Operating Systems Lab - CS 314

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1 Part-1

So, the minimum number of lines required in C are 23 (including #include directives/libraries).

Furthermore, this was tested by Clang compiler in the Minix3 virtual machine. Command: `gmake hello`. (Figure 1)

```
H 288
e 289
l 290
l 291
o 292
  293
W 294
o 295
r 296
l 297
d 298
```

2 Part-2

The processes are created in tree like fashion where parent process is created first which creates a child process and processes exit in reverse order, child process exits first and then parent process exits. This order is justified because parent process cannot create a child process until it itself is created and it waits for the child process to exit before exiting itself.

The file `forkexit.c` was changed at `minix/servers/pm` location. The following statement was added in `forkexit.c` file when a process is created:

```
printf("Minix: PID %d created\n", rmc->mp_pid);
```

Similarly, following statement was added in `forkexit.c` file when a process exited:

Figure 1: `gmake hello` Command

```
    printf("Minix: PID %d exited\n", mp->mp_pid);
```

It was sent to Minix3 VM from Host System (Ubuntu) using SCP. It was later put for make build. Build was completed successfully as shown in Figure 2.

After a successful build and reboot, the changes were reflected in the Minix OS boot as shown in Figure 3.

Figure 2: Build Complete

Figure 3: PID created and PID exited