

Operating Systems Laboratory

Assignment 3

Group Number: 23

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- The maximum user processes for our machine is around 62968.

```
core file size      (blocks, -c) 0
data seg size      (kbytes, -d) unlimited
scheduling priority (-e) 0
file size          (blocks, -f) unlimited
pending signals    (-i) 62968
max locked memory  (kbytes, -l) 65536
max memory size    (kbytes, -m) unlimited
open files         (-n) 1024
pipe size          (512 bytes, -p) 8
POSIX message queues (bytes, -q) 819200
real-time priority (-r) 0
stack size         (kbytes, -s) 8192
cpu time           (seconds, -t) unlimited
max user processes (-u) 62968
virtual memory     (kbytes, -v) unlimited
file locks         (-x) unlimited
```

- We know that we can create around 52 percent child processes of the maximum number of processes for our system.
- Thus, the maximum size of matrix that we can multiply is around 33000 ($r1 \times c2$).
- The difference between the maximum number of processes (62968) and the maximum size of matrix (33000) that we can multiply is because of other threads and system processes executing concurrently and the resources are getting divided between our program and system processes.
- The number of cores in our machine is 12, so at any instant the machine can run upto 12 processes parallelly which decreases the total time of computation for matrix multiplication by a factor of 12.