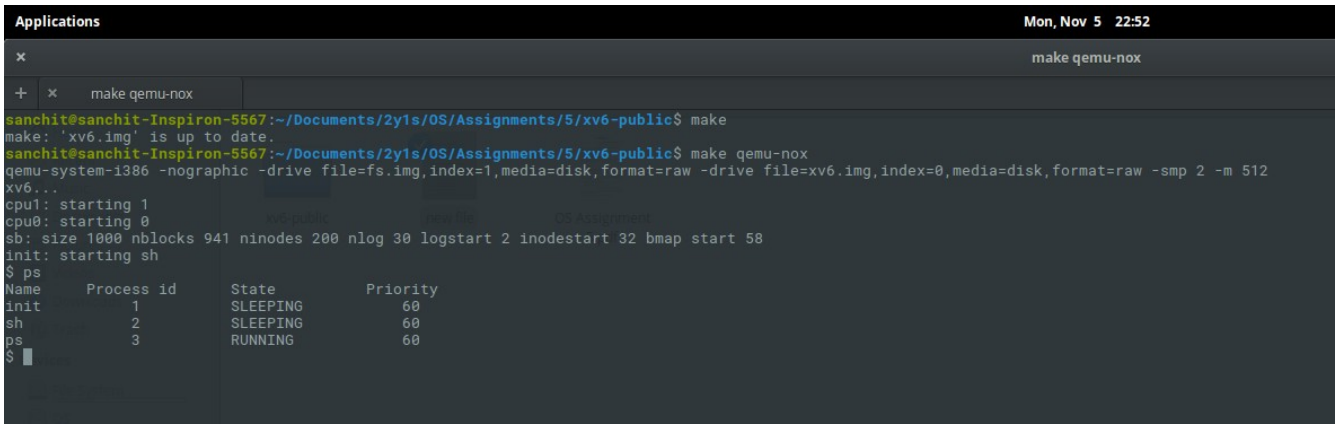
OS ASSIGNMENT 5 REPORT

- Implemented ps system call which displays list of processes with their names, id, status and priority
- All Processes are initially given 60 priority.
- Initially if we run ps command, output is-



Function for Testing – test

If we create 2 processes with same priority by test & command, then output is -

```
$ test &; test &
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            8          RUNNING            60
test          7          RUNNABLE           60
test          6          RUNNING            60
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            9          RUNNING            60
test          7          RUNNING            60
test          6          RUNNABLE           60
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            10         RUNNING            60
test          7          RUNNABLE           60
test          6          RUNNING            60
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            11         RUNNING            60
test          7          RUNNING            60
test          6          RUNNABLE           60
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            12         RUNNING            60
test          7          RUNNABLE           60
test          6          RUNNING            60
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            13         RUNNING            60
test          7          RUNNABLE           60
test          6          RUNNING            60
$ ps
Name     Process id      State          Priority
init          1          SLEEPING           60
sh            2          SLEEPING           60
ps            14         RUNNING            60
test          7          RUNNING            60
test          6          RUNNABLE           60
$
```

If we change the priority of the second process to 50 (i.e. higher priority), then the output is -

```
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            21          RUNNING            60
test          20          RUNNING            60
test          19          RUNNABLE           60
$ set_priority 19 50
pid = 19, priority = 50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            23          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            24          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            25          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            26          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            27          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            28          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
$ ps
Name      Process id      State          Priority
init          1           SLEEPING           60
sh            2           SLEEPING           60
ps            29          RUNNING            60
test          20          RUNNABLE           60
test          19          RUNNING            50
```

Comparison of Priority Based Scheduling and Round-Robin Scheduling

- In round-robin all processes are scheduled in a circular manner.
- Whereas in priority scheduling a process is preemped if a higher process with higher priority comes and rescheduling is done.
- In priority scheduling starvation takes place I.e., lower priorities are not allocated CPU until all the processes with higher priority are added.