

# CS314

## Lab 2

Vipul Yuvraj Nikam

180010041

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Q1. Lab 2?

**Answer :**

**Fork** function is used to create a child process. The return value from this, is used to decide whether the current process is a parent or child. **sleep** is another useful function from unistd.h, stops program execution for a particular time limit. **rand** selects random numbers. Code verifies if the index is less than the string's length then creates a child process. Using id from fork, it checks if it is the parent process.

It took 29 lines of C code in my case but 4 extra unnecessary 'enters' can be removed making it of 25 lines.

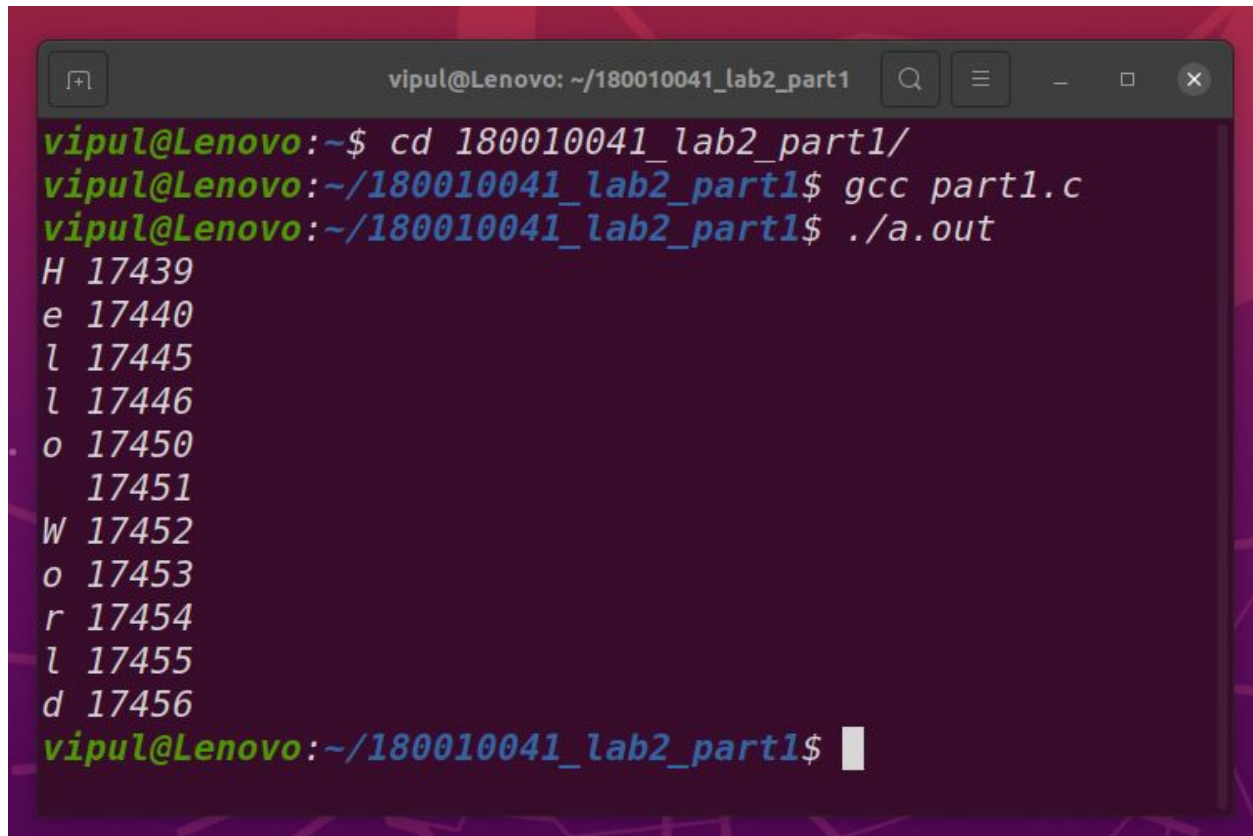
And for Part2 processes have 5 stages :

1. Start
2. Ready
3. Running
4. Waiting
5. Terminated

It is sequential, if PID - i is the last created process, next will be with PID - i+1. First will be 'init' process & subsequent processes will be child processes. Exits of processes could or could not be sequential.

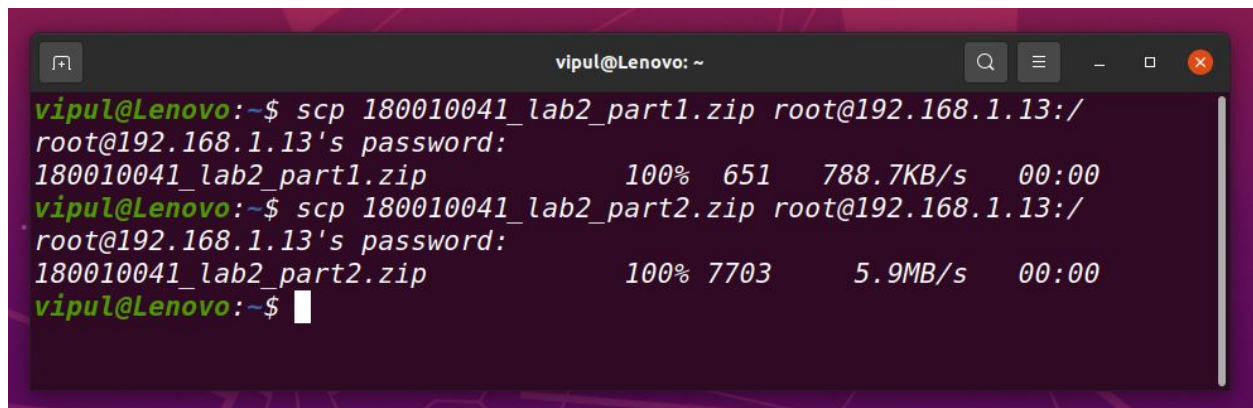
### Commands For Ubuntu Terminal:

1. Gcc part1.c
2. scp 180010041\_lab2\_part1.zip root@192.168.1.13:/
3. scp 180010041\_lab2\_part2.zip root@192.168.1.13:/



A terminal window titled 'vipul@Lenovo: ~/180010041\_lab2\_part1'. The user enters the command 'cd 180010041\_lab2\_part1/' and then 'gcc part1.c'. After running './a.out', the program outputs a list of memory addresses and their corresponding characters: 'H 17439', 'e 17440', 'l 17445', 'l 17446', 'o 17450', '17451', 'W 17452', 'o 17453', 'r 17454', 'l 17455', and 'd 17456'. The prompt returns to 'vipul@Lenovo: ~/180010041\_lab2\_part1\$'.

```
vipul@Lenovo:~/180010041_lab2_part1$ cd 180010041_lab2_part1/
vipul@Lenovo:~/180010041_lab2_part1$ gcc part1.c
vipul@Lenovo:~/180010041_lab2_part1$ ./a.out
H 17439
e 17440
l 17445
l 17446
o 17450
17451
W 17452
o 17453
r 17454
l 17455
d 17456
vipul@Lenovo:~/180010041_lab2_part1$
```

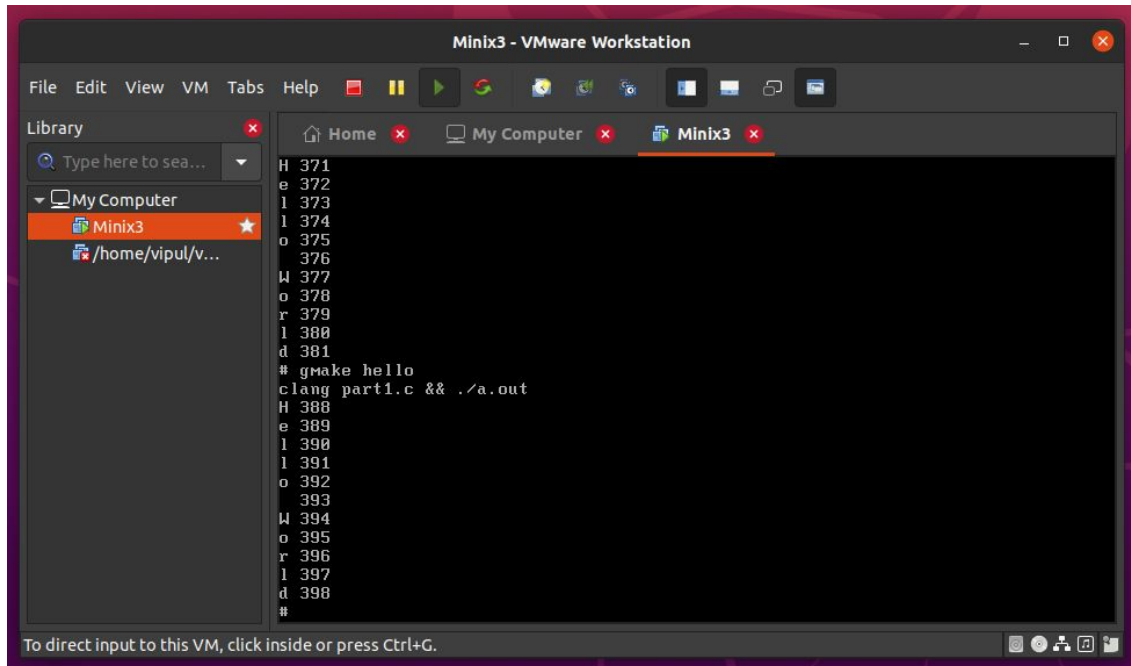


A terminal window titled 'vipul@Lenovo: ~'. The user enters the command 'scp 180010041\_lab2\_part1.zip root@192.168.1.13:/'. The terminal shows the password prompt and the successful transfer of the file. Then, the user enters 'scp 180010041\_lab2\_part2.zip root@192.168.1.13:/', and the terminal shows the password prompt and the successful transfer of the second file. The prompt returns to 'vipul@Lenovo:~\$'.

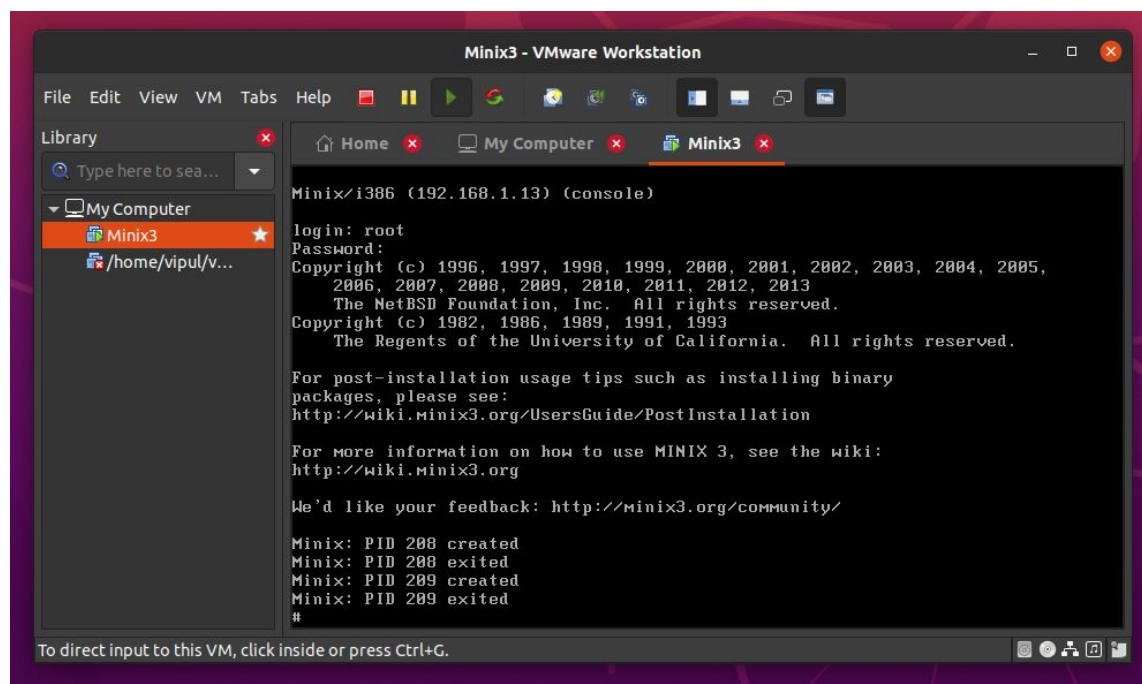
```
vipul@Lenovo:~$ scp 180010041_lab2_part1.zip root@192.168.1.13:/
root@192.168.1.13's password:
180010041_lab2_part1.zip      100% 651   788.7KB/s   00:00
vipul@Lenovo:~$ scp 180010041_lab2_part2.zip root@192.168.1.13:/
root@192.168.1.13's password:
180010041_lab2_part2.zip      100% 7703   5.9MB/s    00:00
vipul@Lenovo:~$
```

### Commands For Minix Terminal:

1. unzip 180010041\_lab2\_part1.zip
2. unzip 180010041\_lab2\_part2.zip
3. gmake hello
4. ./run.sh



The screenshot shows a Minix3 terminal window within a VMware Workstation. The terminal displays a directory listing of files in the current directory, including 'H 371', 'e 372', 'l 373', 'l 374', 'o 375', '376', 'W 377', 'o 378', 'r 379', 'l 380', 'd 381', and '#'. Below the listing, the command '# gmake hello' is entered, followed by the output 'clang part1.c && ./a.out'. The terminal window has a menu bar with 'File', 'Edit', 'View', 'VM', 'Tabs', and 'Help'. The left sidebar shows the 'Library' with 'My Computer' and 'Minix3' selected. The bottom status bar indicates 'To direct input to this VM, click inside or press Ctrl+G.'



The screenshot shows a Minix3 terminal window within a VMware Workstation. The terminal displays the login prompt 'Minix/i386 (192.168.1.13) (console)' and the user 'root' logs in with the password 'root'. The terminal then displays the copyright information for Minix 3, including the years 1996-2013 and the names of the NetBSD Foundation, Inc. and The Regents of the University of California. It also provides links to the Minix3 UsersGuide and the Minix3 wiki. Finally, it shows the output of the 'gmake hello' command, which is 'clang part1.c && ./a.out'. The terminal window has a menu bar with 'File', 'Edit', 'View', 'VM', 'Tabs', and 'Help'. The left sidebar shows the 'Library' with 'My Computer' and 'Minix3' selected. The bottom status bar indicates 'To direct input to this VM, click inside or press Ctrl+G.'

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