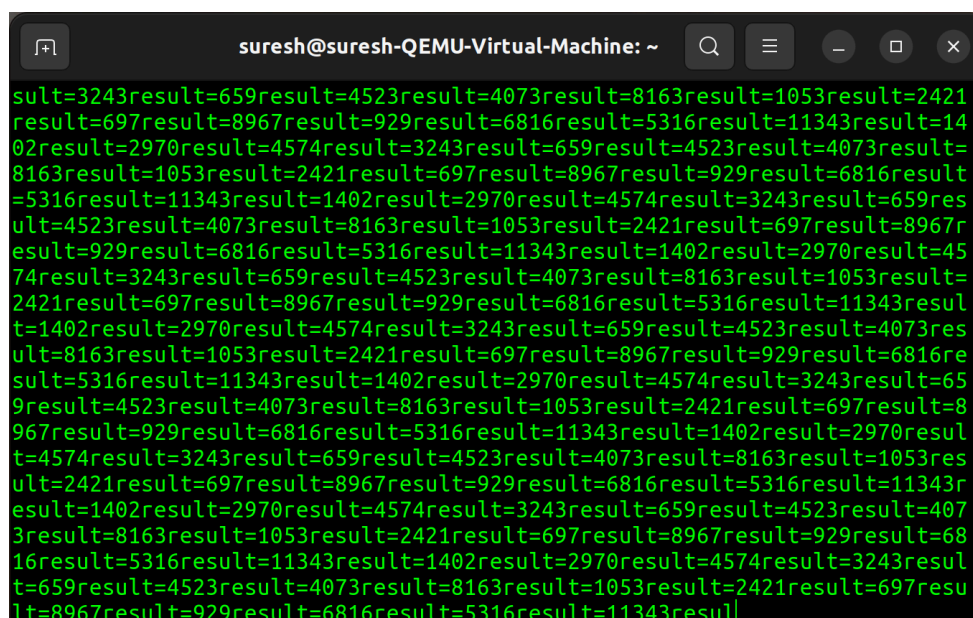
```
GNU nano 6.2 Exp8.c
#include<stdio.h>
int main()
{
    int ResultantMatrix[4][4],i,j,k;

    int matrix1[4][4] ={{ 2, 23, 23, 45},
    {66, 45, 3, 23},
    {3, 5, 89, 67},
    {4, 4, 9, 7}};

    int matrix2[4][4] = { {3, 5, 6, 4},
    {64, 89, 56, 2},
    {56, 26, 56, 99},
    {90, 7, 43, 2}};

    while(1)
    {
        for (j = 0; j < 4; j++)
        {
            for (i = 0; i < 4; i++)
            {
                ResultantMatrix[i][j] = 0;
                for (k = 0; k < 4; k++)
                ResultantMatrix[i][j] += matrix1[i][k]*matrix2[k][j];
                printf("result=%d",ResultantMatrix[i][j]);
            }
        }
    }
}
```

- Run the following C Program



```
suresh@suresh-QEMU-Virtual-Machine: ~
result=3243result=659result=4523result=4073result=8163result=1053result=2421
result=697result=8967result=929result=6816result=5316result=11343result=14
02result=2970result=4574result=3243result=659result=4523result=4073result=
8163result=1053result=2421result=697result=8967result=929result=6816result
=5316result=11343result=1402result=2970result=4574result=3243result=659res
ult=4523result=4073result=8163result=1053result=2421result=697result=8967r
esult=929result=6816result=5316result=11343result=1402result=2970result=45
74result=3243result=659result=4523result=4073result=8163result=1053result=
2421result=697result=8967result=929result=6816result=5316result=11343resul
t=1402result=2970result=4574result=3243result=659result=4523result=4073res
ult=8163result=1053result=2421result=697result=8967result=929result=6816re
sult=5316result=11343result=1402result=2970result=4574result=3243result=65
9result=4523result=4073result=8163result=1053result=2421result=697result=8
967result=929result=6816result=5316result=11343result=1402result=2970resul
t=4574result=3243result=659result=4523result=4073result=8163result=1053res
ult=2421result=697result=8967result=929result=6816result=5316result=11343r
esult=1402result=2970result=4574result=3243result=659result=4523result=407
3result=8163result=1053result=2421result=697result=8967result=929result=68
16result=5316result=11343result=1402result=2970result=4574result=3243resul
t=659result=4523result=4073result=8163result=1053result=2421result=697resu
lt=8967result=929result=6816result=5316result=11343result=
```

- Using Top Command observing CPU Bound

```

suresh@suresh-QEMU-Virtual-Machine: ~
top - 01:36:32 up 20 min,  1 user,  load average: 0.91, 0.45, 0.24
Tasks: 201 total,  2 running, 199 sleeping,  0 stopped,  0 zombie
%Cpu(s): 18.2 us,  9.3 sy,  0.0 ni, 71.6 id,  0.4 wa,  0.0 hi,  0.5 si,  0.0 st
MiB Mem :  3908.4 total,  2096.4 free,   761.2 used,  1050.8 buff/cache
MiB Swap:  3220.0 total,  3220.0 free,    0.0 used.  2907.4 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM     TIME+ COMMAND
 2956 suresh    20   0  838284  58672  38716 R   74.4    1.5   0:35.13 gnome-t+
 2986 suresh    20   0    2188    768    688 S   27.6    0.0   0:13.00 a.out
    8 root       20   0         0         0      0 I    6.6    0.0   0:03.30 kworker+
 350 root       20   0         0         0      0 I    6.3    0.0   0:07.13 kworker+
 2989 root       20   0         0         0      0 I    5.3    0.0   0:01.04 kworker+
 1385 suresh    20   0  368744  87840  50728 S    1.0    2.2   0:07.62 Xorg
 1669 suresh    20   0 4296148 265804 112160 S    1.0    6.6   0:13.90 gnome-s+
 210 root       20   0         0         0      0 I    0.3    0.0   0:01.01 kworker+
 1392 suresh    20   0  423476  13228  11308 S    0.3    0.3   0:00.19 goa-ide+
    1 root       20   0  166808  11024   7520 S    0.0    0.3   0:00.78 systemd
    2 root       20   0         0         0      0 S    0.0    0.0   0:00.00 kthreadd
    3 root       0 -20         0         0      0 I    0.0    0.0   0:00.00 rcu_gp
    4 root       0 -20         0         0      0 I    0.0    0.0   0:00.00 rcu_par+
    5 root       0 -20         0         0      0 I    0.0    0.0   0:00.00 netns
    7 root       0 -20         0         0      0 I    0.0    0.0   0:00.00 kworker+
    9 root       0 -20         0         0      0 I    0.0    0.0   0:00.00 mm_perc+
   10 root       20   0         0         0      0 S    0.0    0.0   0:00.00 rcu_tas+

```