



National Textile University

Department of Computer Science

Subject:

Operating System

Submitted to:

Sir Nasir

Submitted by:

Ayema

Reg number:

23-NTU-CS-1142

Lab no: **3**

Semester: **5th**

3. C Programs on Processes

Program 1: Print PID and PPID

```
#include <stdio.h>

#include <unistd.h>

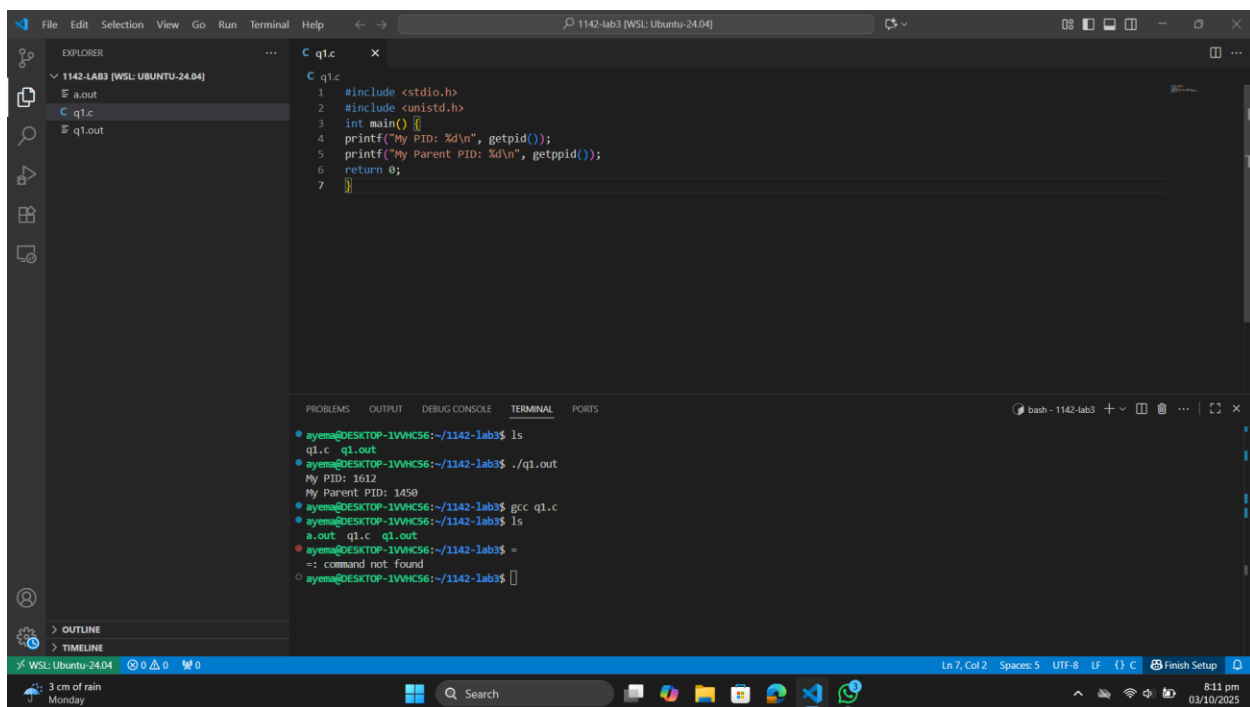
int main() {

printf("My PID: %d\n", getpid());

printf("My Parent PID: %d\n", getppid());

return 0;

}
```



```
File Edit Selection View Go Run Terminal Help 1142-lab3 [WSL: Ubuntu-24.04]
EXPLORER
1142-LAB3 [WSL: UBUNTU-24.04]
  a.out
  q1.c
  q1.out
C q1.c
1 #include <stdio.h>
2 #include <unistd.h>
3 int main() {
4     printf("My PID: %d\n", getpid());
5     printf("My Parent PID: %d\n", getppid());
6     return 0;
7 }
TERMINAL
ayema@DESKTOP-1VHKS6:~/1142-lab3$ ls
q1.c  q1.out
ayema@DESKTOP-1VHKS6:~/1142-lab3$ ./q1.out
My PID: 1612
My Parent PID: 1450
ayema@DESKTOP-1VHKS6:~/1142-lab3$ gcc q1.c
ayema@DESKTOP-1VHKS6:~/1142-lab3$ ls
a.out  q1.c  q1.out
ayema@DESKTOP-1VHKS6:~/1142-lab3$ =
=: command not found
ayema@DESKTOP-1VHKS6:~/1142-lab3$
Ln 7, Col 2 Spaces: 5 UTF-8 LF C Finish Setup
WSL: Ubuntu 24.04 3 cm of rain Monday 8:11 pm 03/10/2025
```

Program 2: Fork – Creating Child Process

```
#include <stdio.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;

}

```

The screenshot shows a Visual Studio Code editor window titled "1142-lab3 [WSL: Ubuntu-24.04]". The Explorer sidebar on the left shows a file tree with files: a.out, q1.c, q1.out, q2.c, and q2.out. The main editor area displays the source code for q2.c, which is the same code shown in the previous block. Below the editor, the TERMINAL panel shows the execution output:

```

ayema@DESKTOP-1VHCS6:~/1142-lab3$ ls
a.out  q1.c  q1.out  q2.c  q2.out
ayema@DESKTOP-1VHCS6:~/1142-lab3$ ./q2.out
Parent: PID=4221, Child=4222
Child: PID=4222, Parent=4221
ayema@DESKTOP-1VHCS6:~/1142-lab3$

```

The status bar at the bottom indicates the file is at line 12, column 8, with 4 spaces, in UTF-8 encoding. The system tray at the very bottom shows the temperature as 29°C, mostly clear weather, and the time as 8:19 pm on 03/10/2025.

Program 3: Execl – Replacing a Process

```
#include <stdio.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");

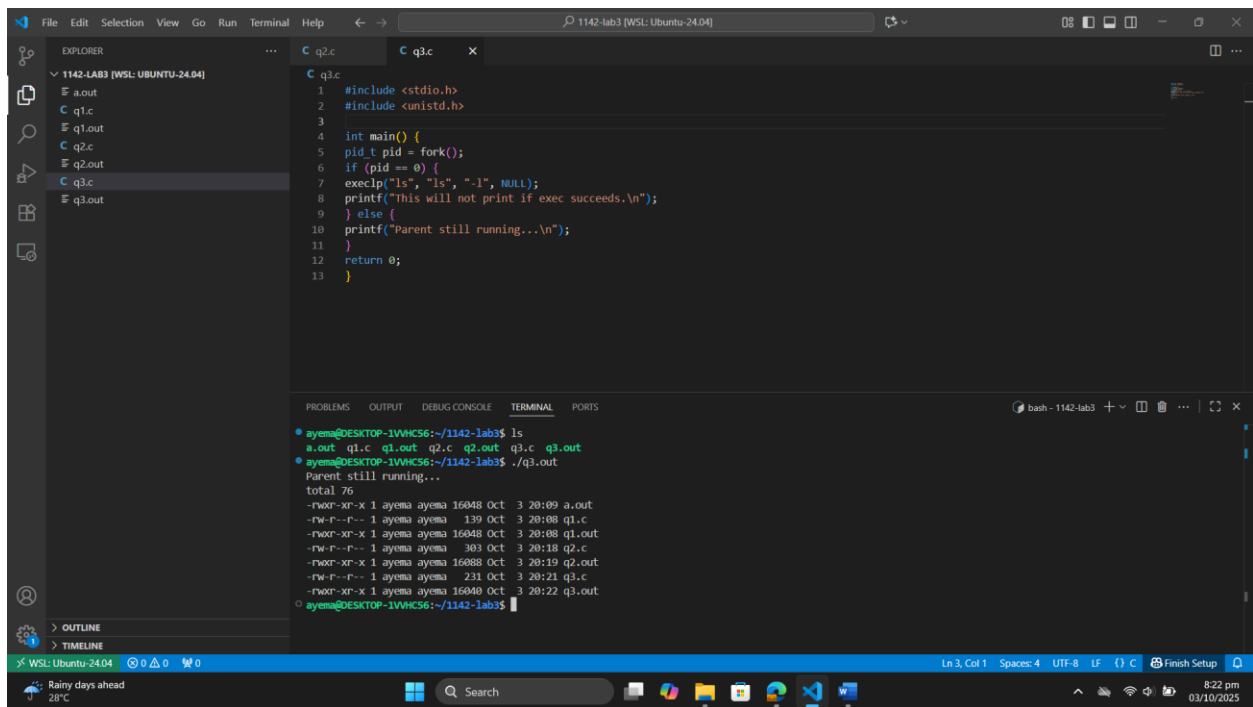
} else {

printf("Parent still running...\n");

}

return 0;

}
```



The screenshot displays the Visual Studio Code interface with a C program being edited and executed. The Explorer panel on the left shows a file tree for the project '1142-LAB3 (WSL: Ubuntu-24.04)', containing files like 'a.out', 'q1.c', 'q1.out', 'q2.c', 'q2.out', 'q3.c', and 'q3.out'. The main editor window shows the source code of 'q3.c', which is identical to the code provided in the previous block. Below the editor, the 'TERMINAL' panel shows the output of the program's execution. It starts with a prompt 'ayema@DESKTOP-1VHKS6:~/1142-lab3\$ ls', followed by the command 'a.out q1.c q1.out q2.c q2.out q3.c q3.out'. The output shows the parent process running, listing the directory contents, and then the child process running 'ls' on the specified files, resulting in a total size of 76 bytes. The terminal also shows the permissions of the files: 'a.out' (16048 bytes), 'q1.c' (139 bytes), 'q1.out' (16048 bytes), 'q2.c' (303 bytes), 'q2.out' (16088 bytes), 'q3.c' (231 bytes), and 'q3.out' (16040 bytes). The status bar at the bottom indicates the file is 'Ln 3, Col 1' and the workspace is 'WSL: Ubuntu-24.04'.

```
1 #include <stdio.h>
2 #include <unistd.h>
3
4 int main() {
5     pid_t pid = fork();
6     if (pid == 0) {
7         execlp("ls", "ls", "-l", NULL);
8         printf("This will not print if exec succeeds.\n");
9     } else {
10        printf("Parent still running...\n");
11    }
12    return 0;
13 }
```

ayema@DESKTOP-1VHKS6:~/1142-lab3\$ ls
a.out q1.c q1.out q2.c q2.out q3.c q3.out
ayema@DESKTOP-1VHKS6:~/1142-lab3\$./q3.out
Parent still running...
total 76
-rwxr-xr-x 1 ayema ayema 16048 Oct 3 20:09 a.out
-rw-r--r-- 1 ayema ayema 139 Oct 3 20:08 q1.c
-rwxr-xr-x 1 ayema ayema 16048 Oct 3 20:08 q1.out
-rw-r--r-- 1 ayema ayema 303 Oct 3 20:18 q2.c
-rwxr-xr-x 1 ayema ayema 16088 Oct 3 20:19 q2.out
-rw-r--r-- 1 ayema ayema 231 Oct 3 20:21 q3.c
-rwxr-xr-x 1 ayema ayema 16040 Oct 3 20:22 q3.out
ayema@DESKTOP-1VHKS6:~/1142-lab3\$

Program 4: Wait – Synchronization

```
#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 {

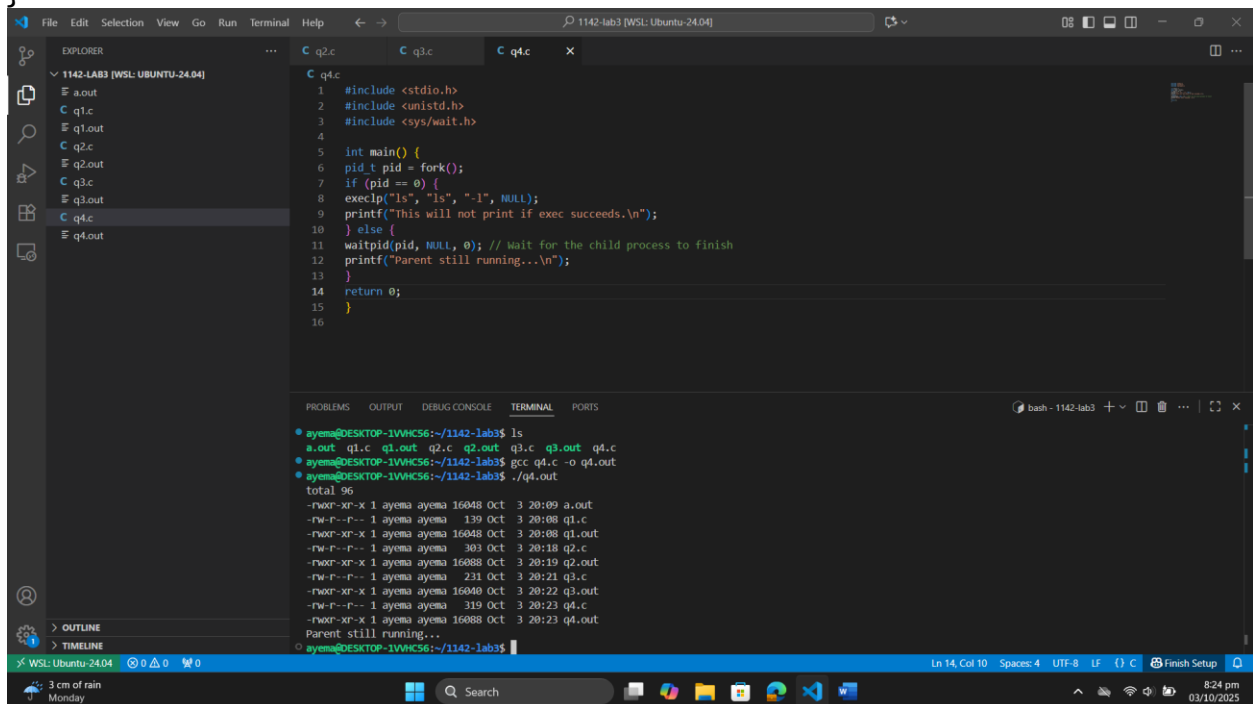
        waitpid(pid, NULL, 0); // Wait for the child process to finish

        printf("Parent still running...\n");

    }

    return 0;

}
```



The screenshot displays the Visual Studio Code interface with a C program file named `q4.c` open. The code is as follows:

```
1 #include <stdio.h>
2 #include <unistd.h>
3 #include <sys/wait.h>
4
5 int main() {
6     pid_t pid = fork();
7     if (pid == 0) {
8         execlp("ls", "ls", "-l", NULL);
9         printf("This will not print if exec succeeds.\n");
10    } else {
11        waitpid(pid, NULL, 0); // Wait for the child process to finish
12        printf("Parent still running...\n");
13    }
14    return 0;
15 }
16
```

The terminal output shows the execution of the program, including the output of the `ls` command in the child process and the parent process waiting for it to finish:

```
ayema@DESKTOP-1VHKS6:~/1142-lab3$ ls
a.out q1.c q1.out q2.c q2.out q3.c q3.out q4.c
ayema@DESKTOP-1VHKS6:~/1142-lab3$ gcc q4.c -o q4.out
ayema@DESKTOP-1VHKS6:~/1142-lab3$ ./q4.out
total 96
-rwxr-xr-x 1 ayema ayema 16048 Oct 3 20:09 a.out
-rw-r--r-- 1 ayema ayema 139 Oct 3 20:08 q1.c
-rwxr-xr-x 1 ayema ayema 16048 Oct 3 20:08 q1.out
-rw-r--r-- 1 ayema ayema 303 Oct 3 20:18 q2.c
-rwxr-xr-x 1 ayema ayema 16088 Oct 3 20:19 q2.out
-rw-r--r-- 1 ayema ayema 231 Oct 3 20:21 q3.c
-rwxr-xr-x 1 ayema ayema 16040 Oct 3 20:22 q3.out
-rw-r--r-- 1 ayema ayema 319 Oct 3 20:23 q4.c
-rwxr-xr-x 1 ayema ayema 16088 Oct 3 20:23 q4.out
Parent still running...
ayema@DESKTOP-1VHKS6:~/1142-lab3$
```

2. Linux Process Commands

ps → Process Status

ps -ef → Full list of all processes

```
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$ ps
  PID TTY          TIME CMD
  5843 pts/5    00:00:00 bash
  5874 pts/5    00:00:00 ps
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$ ps -ef
  UID          PID    PPID    C    TIME TTY          TIME CMD
  root           1        0   0  20:04 ?        00:00:00 /sbin/init
  root           2        1   0  20:04 ?        00:00:00 /init
  root           7        2   0  20:04 ?        00:00:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
  root          43        1   0  20:04 ?        00:00:00 /usr/lib/systemd/systemd-journald
  root          89        1   0  20:04 ?        00:00:00 /usr/lib/systemd/systemd-udevd
  systemd+     148        1   0  20:04 ?        00:00:00 /usr/lib/systemd/systemd-resolved
  systemd+     149        1   0  20:04 ?        00:00:00 /usr/lib/systemd/systemd-timesyncd
  root         158        1   0  20:04 ?        00:00:00 /usr/sbin/cron -f -p
  message+     159        1   0  20:04 ?        00:00:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
  root         166        1   0  20:04 ?        00:00:00 /usr/lib/systemd/systemd-logind
  root         169        1   0  20:04 ?        00:00:00 /usr/libexec/wsl-pro-service -vv
  root         175        1   0  20:04 hvc0     00:00:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
  syslog       182        1   0  20:04 ?        00:00:00 /usr/sbin/rsyslogd -n -iNONE
  root         190        1   0  20:04 tty1     00:00:00 /sbin/agetty -o -p -- \u --noclear - linux
  root         196        1   0  20:04 ?        00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-signal
  root         290        2   0  20:04 pts/1    00:00:00 /bin/login -f
  ayema        334        1   0  20:04 ?        00:00:00 /usr/lib/systemd/systemd --user
  ayema        335        334   0  20:04 ?        00:00:00 (sd-pam)
  ayema        359        290   0  20:04 pts/1    00:00:00 -bash
  root         380        2   0  20:04 ?        00:00:00 /init
  root         381        2   0  20:04 ?        00:00:00 /init
  ayema        382        1   0  20:04 pts/0    00:00:00 sh -c "$VSCODE_WSL_EXT_LOCATION/scripts/wslServer.sh" e3a5acfb517a443235981655413d566533107e92 stable co
  ayema        383        1   0  20:04 pts/0    00:00:00 sh /mnt/c/Users/HP/.vscode/extensions/ms-vscode-remote.remote-wsl-0.104.3/scripts/wslServer.sh e3a5acfb5
  ayema        389        1   0  20:04 pts/0    00:00:00 sh /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/bin/code-server --host=127.0.
  ayema        393        1   0  20:04 pts/0    00:00:06 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
  root         555        2   0  20:04 ?        00:00:00 /init
  root         556        2   0  20:04 ?        00:00:00 /init
  ayema        557        2   0  20:04 pts/2    00:00:01 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net
  root         564        2   0  20:04 ?        00:00:00 /init
  root         565        2   0  20:04 ?        00:00:00 /init
  ayema        566        393   0  20:04 pts/0    00:00:00 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
```

ps -ef | grep bash

```
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$ ps -ef |grep ayema
ayema 334 1 0 20:04 ? 00:00:00 /usr/lib/systemd/systemd --user
ayema 335 334 0 20:04 ? 00:00:00 (sd-pam)
ayema 359 290 0 20:04 pts/1 00:00:00 -bash
ayema 382 381 0 20:04 pts/0 00:00:00 sh -c "$WSL_EXT_LOCATION/scripts/wslServer.sh" e3a5acfb517a443235981655413d566533107e92 stable co
de-server .vscode-server --host=127.0.0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --use-host-proxy --without-browser-env-var -
-disable-websocket-compression --accept-server-license-terms --telemetry-level=all
ayema 383 382 0 20:04 pts/0 00:00:00 sh /mnt/c/Users/HP/.vscode/extensions/ms-vscode-remote.remote-wsl-0.104.3/scripts/wslServer.sh e3a5acfb5
17a443235981655413d566533107e92 stable code-server --host=127.0.0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --u
se-host-proxy --without-browser-env-var --disable-websocket-compression --accept-server-license-terms --telemetry-level=all
ayema 389 383 0 20:04 pts/0 00:00:00 sh /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/bin/code-server --host=127.0.
0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --use-host-proxy --without-browser-env-var --disable-websocket-compression --accep
t-server-license-terms --telemetry-level=all
ayema 393 389 0 20:04 pts/0 00:00:07 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
bin/e3a5acfb517a443235981655413d566533107e92/out/server-main.js --host=127.0.0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --use
-host-proxy --without-browser-env-var --disable-websocket-compression --accept-server-license-terms --telemetry-level=all
ayema 557 556 0 20:04 pts/2 00:00:01 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net
'); process.stdin.pause(); const client = net.createConnection({ host: '127.0.0.1', port: 35765 }, () => { client.pipe(process.stdout); process.stdin.pipe(c
lient); }); 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)); });
ayema 566 393 0 20:04 pts/0 00:00:00 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=fileWatcher
ayema 572 565 0 20:04 pts/3 00:00:00 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net
'); process.stdin.pause(); const client = net.createConnection({ host: '127.0.0.1', port: 35765 }, () => { client.pipe(process.stdout); process.stdin.pipe(c
lient); }); 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)); });
ayema 587 393 1 20:04 pts/0 00:00:20 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node --dns-result-order=ipv4firs
t /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=extensionHost --transformURIs --useHostProxy=true
ayema 740 393 0 20:05 pts/0 00:00:03 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=ptyHost --logsPath /home/ayema/.vscode-server/data/logs/202510031208531
ayema 5457 740 0 20:23 pts/4 00:00:00 /bin/bash --init-file /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/vs/wor
kbench/contrib/terminal/common/scripts/shellIntegration-bash.sh
ayema 5843 5840 0 20:24 pts/5 00:00:00 -bash
ayema 6102 5843 0 20:26 pts/5 00:00:00 ps -ef
ayema 6103 5843 0 20:26 pts/5 00:00:00 grep --color=auto ayema
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$
```

```
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$ ps -ef |grep "ayema"
ayema 5457 740 0 20:23 pts/4 00:00:00 /bin/bash --init-file /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/vs/wor
kbench/contrib/terminal/common/scripts/shellIntegration-bash.sh
ayema 5843 5840 0 20:24 pts/5 00:00:00 -bash
ayema 6102 5843 0 20:26 pts/5 00:00:00 ps -ef
ayema 6103 5843 0 20:26 pts/5 00:00:00 grep --color=auto ayema
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$ ps -ef |grep "ayema"
ayema 334 1 0 20:04 ? 00:00:00 /usr/lib/systemd/systemd --user
ayema 335 334 0 20:04 ? 00:00:00 (sd-pam)
ayema 359 290 0 20:04 pts/1 00:00:00 -bash
ayema 382 381 0 20:04 pts/0 00:00:00 sh -c "$WSL_EXT_LOCATION/scripts/wslServer.sh" e3a5acfb517a443235981655413d566533107e92 stable co
de-server .vscode-server --host=127.0.0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --use-host-proxy --without-browser-env-var -
-disable-websocket-compression --accept-server-license-terms --telemetry-level=all
ayema 383 382 0 20:04 pts/0 00:00:00 sh /mnt/c/Users/HP/.vscode/extensions/ms-vscode-remote.remote-wsl-0.104.3/scripts/wslServer.sh e3a5acfb5
17a443235981655413d566533107e92 stable code-server --host=127.0.0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --u
se-host-proxy --without-browser-env-var --disable-websocket-compression --accept-server-license-terms --telemetry-level=all
ayema 389 383 0 20:04 pts/0 00:00:00 sh /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/bin/code-server --host=127.0.
0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --use-host-proxy --without-browser-env-var --disable-websocket-compression --accep
t-server-license-terms --telemetry-level=all
ayema 393 389 0 20:04 pts/0 00:00:07 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
bin/e3a5acfb517a443235981655413d566533107e92/out/server-main.js --host=127.0.0.1 --port=0 --connection-token=1415950658-37441111-294725355-2630534307 --use
-host-proxy --without-browser-env-var --disable-websocket-compression --accept-server-license-terms --telemetry-level=all
ayema 557 556 0 20:04 pts/2 00:00:01 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net
'); process.stdin.pause(); const client = net.createConnection({ host: '127.0.0.1', port: 35765 }, () => { client.pipe(process.stdout); process.stdin.pipe(c
lient); }); 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)); });
ayema 566 393 0 20:04 pts/0 00:00:00 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=fileWatcher
ayema 572 565 0 20:04 pts/3 00:00:00 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node -e const net = require('net
'); process.stdin.pause(); const client = net.createConnection({ host: '127.0.0.1', port: 35765 }, () => { client.pipe(process.stdout); process.stdin.pipe(c
lient); }); 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)); });
ayema 587 393 1 20:04 pts/0 00:00:20 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node --dns-result-order=ipv4firs
t /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=extensionHost --transformURIs --useHostProxy=true
ayema 740 393 0 20:05 pts/0 00:00:03 /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/node /home/ayema/.vscode-server/
bin/e3a5acfb517a443235981655413d566533107e92/out/bootstrap-fork --type=ptyHost --logsPath /home/ayema/.vscode-server/data/logs/202510031208531
ayema 5457 740 0 20:23 pts/4 00:00:00 /bin/bash --init-file /home/ayema/.vscode-server/bin/e3a5acfb517a443235981655413d566533107e92/out/vs/wor
kbench/contrib/terminal/common/scripts/shellIntegration-bash.sh
ayema 5843 5840 0 20:24 pts/5 00:00:00 -bash
ayema 6272 5843 0 20:27 pts/5 00:00:00 ps -ef
ayema 6273 5843 0 20:27 pts/5 00:00:00 grep --color=auto ayema
ayema@DESKTOP-1VHC56: /mnt/c/Users/HP$
```

top → Dynamic process view

```
ayema@DESKTOP-1VHC56: / ~$ top
top - 20:28:06 up 24 min, 1 user, load average: 0.14, 0.08, 0.02
Tasks: 39 total, 1 running, 38 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.1 us, 0.3 sy, 0.0 ni, 99.2 id, 0.3 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 3758.2 total, 2900.8 free, 677.9 used, 254.3 buff/cache
MiB Swap: 1024.0 total, 1024.0 free, 0.0 used, 3080.3 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 587 ayema     20   0   31.9g 147472 51968 S   1.7   3.8   0:21.86 node
   1 root       20   0   21796 12396  9324 S   0.0   0.3   0:00.64 systemd
   2 root       20   0   3072 1792 1792 S   0.0   0.0   0:00.00 init-systemd(Ub
   7 root       20   0   3072 1792 1792 S   0.0   0.0   0:00.00 init
  43 root      19  -1  66832 15072 14304 S   0.0   0.4   0:00.37 systemd-journal
  89 root      20   0   25140  6016  4864 S   0.0   0.2   0:00.21 systemd-udevd
 148 systemd+  20   0   21456 12544 10496 S   0.0   0.3   0:00.14 systemd-resolve
 149 systemd+  20   0   91024  7552  6784 S   0.0   0.2   0:00.11 systemd-timesyn
 158 root      20   0    4236  2560  2432 S   0.0   0.1   0:00.01 cron
 159 message+  20   0    9632  4992  4480 S   0.0   0.1   0:00.10 dbus-daemon
 166 root      20   0   17968  8448  7552 S   0.0   0.2   0:00.08 systemd-logind
 169 root      20   0  1755840 12160 10240 S   0.0   0.3   0:00.12 wsl-pro-service
 175 root      20   0    3160  2048  1920 S   0.0   0.1   0:00.01 agetty
 182 syslog    20   0  222508  5504  4480 S   0.0   0.1   0:00.08 rsyslogd
 190 root      20   0    3116  1920  1792 S   0.0   0.0   0:00.00 agetty
 196 root      20   0  107012 22656 13440 S   0.0   0.6   0:00.12 unattended-upgr
 290 root      20   0    6820  4480  3840 S   0.0   0.1   0:00.00 login
 334 ayema     20   0   20312 11008  9088 S   0.0   0.3   0:00.07 systemd
 335 ayema     20   0   21148  3516  1792 S   0.0   0.1   0:00.00 (sd-pam)
 359 ayema     20   0   6072  4992  3456 S   0.0   0.1   0:00.02 bash
 380 root      20   0   3076  1024  896 S   0.0   0.0   0:00.00 SessionLeader
 381 root      20   0   3092  1156  1024 S   0.0   0.0   0:00.00 Relay(382)
 382 ayema     20   0   2800  1664  1664 S   0.0   0.0   0:00.00 sh
 383 ayema     20   0   2800  1792  1792 S   0.0   0.0   0:00.00 sh
 389 ayema     20   0   2800  1792  1792 S   0.0   0.0   0:00.00 sh
 393 ayema     20   0   11.3g 107400 51072 S   0.0   2.8   0:07.12 node
 555 root      20   0   3088  896  768 S   0.0   0.0   0:00.00 SessionLeader
 556 root      20   0   3088  1160  1024 S   0.0   0.0   0:00.29 Relay(557)
 557 ayema     20   0  1018352 60360 42880 S   0.0   1.6   0:01.05 node
 564 root      20   0   3088  1024  896 S   0.0   0.0   0:00.00 SessionLeader
 565 root      20   0   3088  1160  1024 S   0.0   0.0   0:00.22 Relay(572)
 566 ayema     20   0 1261808 58340 46592 S   0.0   1.5   0:00.38 node
 572 ayema     20   0 1012144 53328 42752 S   0.0   1.4   0:00.84 node
 740 ayema     20   0 1159268 77628 47104 S   0.0   2.0   0:03.73 node
```

Temps to plum...
Next Monday

Search

8:28 pm
03/10/2025

Foreground:

SLEEP 10

```
ayema@DESKTOP-1VVHC56: ~
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 10
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$
```

Background:

SLEEP 10 s

```
ayema@DESKTOP-1VVHC56: ~
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 10
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 10&
[1] 6778
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$
```

JOBS

```
ayema@DESKTOP-1VVHC56: x + v
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 10
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 10&
[1] 6778
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ jobs
[1]+  Done                  sleep 10
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ |
```

FG

```
ayema@DESKTOP-1VVHC56: x + v
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 15&
[1] 7238
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ fg 7238
-bash: fg: 7238: no such job
[1]+  Done                  sleep 15
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ fg 3
-bash: fg: 3: no such job
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 15 &
[1] 7353
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ fg 1
sleep 15
|
```

Process Identification:

```
ayema@DESKTOP-1VVHC56: x + v
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 15&
[1] 7547
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ pidof sleep
7547
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ |
```

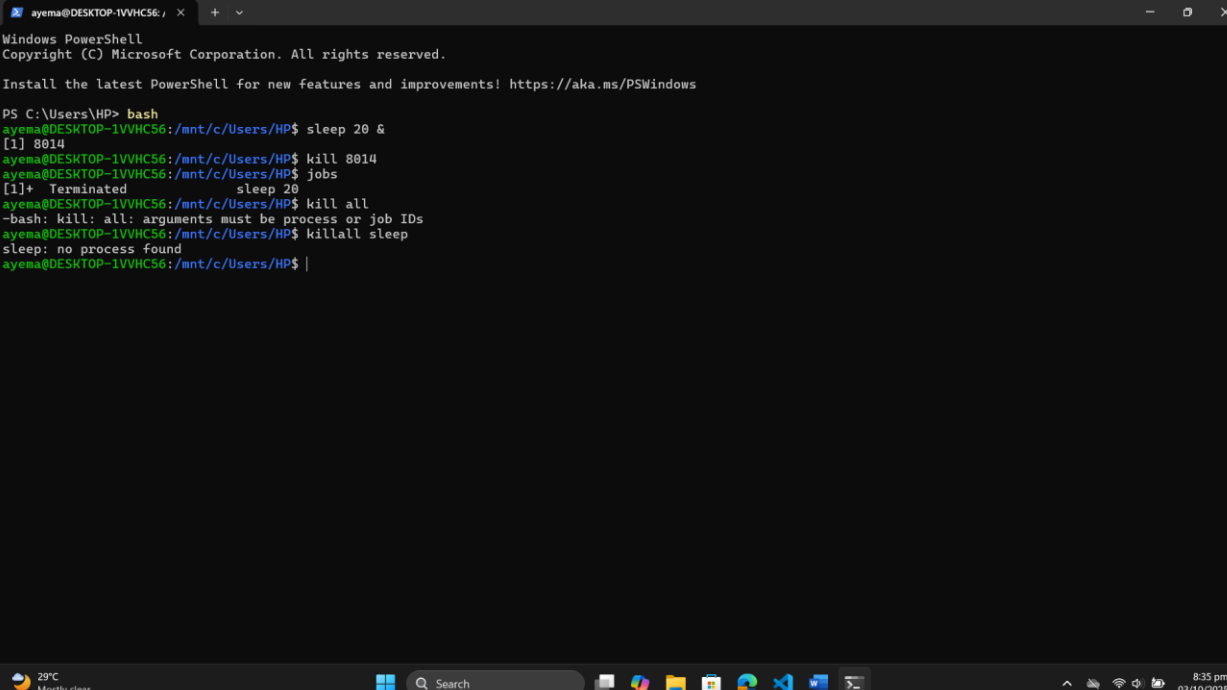
Killing Proce

```
ayema@DESKTOP-1VVHC56: x + v
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ sleep 20 &
[1] 7704
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ kill 7704
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ jobd
jobd: command not found
[1]+  Terminated                  sleep 20
ayema@DESKTOP-1VVHC56:/mnt/c/Users/HP$ |
```

To kill multiple commands:



```
ayema@DESKTOP-1VVHCS6: /
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> bash
ayema@DESKTOP-1VVHCS6:/mnt/c/Users/HP$ sleep 20 &
[1] 8014
ayema@DESKTOP-1VVHCS6:/mnt/c/Users/HP$ kill 8014
ayema@DESKTOP-1VVHCS6:/mnt/c/Users/HP$ jobs
[1]+  Terminated                  sleep 20
ayema@DESKTOP-1VVHCS6:/mnt/c/Users/HP$ kill all
-bash: kill: all: arguments must be process or job IDs
ayema@DESKTOP-1VVHCS6:/mnt/c/Users/HP$ killall sleep
sleep: no process found
ayema@DESKTOP-1VVHCS6:/mnt/c/Users/HP$ |
```

A screenshot of a Windows 11 desktop environment. A terminal window is open, displaying a black background with a vertical column of 'y' characters on the left side. The terminal's title bar shows 'ayema@DESKTOP-1VHC56: /' and standard window controls. The Windows taskbar is at the bottom, featuring the Start button, a search bar, and several pinned application icons including File Explorer, Microsoft Edge, and Teams. The system tray on the right shows the date and time as 8:48 pm on 03/10/2023, along with icons for network, volume, and battery.

[illegible]