



National Textile University

Department of Computer Science

Subject:

Operating System

Submitted to:

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Submitted by:

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Reg. number:

23-NTU-CS-FL-1132

Semester:

5th - A

LAB_03

Task_01: Print PID and PPID:

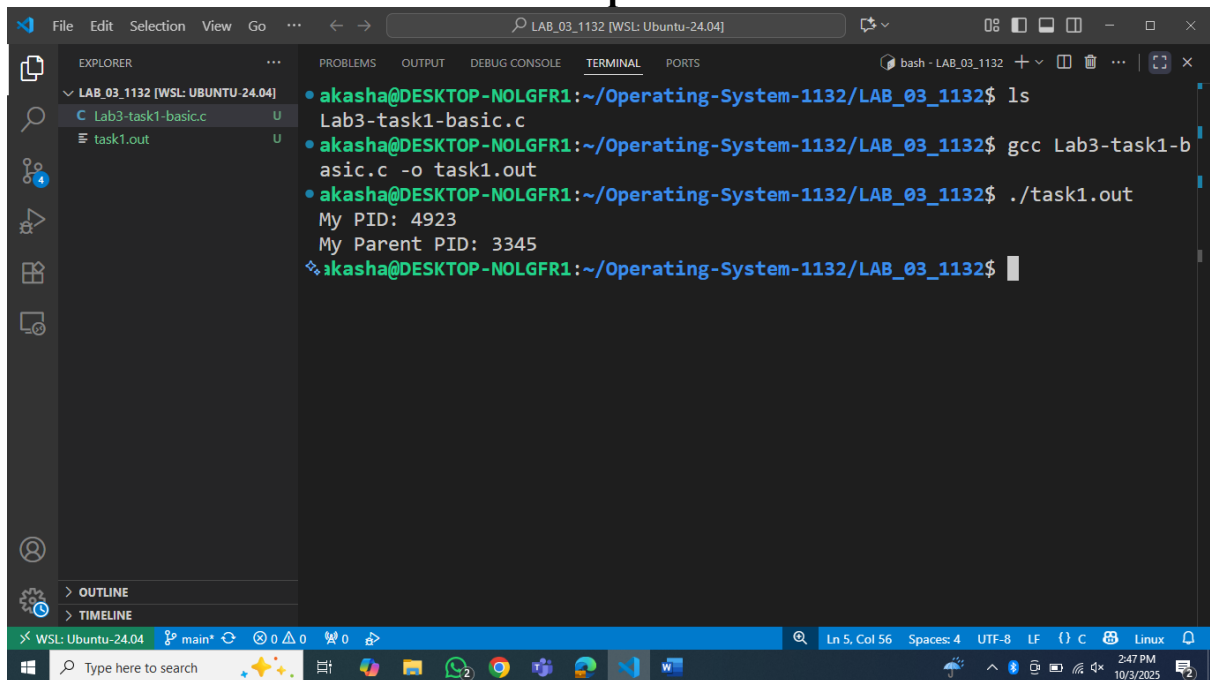
CODE:

```
// Print PID and PPID
```

```
#include <stdio.h>
#include <unistd.h>
```

```
int main() {
    printf("My PID: %d\n", getpid()); // get process ID
    printf("My Parent PID: %d\n", getppid()); // get parent process ID
    return 0;
}
```

Output:



```
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ls
Lab3-task1-basic.c
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ gcc Lab3-task1-b
asic.c -o task1.out
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ./task1.out
My PID: 4923
My Parent PID: 3345
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$
```

Task_02: Fork-Creating Child Process:

CODE:

```
// Fork - Creating child Process
```

```
#include <stdio.h>
#include <sys/types.h>
#include <unistd.h>
```

```
int main() {
    pid_t pid = fork();
    if (pid == 0) { // This block runs in the child process
        printf("Child: PID=%d, Parent=%d\n", getpid(), getppid());
    } else { // This block runs in the parent process
        printf("Parent: PID=%d, Child=%d\n", getpid(), pid);
    }
}
```

```

}
return 0;
}

```

Output:

```

akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ls
Lab3-task1-basic.c  Lab3-task2-fork.c  task1.out
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ gcc Lab3-task2-fork.c -o task2.out
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ./task2.out
Parent: PID=6216, Child=6217
Child: PID=6217, Parent=6216
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$

```

Task_03: Excel Replacing a Process:

CODE:

```
// Excel replacing a process
```

```
#include <stdio.h>
```

```
#include <sys/types.h>
```

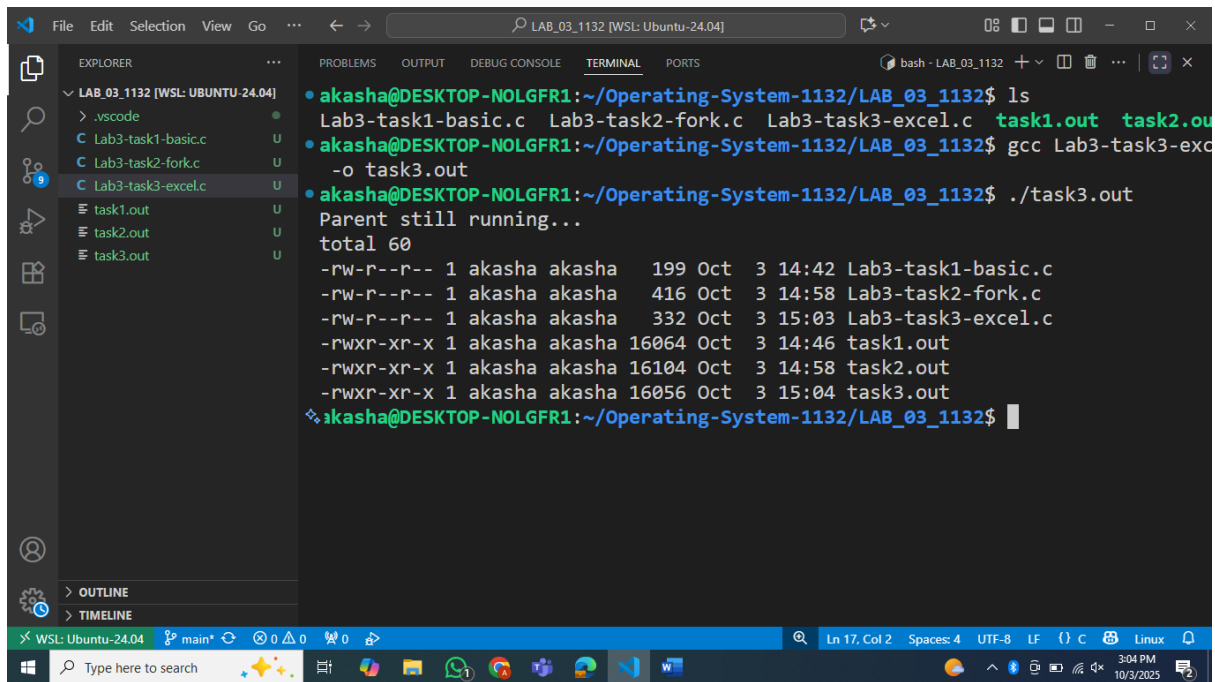
```
#include <unistd.h>
```

```

int main() {
    pid_t pid = fork();
    if (pid == 0) {
        execlp("ls", "ls", "-l", NULL);
        printf("This will not print if exec succeeds.\n");
    }
    else {
        printf("Parent still running...\n");
    }
    return 0;
}

```

Output:



```
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ls
Lab3-task1-basic.c  Lab3-task2-fork.c  Lab3-task3-excel.c  task1.out  task2.out
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ gcc Lab3-task3-excel.c -o task3.out
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ./task3.out
Parent still running...
total 60
-rw-r--r-- 1 akasha akasha 199 Oct 3 14:42 Lab3-task1-basic.c
-rw-r--r-- 1 akasha akasha 416 Oct 3 14:58 Lab3-task2-fork.c
-rw-r--r-- 1 akasha akasha 332 Oct 3 15:03 Lab3-task3-excel.c
-rwxr-xr-x 1 akasha akasha 16064 Oct 3 14:46 task1.out
-rwxr-xr-x 1 akasha akasha 16104 Oct 3 14:58 task2.out
-rwxr-xr-x 1 akasha akasha 16056 Oct 3 15:04 task3.out
```

Task_04: Wait Schronaization:

CODE:

// Wait Schronaizations

```
#include <stdio.h>
#include <unistd.h>
#include <sys/wait.h>
```

```
int main() {
    pid_t pid = fork();
    if (pid == 0) {
        execlp("ls", "ls", "-l", NULL);
        printf("This will not print if exec succeeds.\n");
    }
    else {
        waitpid(pid, NULL, 0);    // Wait for the child process to finish
        printf("Parent still running...\n");
    }
    return 0;
}
```

Output:

```
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ gcc Lab3-task4-wai
-o task4.out
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$ ./task4.out
total 80
-rw-r--r-- 1 akasha akasha 199 Oct 3 14:42 Lab3-task1-basic.c
-rw-r--r-- 1 akasha akasha 416 Oct 3 14:58 Lab3-task2-fork.c
-rw-r--r-- 1 akasha akasha 332 Oct 3 15:03 Lab3-task3-excel.c
-rw-r--r-- 1 akasha akasha 389 Oct 3 15:08 Lab3-task4-wait.c
-rwxr-xr-x 1 akasha akasha 16064 Oct 3 14:46 task1.out
-rwxr-xr-x 1 akasha akasha 16104 Oct 3 14:58 task2.out
-rwxr-xr-x 1 akasha akasha 16056 Oct 3 15:04 task3.out
-rwxr-xr-x 1 akasha akasha 16096 Oct 3 15:08 task4.out
Parent still running...
akasha@DESKTOP-NOLGFR1:~/Operating-System-1132/LAB_03_1132$
```

Imp Notes:

The difference of using **wait()** and without using it is that by using **wait()** parent pauses while the child finishes while without **wait()** parent continues.

Linux Process Commands

```
akasha@DESKTOP-NOLGFR1:~$ ps
  PID TTY          TIME CMD
 8794 pts/5    00:00:00 bash
 8811 pts/5    00:00:00 ps
akasha@DESKTOP-NOLGFR1:~$ ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1        0   0  0:10 ?        00:00:00 /sbin/init
root           2        1   0  0:10 ?        00:00:00 /usr/lib/systemd/systemd-journald
root           7        2   0  0:10 ?        00:00:00 /usr/lib/systemd/systemd-udevd
systemd+     109        7   0  0:10 ?        00:00:00 /usr/lib/systemd/systemd-resolved
systemd+     123        7   0  0:10 ?        00:00:00 /usr/lib/systemd/systemd-timesyncd
root          127        1   0  0:10 ?        00:00:00 /usr/sbin/cron -f -P
root          176        1   0  0:10 ?        00:00:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemroot
message+     177        1   0  0:10 ?        00:00:00 /usr/libexec/wsl-pro-service -vv
root          186        1   0  0:10 ?        00:00:00 /usr/sbin/rsyslogd -n -iNONE
syslog       188        1   0  0:10 ?        00:00:00 /usr/sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vroot
root          191        1   0  0:10 ?        00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-sroot
root          223        1   0  0:10 ?        00:00:00 /usr/bin/login -f
akasha       359        1   0  0:10 ?        00:00:00 /usr/lib/systemd/systemd --user
akasha       360        1   0  0:10 ?        00:00:00 (sd-pam)
akasha       395       237   0  0:10 pts/1    00:00:00 -bash
root        2262        1   0  0:10 ?        00:00:00 /init
root        2263       2262   0  0:10 ?        00:00:00 /init
akasha       2264       2263   0  0:10 pts/0    00:00:00 sh -c "WSL_EXT_LOCATION/scripts/wslServer.sh" e3a5acfb517a44akasha
00 sh /mnt/C:/Users/abc/.vscode/extensions/ms-vscode-remote.remote-ws1-0akasha 2271 2265 0 0:10 pts/0 00:00:00 sh /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d56653310root
17a443235981655413d56653310akasha 2275 2271 0 0:10 pts/0 00:00:00 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d56653310root
0 0:10 ? 00:00:00 /init
root        2287       2286   0  0:10 ?        00:00:00 /init
akasha       2288       2287   0  0:10 pts/2    00:00:06 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d56653310root
00 /init
root        2296       2295   0  0:10 ?        00:00:04 /init
akasha       2297       2296   0  0:10 pts/3    00:00:12 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d56653310akasha
01 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d56653310akasha 2335 2275 11 0:10 pts/0 00:06:29 /home/akasha/.vscode-server/bin/e3a5acfb517a
443235981655413d56653310akasha 2964 2335 1 14:35 pts/0 00:00:34 /home/akasha/.vscode-server/extensions/ms-vscode.cpptools-1.27.7-linakasha 3334 2275
0 14:39 pts/0 00:00:14 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d56653310akasha 3345 3334 0 14:39 pts/4 00:00:00 /bin/bash --init+fil
e /home/akasha/.vscode-server/bin/e3a5acfb517a44akasha 5834 2263 0 0:10 pts/0 00:00:01 /home/akasha/.vscode-server/extensions/ms-vscode.cpptools-1.27.7-lin
akasha 7135 2263 0 0:10 pts/0 00:00:01 /home/akasha/.vscode-server/extensions/ms-vscode.cpptools-1.27.7-linroot 8790 2 0 15:25 ? 00:00
00 /init
root        8792       8790   0  0:10 ?        00:00:00 /init
akasha       8794       8792   0  0:10 pts/5    00:00:00 -bash
akasha       8818       8794   0  0:10 pts/5    00:00:00 ps -ef
akasha@DESKTOP-NOLGFR1:~$
```

```
akasha@DESKTOP-NOLGFR1:~$ ps -ef | grep akasha
akasha 359 1 0 14:10 ? 00:00:01 /usr/lib/systemd/systemd --user
akasha 360 359 0 14:10 ? 00:00:00 (sd-pam)
akasha 393 237 0 14:10 pts/1 00:00:00 -bash
akasha 2264 2263 0 14:30 pts/0 00:00:00 sh -c "$VSOURCE_WSL_EXT_LOCATION/scripts/wslServer.sh" e3a5acfb517a443235981655413d566533107e92 stable code-server .v
code-server --host=127.0.0.1 --port=0 --connection-token=29367858-348154018-2511259970-2607556025 --use-host-proxy --without-browser-env-var --disable-websocket-compre
sion --accept-server-license-terms --telemetry-level=all
akasha 2265 2264 0 14:30 pts/0 00:00:00 sh /mnt/c/Users/abc/.vscode/extensions/ms-vscode-remote.remote-wsl-0.104.3/scripts/wslServer.sh e3a5acfb517a44323598
1655413d566533107e92 stable code-server .vscode-server --host=127.0.0.1 --port=0 --connection-token=29367858-348154018-2511259970-2607556025 --use-host-proxy --without-
browser-env-var --disable-websocket-compression --accept-server-license-terms --telemetry-level=all
akasha 2271 2265 0 14:30 pts/0 00:00:00 sh /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/bin/code-server --host=127.0.0.1 --port=
0 --connection-token=29367858-348154018-2511259970-2607556025 --use-host-proxy --without-browser-env-var --disable-websocket-compression --accept-server-license-terms -
--telemetry-level=all
akasha 2275 2271 0 14:30 pts/0 00:00:28 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/akasha/.vscode-server/bin/e3a5ac
fb517a443235981655413d566533107e92/out/server-main.js --host=127.0.0.1 --port=0 --connection-token=29367858-348154018-2511259970-2607556025 --use-host-proxy --without-b
rowser-env-var --disable-websocket-compression --accept-server-license-terms --telemetry-level=all
akasha 2288 2287 0 14:30 pts/2 00:00:06 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net'); process
.stdin.pause(); const client = net.createConnection({ host: '127.0.0.1', port: 44153 }, () => { client.pipe(process.stdout); process.stdin.pipe(client); }); client.on('
close', function (hadError) { console.error(hadError ? 'Remote close with error' : 'Remote close'); process.exit(hadError ? 1 : 0); }); client.on('error', function (err
) { process.stderr.write(err && (err.stack || err.message) || String(err)); });
akasha 2297 2296 0 14:30 pts/3 00:00:12 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net'); process
.stdin.pause(); const client = net.createConnection({ host: '127.0.0.1', port: 44153 }, () => { client.pipe(process.stdout); process.stdin.pipe(client); }); client.on('
close', function (hadError) { console.error(hadError ? 'Remote close with error' : 'Remote close'); process.exit(hadError ? 1 : 0); }); client.on('error', function (err
) { process.stderr.write(err && (err.stack || err.message) || String(err)); });
akasha 2317 2275 0 14:30 pts/0 00:00:01 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/akasha/.vscode-server/bin/e3a5ac
fb517a443235981655413d566533107e92/out/bootstrap-fork --type=fileWatcher
akasha 2335 2275 11 14:30 pts/0 00:06:31 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node --dns-result-order=ipv4first /home/aka
sha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=extensionHost --transformURIs --useHostProxy=true
akasha 2964 2335 1 14:35 pts/0 00:00:34 /home/akasha/.vscode-server/extensions/ms-vscode.cpptools-1.27.7-linux-x64/bin/cpptools
akasha 3334 2287 0 14:39 pts/0 00:00:15 /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/akasha/.vscode-server/bin/e3a5ac
fb517a443235981655413d566533107e92/out/bootstrap-fork --type=ptyHost --logsPath /home/akasha/.vscode-server/data/logs/20251003T143022
akasha 3345 3334 0 14:39 pts/4 00:00:00 /bin/bash --init-file /home/akasha/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/vs/workbench/con
trib/terminal/common/scripts/shellIntegration-bash.sh
akasha 5834 2263 0 14:56 pts/0 00:00:01 /home/akasha/.vscode-server/extensions/ms-vscode.cpptools-1.27.7-linux-x64/bin/cpptools-srv 2964 {DDAE951B-BD46-422F
-85EB-338F7438B542}
akasha 7135 2263 0 15:06 pts/0 00:00:01 /home/akasha/.vscode-server/extensions/ms-vscode.cpptools-1.27.7-linux-x64/bin/cpptools-srv 2964 {47AA10B8-F261-4B6D
-AD48-77D723311482}
akasha 8794 8792 0 15:25 pts/5 00:00:00 -bash
akasha 8891 8794 0 15:26 pts/5 00:00:00 ps -ef
akasha 8892 8891 0 15:26 pts/5 00:00:00 grep --color=auto akasha
akasha@DESKTOP-NOLGFR1:~$
```

```
Select akasha@DESKTOP-NOLGFR1:~$ top
top - 15:29:57 up 1:21, 1 user, load average: 0.57, 0.34, 0.21
Tasks: 42 total, 1 running, 41 sleeping, 0 stopped, 0 zombie
%Cpu(s): 11.3 us, 13.2 sy, 0.0 ni, 73.6 id, 0.0 wa, 0.0 hi, 1.9 si, 0.0 st
MiB Mem : 1800.2 total, 117.3 free, 1344.3 used, 484.5 buff/cache
MiB Swap: 1024.0 total, 1019.7 free, 4.3 used, 516.0 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
    1 root        20   0   21788   12120   9304 S   0.0   0.6   0:10.97 systemd
    2 root        20   0    3072    1792   1664 S   0.0   0.1   0:00.81 init-systemd(Ub
    7 root        20   0    3104    1904   1792 S   0.0   0.1   0:00.15 init
   55 root        19  -1   50424   13952   12928 S   0.0   0.7   0:02.15 systemd-journal
  109 root        20   0   25272    5888   4480 S   0.0   0.3   0:03.03 systemd-udev
  123 systemd+   20   0   21456   12800   10752 S   0.0   0.7   0:01.21 systemd-resolve
  127 systemd+   20   0   91024    7680   6912 S   0.0   0.4   0:01.06 systemd-timesyn
  176 root        20   0    4236    2560   2432 S   0.0   0.1   0:00.09 cron
  177 message+   20   0    9636    5120   4608 S   0.0   0.3   0:00.66 dbus-daemon
  184 root        20   0   17968    8448   7552 S   0.0   0.4   0:00.62 systemd-logind
  186 root        20   0  1756096   12288   9856 S   0.0   0.6   0:01.71 wsl-pro-service
  188 syslog     20   0   222508   5504   4608 S   0.0   0.3   0:00.70 rsyslogd
  191 root        20   0    3160    2048   1920 S   0.0   0.1   0:00.10agetty
  207 root        20   0    3116    1920   1792 S   0.0   0.1   0:00.07agetty
  223 root        20   0   107032   18944   9600 S   0.0   1.0   0:01.26 unattended-upgr
  237 root        20   0    6820    3840   3712 S   0.0   0.2   0:00.19 login
  359 akasha     20   0   20112   10880   9088 S   0.0   0.6   0:01.01 systemd
  360 akasha     20   0   21148    2236   1792 S   0.0   0.1   0:00.00 (sd-pam)
  393 akasha     20   0    6072    3840   2304 S   0.0   0.2   0:00.20 bash
  2262 root        20   0    3076     896    896 S   0.0   0.0   0:00.00 SessionLeader
  2263 root        20   0    3092    1024   1024 S   0.0   0.1   0:00.01 Relay(2264)
  2264 akasha     20   0    2800    1664   1664 S   0.0   0.1   0:00.01 sh
  2275 akasha     20   0    1136   104336  53120 S   0.0   5.5   0:29.21 node
```

```
Select akasha@DESKTOP-NOLGFR1: ~
akasha@DESKTOP-NOLGFR1:~$ sleep 5
akasha@DESKTOP-NOLGFR1:~$ sleep 5 &
[1] 9534
akasha@DESKTOP-NOLGFR1:~$ top
top - 15:35:26 up 1:26, 1 user, load average: 0.29, 0.23, 0.19
tasks: 42 total, 1 running, 41 sleeping, 0 stopped, 0 zombie
kcpu(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 : 1860.2 total, 113.9 free, 1347.0 used, 485.2 buff/cache
MiB Swap: 1024.0 total, 1019.7 free, 4.3 used, 513.2 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 9541 akasha    20   0   9300   5632 3456 R   0.7   0.3   0:00.00 top
 2275 akasha    20   0  11.3g 104336 53120 S   0.3   5.5   0:29.76 node
 2335 akasha    20   0   52.6g 838184 56832 S   0.3  44.0   6:51.66 node
 9261 root       20   0   3092   1024  1024 S   0.3   0.1   0:00.00 Relay(9265)
    1 root       20   0  21788  12120  9384 S   0.0   0.6   0:10.99 systemd
    2 root       20   0   3072   1792  1664 S   0.0   0.1   0:00.81 init-systemd(Ub
    7 root       20   0   3104   1904  1792 S   0.0   0.1   0:00.15 init
   55 root      19  -1  50424 140800 13056 S   0.0   0.7   0:02.19 systemd-journal
  109 root      20   0  25272   5888  4480 S   0.0   0.3   0:03.10 systemd-udev
  123 systemd+  20   0  21456  12800 10752 S   0.0   0.7   0:01.21 systemd-resolve
  127 systemd+  20   0  91024   7680  6912 S   0.0   0.4   0:01.00 systemd-timesyn
  176 root      20   0   4236   2560  2432 S   0.0   0.1   0:00.09 cron
  177 message+  20   0   9636   5120  4608 S   0.0   0.3   0:00.66 dbus-daemon
  184 root      20   0  17968   8448  7552 S   0.0   0.4   0:00.63 systemd-logind
  186 root      20   0 1756096 12288  9856 S   0.0   0.6   0:01.71 wsl-pro-service
  188 syslog    20   0 222508   5504  4608 S   0.0   0.3   0:00.71 rsyslogd
  191 root      20   0   3160   2048  1920 S   0.0   0.1   0:00.10 agetty
  207 root      20   0   3116   1920  1792 S   0.0   0.1   0:00.07 agetty
  223 root      20   0 107032 18944  9600 S   0.0   1.0   0:01.26 unattended-upgr
  237 root      20   0   6820   3840  3712 S   0.0   0.2   0:00.19 login
  350 akasha    20   0 201112 108800  9088 S   0.0   0.6   0:01.01 systemd
  360 akasha    20   0  21148  2236  1792 S   0.0   0.1   0:00.00 (sd-pam)
  393 akasha    20   0   6072   3840  2304 S   0.0   0.2   0:00.20 bash
 2262 root      20   0   3076   896   896 S   0.0   0.0   0:00.00 SessionLeader
 2263 root      20   0   3092   1024  1024 S   0.0   0.1   0:00.01 Relay(2264)
 2264 akasha    20   0   2800   1664  1664 S   0.0   0.1   0:00.01 sh
 2265 akasha    20   0   2800   1792  1792 S   0.0   0.1   0:00.02 sh
 2271 akasha    20   0   2800   1792  1792 S   0.0   0.1   0:00.00 sh
 2280 root      20   0   3080   896   896 S   0.0   0.0   0:00.00 SessionLeader
 2287 root      20   0   3088   1024  1024 S   0.0   0.1   0:01.60 Relay(2288)
 2288 akasha    20   0 1022444 65792 44032 S   0.0   3.5   0:06.88 node
 2295 root      20   0   3088   896   896 S   0.0   0.0   0:00.00 SessionLeader
 2296 root      20   0   3088   1024  1024 S   0.0   0.1   0:04.35 Relay(2297)
```

```
Select akasha@DESKTOP-NOLGFR1: ~
akasha@DESKTOP-NOLGFR1:~$ sleep 5
akasha@DESKTOP-NOLGFR1:~$ jobs
akasha@DESKTOP-NOLGFR1:~$ sleep 5 &
[1] 9649
akasha@DESKTOP-NOLGFR1:~$ fg 1
sleep 5
akasha@DESKTOP-NOLGFR1:~$ pidof sleep
akasha@DESKTOP-NOLGFR1:~$ fg %1
-bash: fg: %1: no such job
akasha@DESKTOP-NOLGFR1:~$ pidof sleep
akasha@DESKTOP-NOLGFR1:~$ sleep 5 &
[1] 9748
akasha@DESKTOP-NOLGFR1:~$ pidof sleep
[1]+  Done                  sleep 5
akasha@DESKTOP-NOLGFR1:~$ yes > /dev/null &
[1] 9880
akasha@DESKTOP-NOLGFR1:~$ top
top - 15:39:49 up 1:31, 1 user, load average: 0.35, 0.18, 0.17
tasks: 43 total, 2 running, 41 sleeping, 0 stopped, 0 zombie
kcpu(s): 14.6 us, 9.0 sy, 0.0 ni, 73.2 id, 0.0 wa, 0.0 hi, 2.4 si, 0.0 st
MiB Mem : 1860.2 total, 111.4 free, 1348.0 used, 485.0 buff/cache
MiB Swap: 1024.0 total, 1019.7 free, 4.3 used, 511.4 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 9880 akasha    20   0   3124   1536 1536 R  90.9   0.1   0:23.31 yes
 2275 akasha    20   0  11.3g 104336 53120 S   9.1   5.5   0:30.54 node
    1 root       20   0  21788  12120  9384 S   0.0   0.6   0:11.00 systemd
    2 root       20   0   3072   1792  1664 S   0.0   0.1   0:00.81 init-systemd(Ub
    7 root       20   0   3104   1904  1792 S   0.0   0.1   0:00.15 init
   55 root      19  -1  50424 140800 13056 S   0.0   0.7   0:02.22 systemd-journal
  109 root      20   0  25272   5888  4480 S   0.0   0.3   0:03.12 systemd-udev
  123 systemd+  20   0  21456  12800 10752 S   0.0   0.7   0:01.21 systemd-resolve
  127 systemd+  20   0  91024   7680  6912 S   0.0   0.4   0:01.07 systemd-timesyn
  176 root      20   0   4236   2560  2432 S   0.0   0.1   0:00.09 cron
  177 message+  20   0   9636   5120  4608 S   0.0   0.3   0:00.66 dbus-daemon
  184 root      20   0  17968   8448  7552 S   0.0   0.4   0:00.63 systemd-logind
  186 root      20   0 1756096 12288  9856 S   0.0   0.6   0:01.72 wsl-pro-service
  188 syslog    20   0 222508   5504  4608 S   0.0   0.3   0:00.72 rsyslogd
  191 root      20   0   3160   2048  1920 S   0.0   0.1   0:00.10 agetty
  207 root      20   0   3116   1920  1792 S   0.0   0.1   0:00.07 agetty
  223 root      20   0 107032 18944  9600 S   0.0   1.0   0:01.26 unattended-upgr
  237 root      20   0   6820   3840  3712 S   0.0   0.2   0:00.19 login
  350 akasha    20   0 201112 108800  9088 S   0.0   0.6   0:01.01 systemd
  360 akasha    20   0  21148  2236  1792 S   0.0   0.1   0:00.00 (sd-pam)
```

```
Select akasha@DESKTOP-NOLGFR1: ~
akasha@DESKTOP-NOLGFR1:~$ sleep 5
akasha@DESKTOP-NOLGFR1:~$ sleep 5 &
[1] 10232
akasha@DESKTOP-NOLGFR1:~$ pidof sleep
[1]+  Done                  sleep 5
akasha@DESKTOP-NOLGFR1:~$ ps -ef | grep firefox
akasha    10271    9265  0 15:44 pts/5        00:00:00 grep --color=auto firefox
akasha@DESKTOP-NOLGFR1:~$ killall sleep
sleep: no process found
akasha@DESKTOP-NOLGFR1:~$ sleep 5
akasha@DESKTOP-NOLGFR1:~$ killall sleep
sleep: no process found
akasha@DESKTOP-NOLGFR1:~$ yes > /dev/null &
[1] 10360
akasha@DESKTOP-NOLGFR1:~$ ps -ef | grep yes
akasha    10360    9265  99 15:45 pts/5        00:00:19 yes
akasha    10387    9265  0 15:45 pts/5        00:00:00 grep --color=auto yes
akasha@DESKTOP-NOLGFR1:~$ kill -9 10360
akasha@DESKTOP-NOLGFR1:~$ top
top - 15:46:28 up 1:37, 1 user, load average: 0.66, 0.31, 0.22
Tasks: 42 total, 1 running, 41 sleeping, 0 stopped, 0 zombie
%Cpu(s):  0.0 us,  2.3 sy,  0.0 ni, 97.7 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem : 1860.2 total, 114.8 free, 1344.8 used, 486.5 buff/cache
MiB Swap: 1024.0 total, 1019.7 free,  4.3 used, 515.5 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
 10436 akasha    20   0   9300    5376   3200 R   9.1    0.3   0:00.02 top
   1 root      20   0  21788  12120   9304 S   0.0    0.6   0:11.02 systemd
   2 root      20   0   3072    1792    1664 S   0.0    0.1   0:00.81 init-systemd(Ub
   7 root      20   0   3104    1904    1792 S   0.0    0.1   0:00.15 init
  55 root      19  -1   50424  14080   13056 S   0.0    0.7   0:02.25 systemd-journal
 100 root      20   0   25272    5888    4480 S   0.0    0.3   0:03.14 systemd-udevd
 123 systemd+  20   0  21456  12800   10752 S   0.0    0.7   0:01.21 systemd-resolve
 127 systemd+  20   0   91024    7680    6912 S   0.0    0.4   0:01.07 systemd-timesyn
 176 root      20   0   4236    2560    2432 S   0.0    0.1   0:00.09 cron
 177 message+  20   0   9636    5120    4608 S   0.0    0.3   0:00.68 dbus-daemon
 184 root      20   0   17968    8448    7552 S   0.0    0.4   0:00.63 systemd-logind
 186 root      20   0  1756096  12288    9856 S   0.0    0.6   0:01.75 wsl-pro-service
 188 syslog    20   0  222508    5504    4608 S   0.0    0.3   0:00.74 rsyslogd
 191 root      20   0   3160    2048    1920 S   0.0    0.1   0:00.18 agetty
 207 root      20   0   3116    1920    1792 S   0.0    0.1   0:00.07 sgetty
 223 root      20   0  107032  18944    9600 S   0.0    1.0   0:01.26 unattended-upgr
 237 root      20   0   6820    3840    3712 S   0.0    0.2   0:00.19 login
 359 akasha    20   0  20112  10880    9088 S   0.0    0.6   0:01.01 systemd
```