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-1151

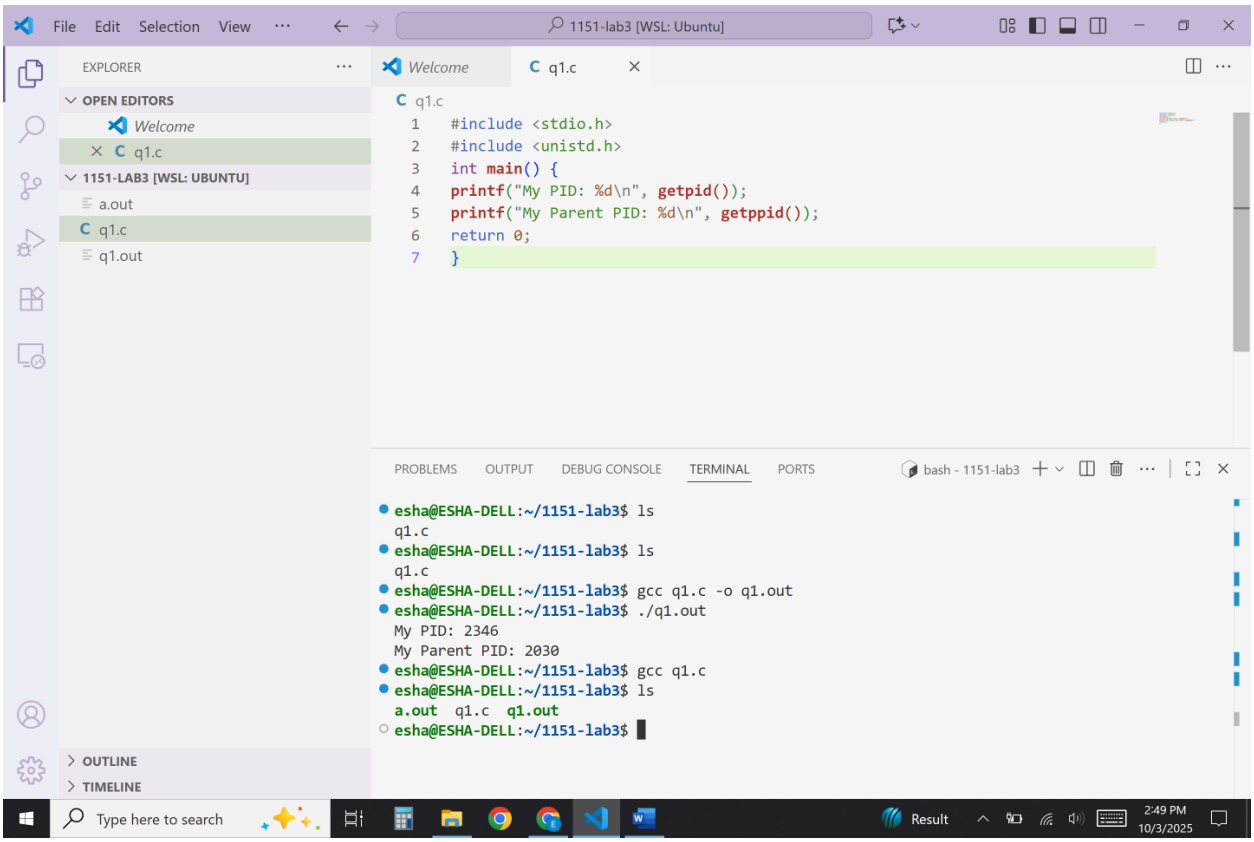
Lab no: **3**

Semester: **5th**

3. C Programs on Processes

Program 1: Print PID and PPID

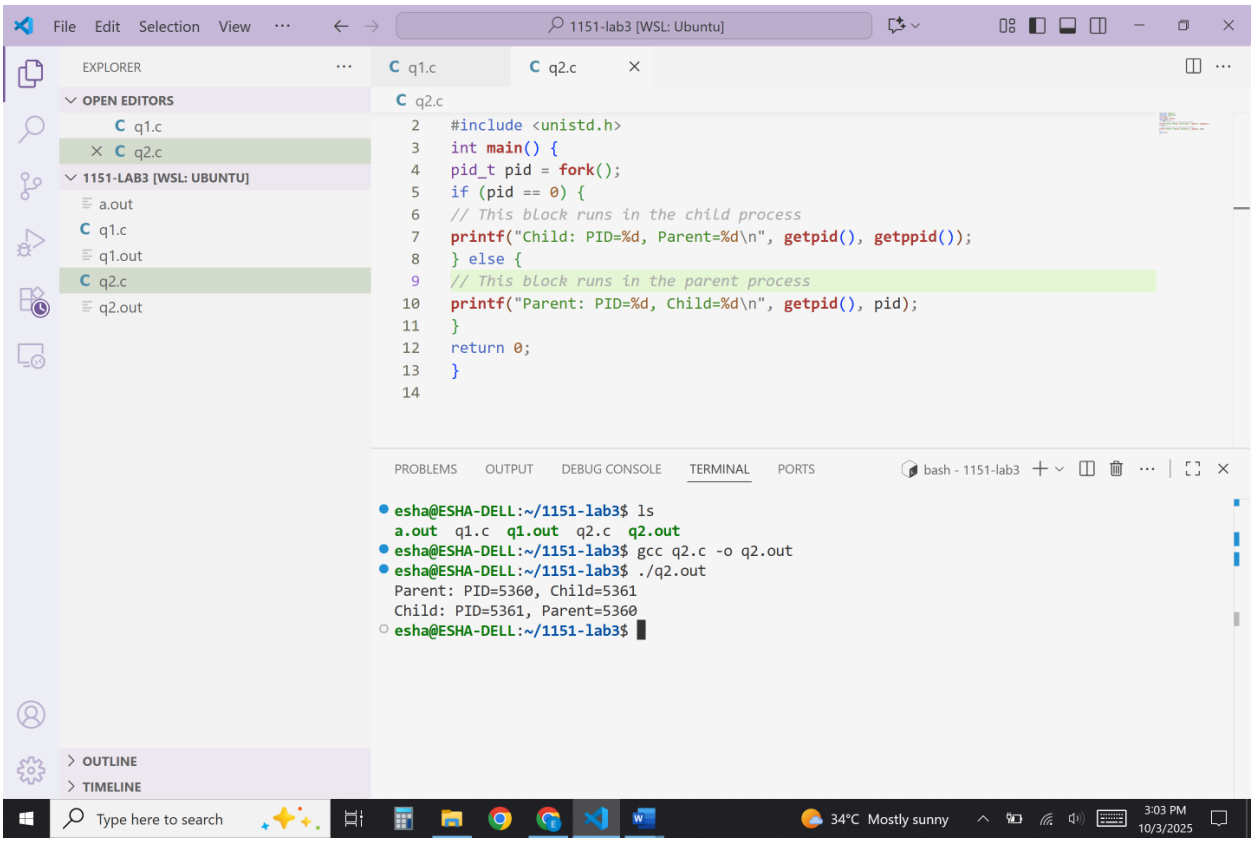
```
#include <stdio.h>

#include <unistd.h>

int main() {

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

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

return 0;

}
```



Program 2: Fork – Creating Child Process

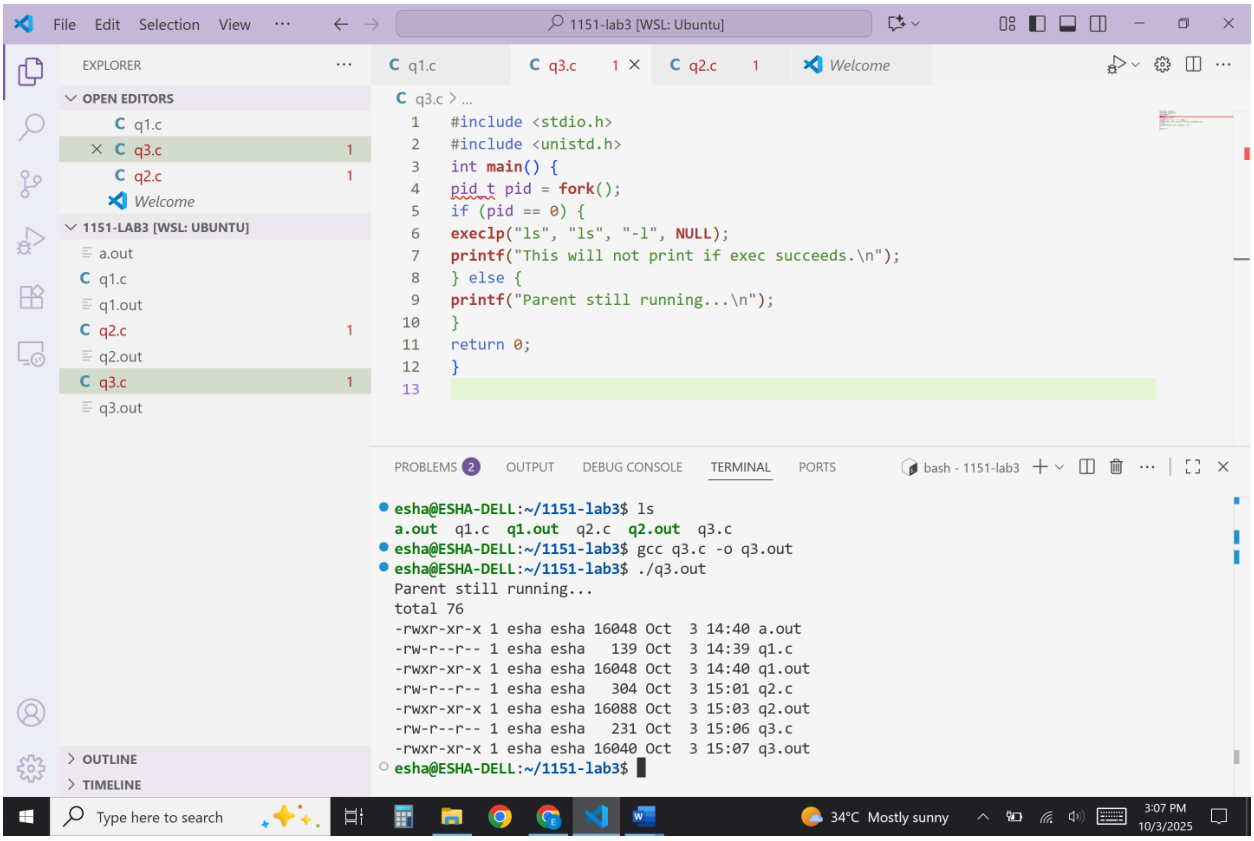
```
#include <stdio.h>
```

```
#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;

}
```



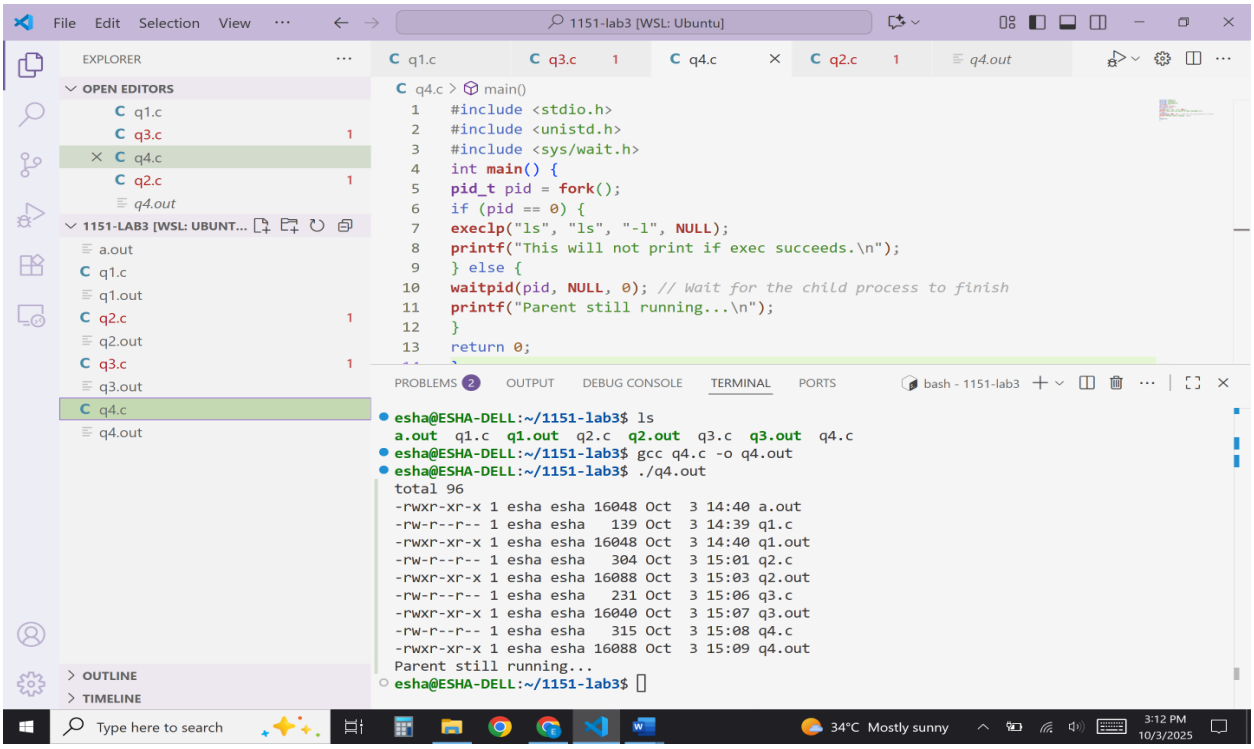
Program 3: Execl – Replacing a Process

```
#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;

}
```



Program 4: Wait – Synchronization

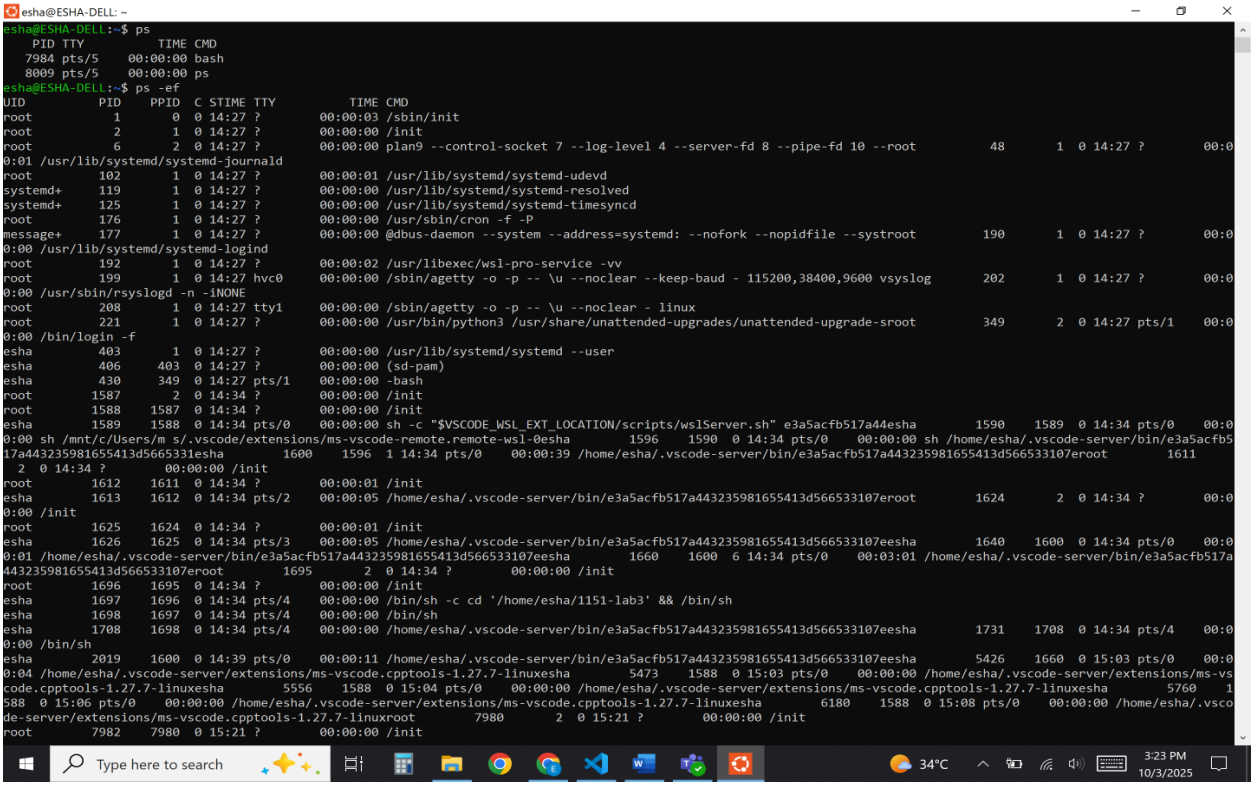
```
#include <stdio.h>

#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;

}
```



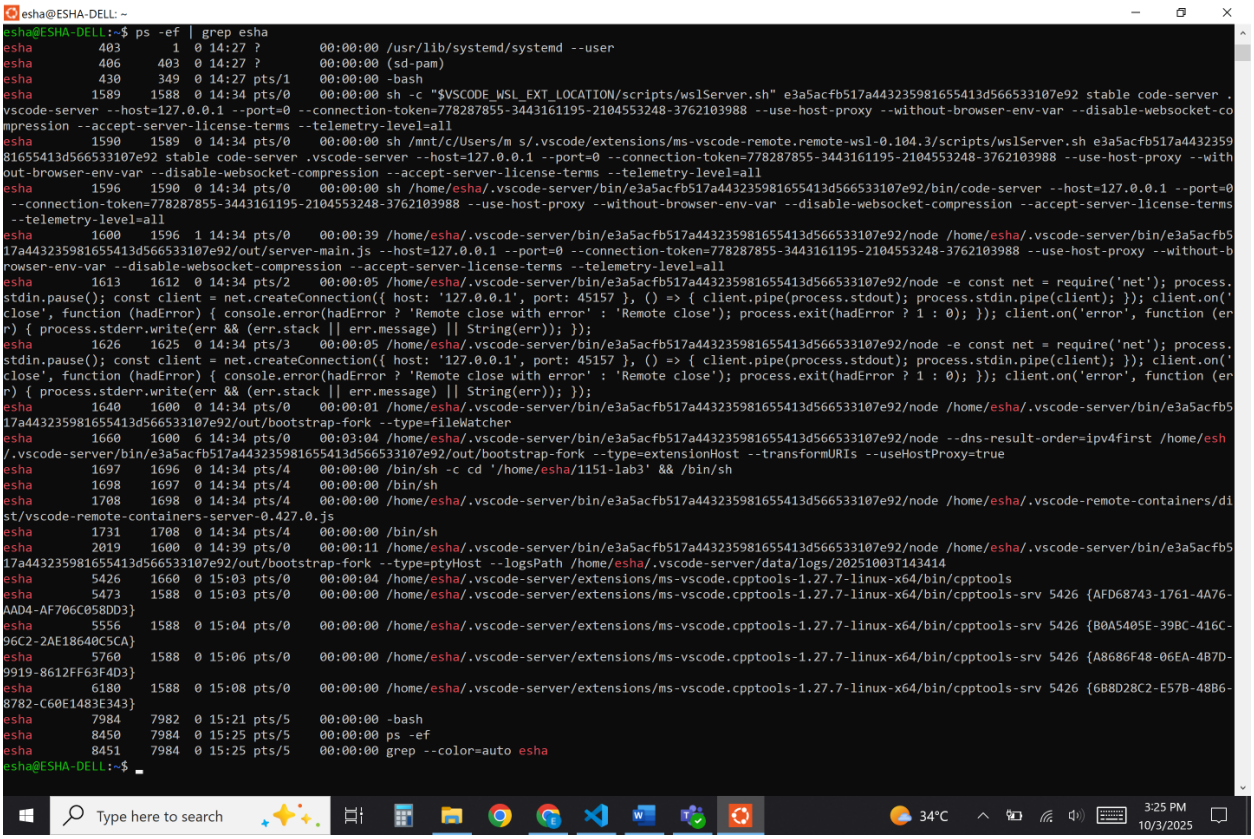
2. Linux Process Commands

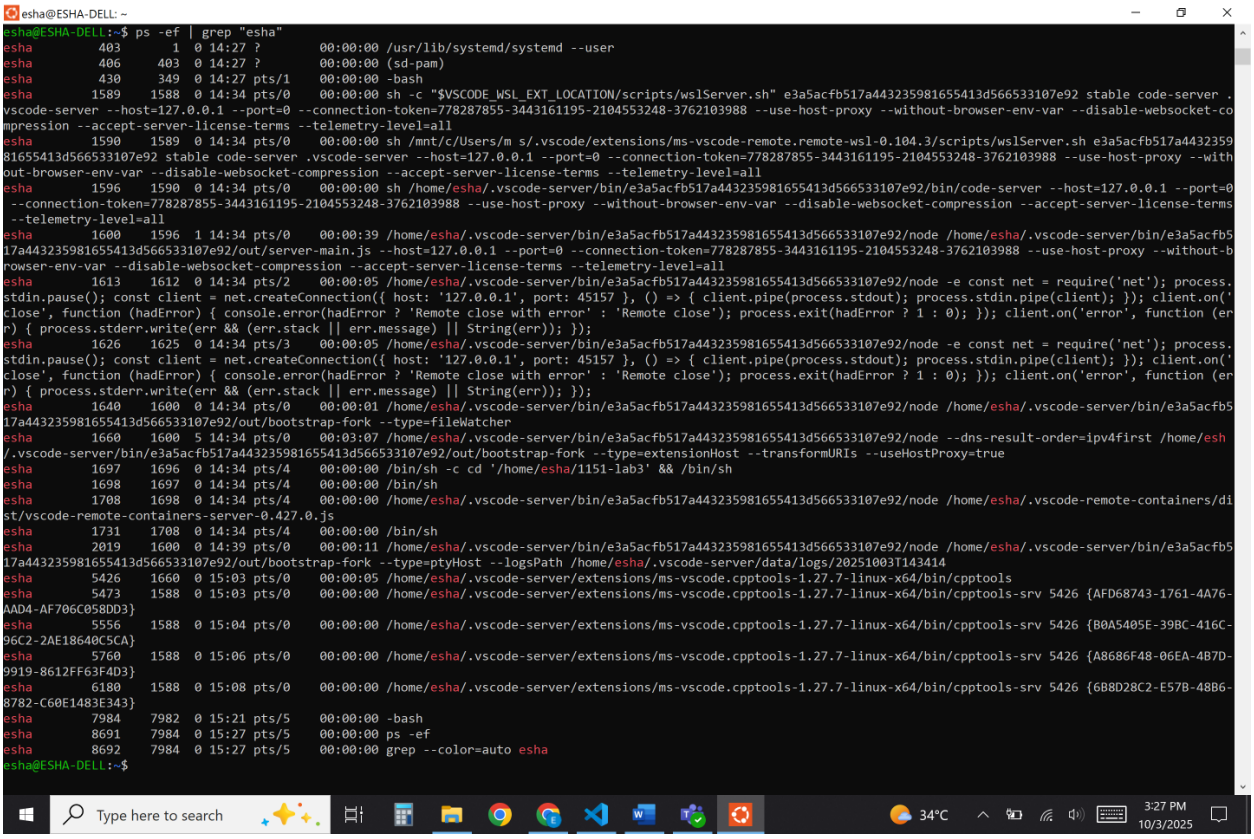
ps → Process Status

ps -ef → Full list of all processes

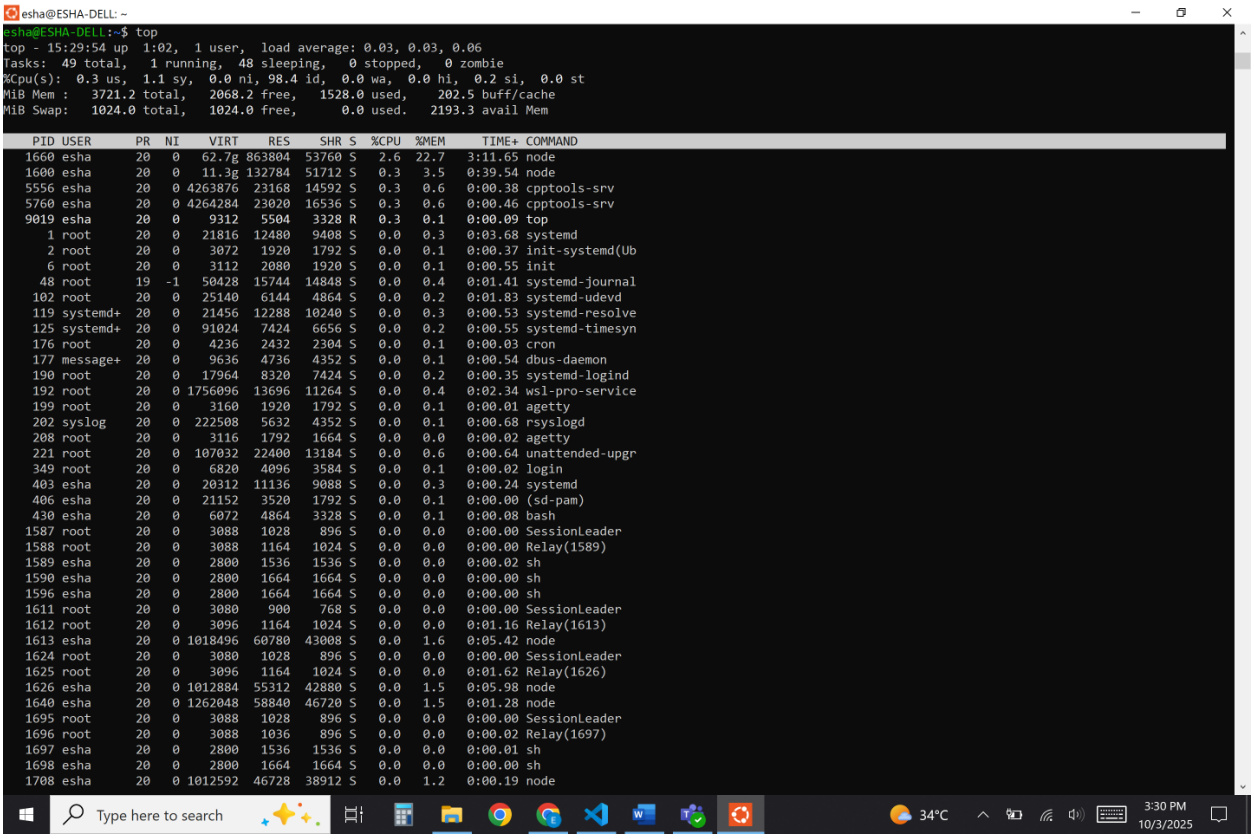


ps -ef | grep bash



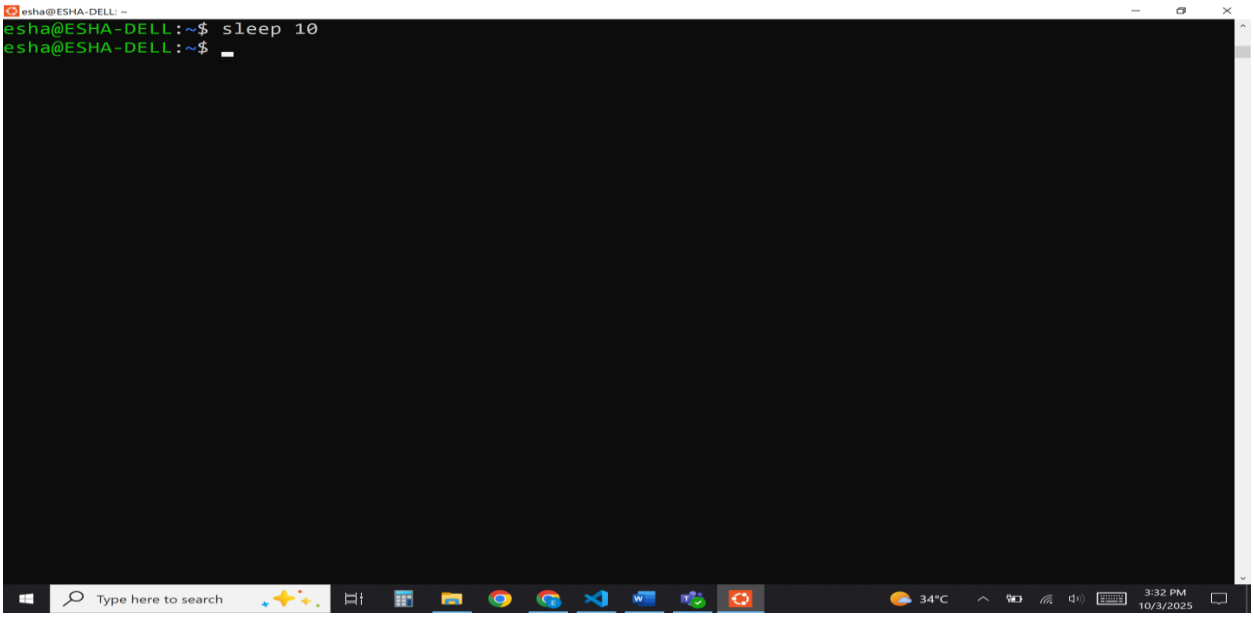


top → Dynamic process viewer



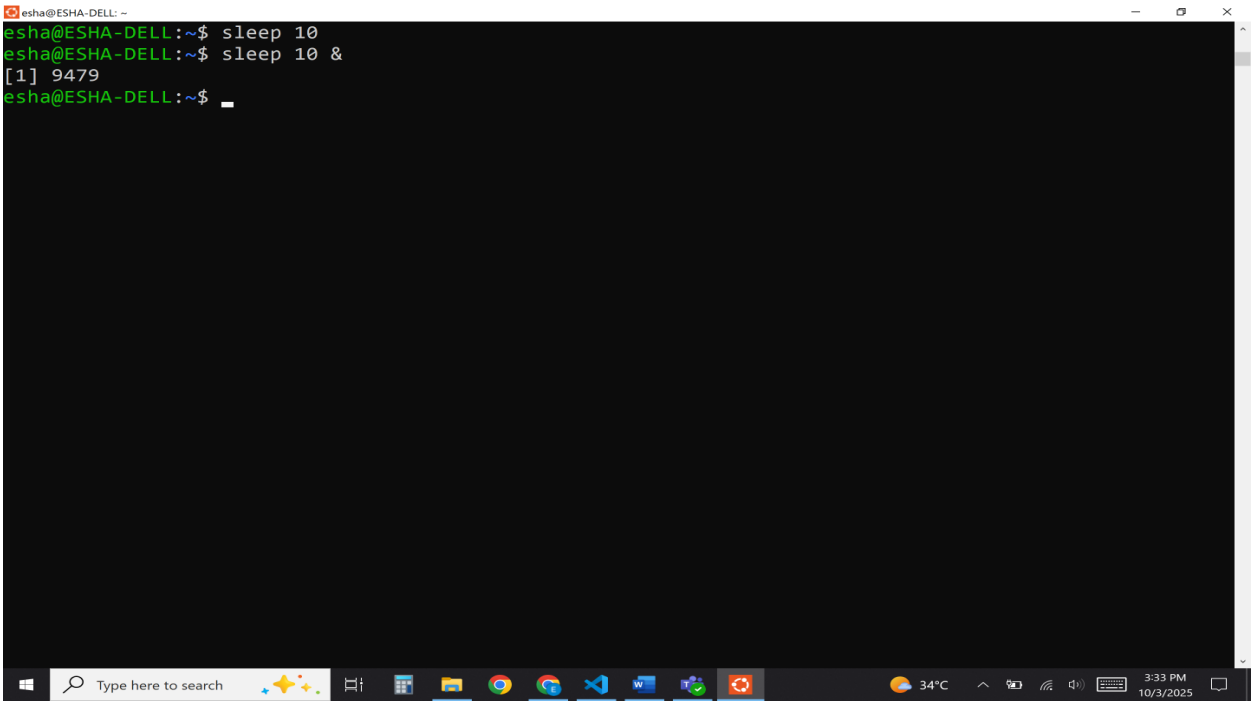
Foreground:

SLEEP 10

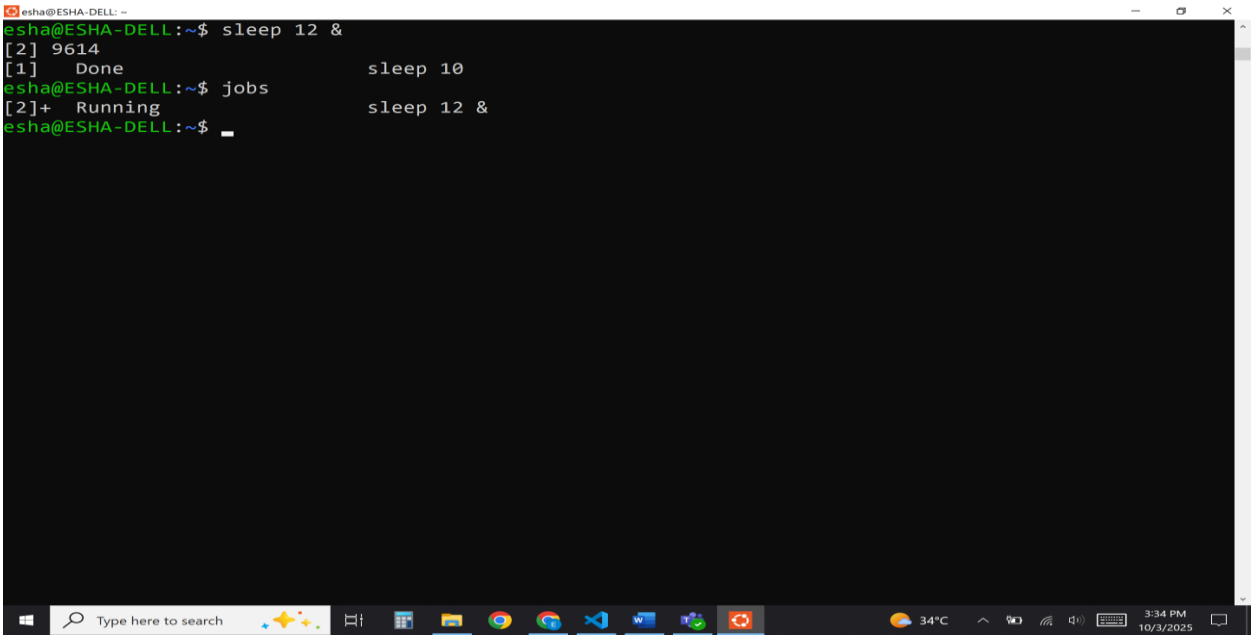


Background:

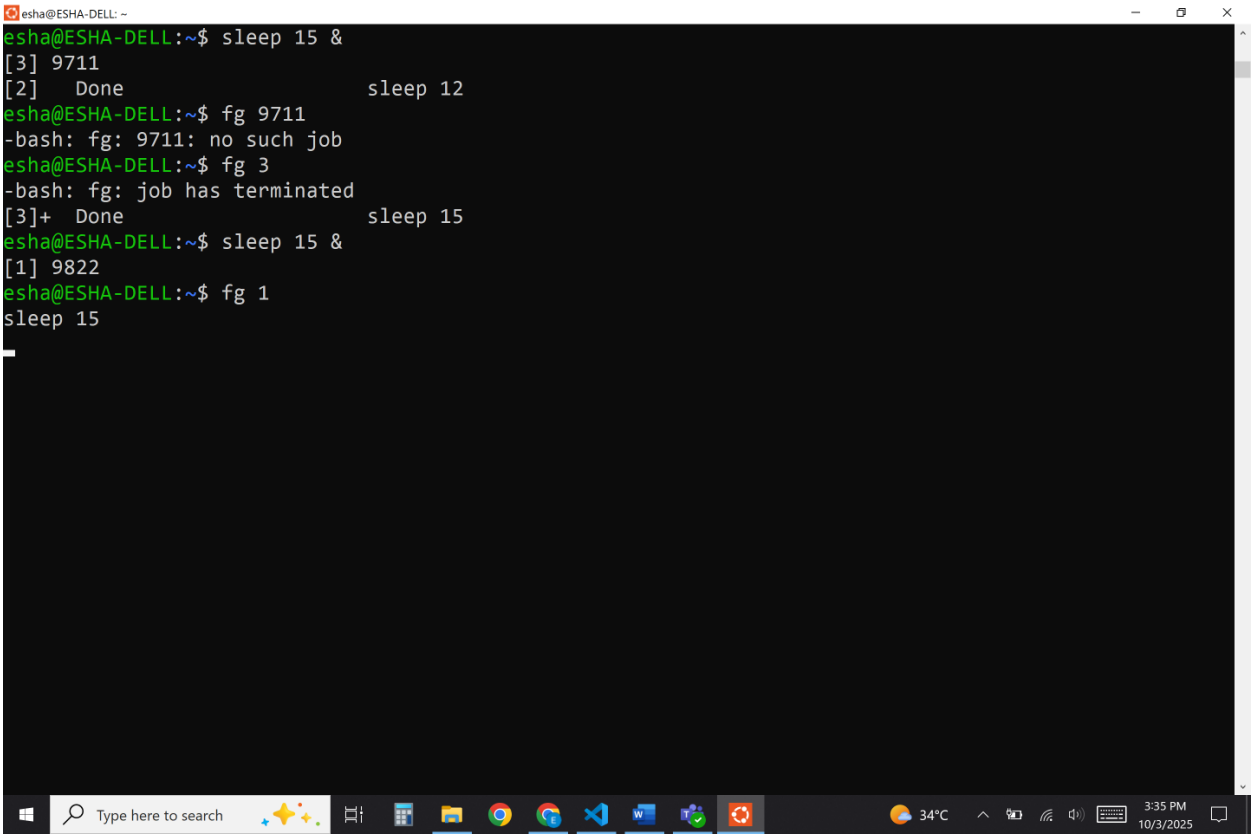
SLEEP 10 &



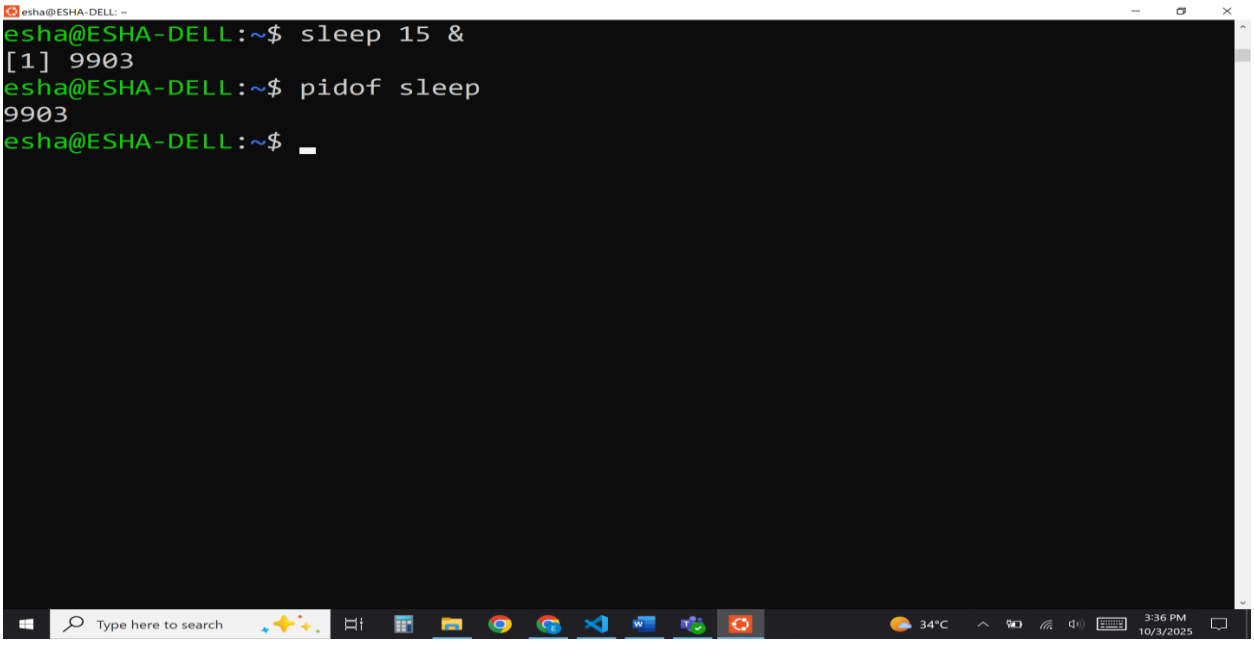
JOBS



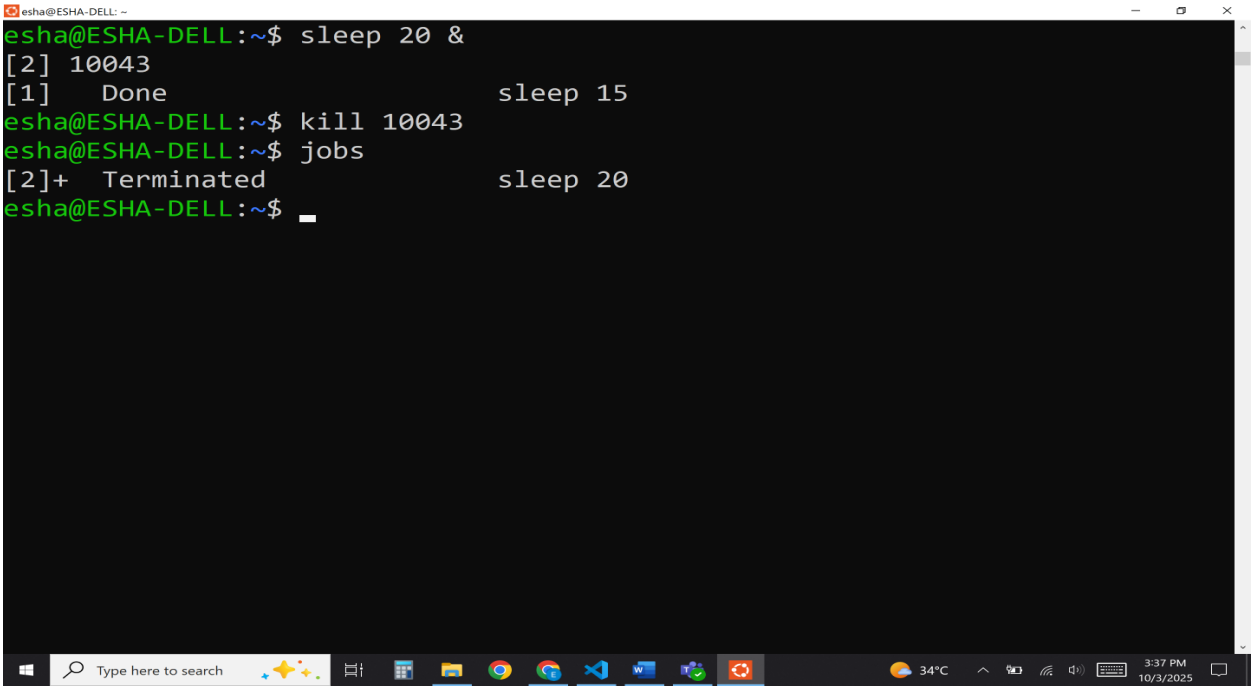
FG



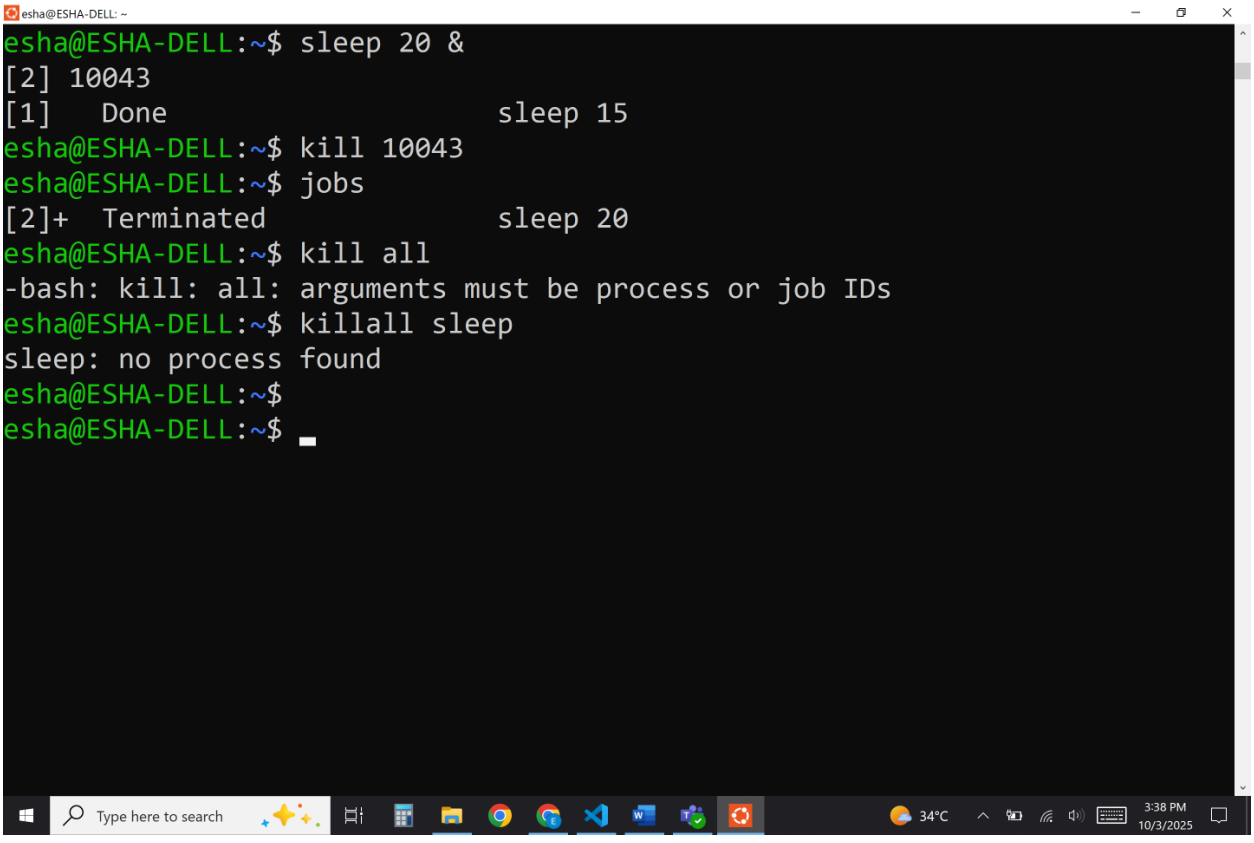
Process Identification:

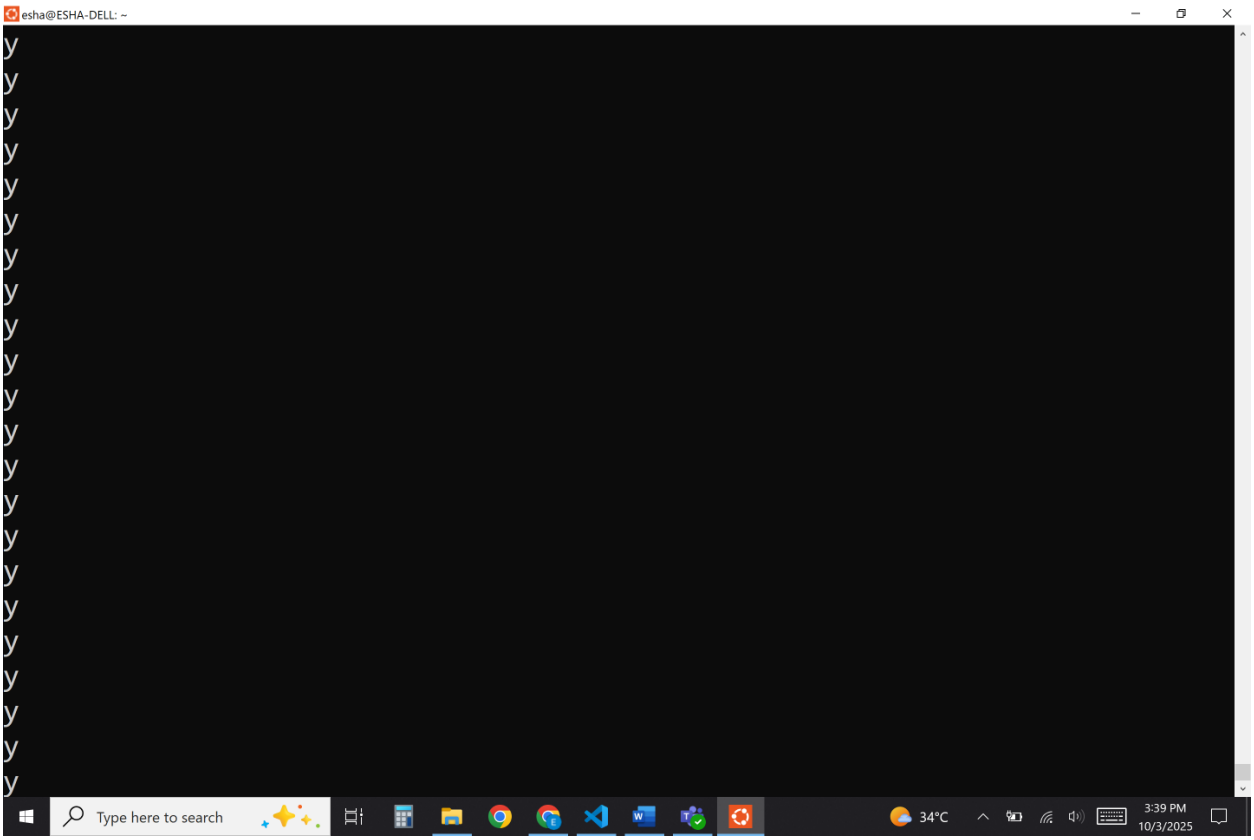


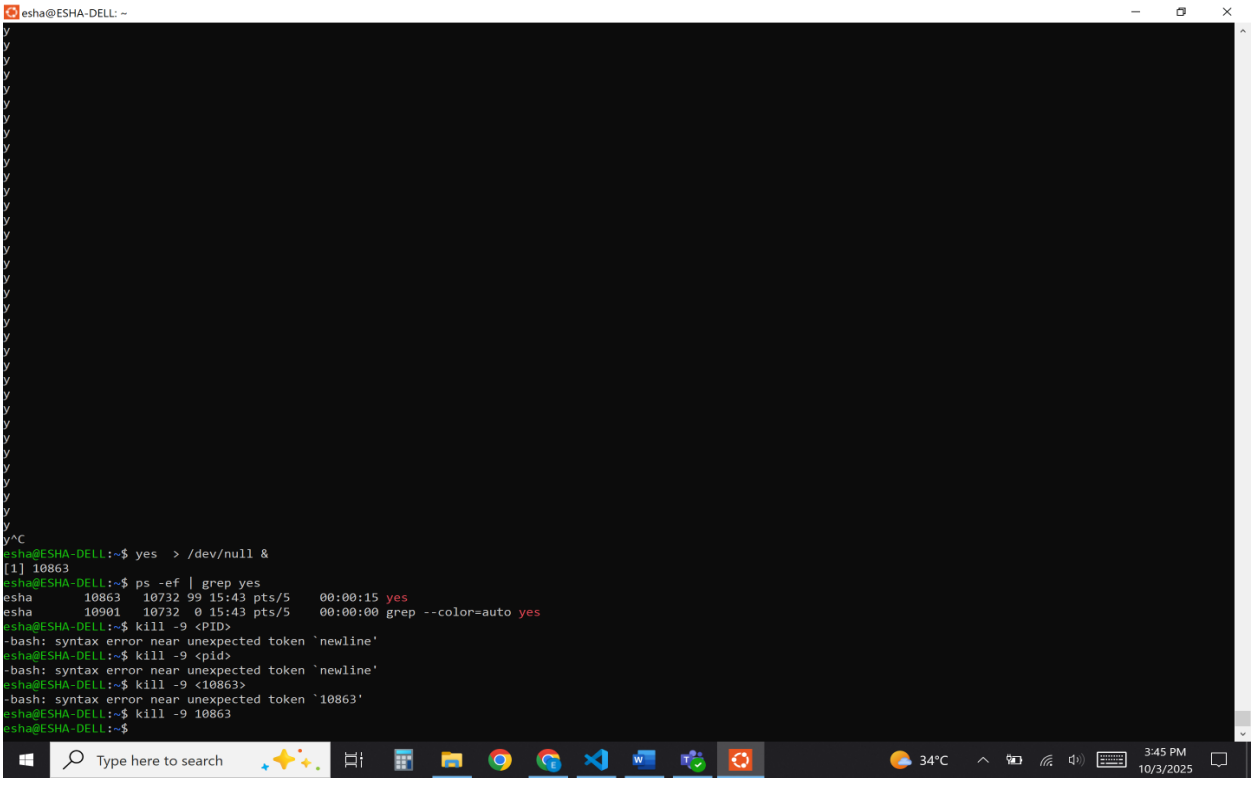
Killing Proces



To kill multiple commands:




esha@ESHA-DELL: ~
y
Type here to search
34°C
3:39 PM
10/3/2025


esha@ESHA-DELL: ~
y^C
esha@ESHA-DELL:~$ yes > /dev/null &
[1] 10863
esha@ESHA-DELL:~$ ps -ef | grep yes
esha 10863 10732 99 15:43 pts/5 00:00:15 yes
esha 10901 10732 0 15:43 pts/5 00:00:00 grep --color=auto yes
esha@ESHA-DELL:~$ kill -9 <PID>
-bash: syntax error near unexpected token `newline'
esha@ESHA-DELL:~$ kill -9 <pid>
-bash: syntax error near unexpected token `newline'
esha@ESHA-DELL:~$ kill -9 <10863>
-bash: syntax error near unexpected token `10863'
esha@ESHA-DELL:~$ kill -9 10863
esha@ESHA-DELL:~$
Type here to search
34°C
3:45 PM
10/3/2025