

# **CSN-361: Computer Networks Laboratory**

## **Lab Assignment (1)**

Name : David Gokimmung

Enrollment no. : 17114023

**Problem Statement 1:** Write a C program in the UNIX system that creates two children and four grandchildren (two for each child). The program should then print the process-IDs of the two children, four grandchildren and the parent in this order.

Source code file name : <fork.c>

->Used fork( ) to create child and nested fork( ) to create grandchildren.



```
david@david-Lenovo-ideapad-320-15IKB: ~  
File Edit View Search Terminal Help  
david@david-Lenovo-ideapad-320-15IKB:~$ gcc -o fork fork.c  
david@david-Lenovo-ideapad-320-15IKB:~$ ./fork  
Child 2 : 26691  
Child 1 : 26690  
GrandChild 1 of Child 2 : 26693  
GrandChild 1 of Child 1 : 26692  
GrandChild 2 of Child 1 : 26694  
GrandChild 2 of Child 2 : 26695  
Parent : 26070  
david@david-Lenovo-ideapad-320-15IKB:~$
```

**Problem Statement 2:** Write a C++ program to print the MAC address of your computer.

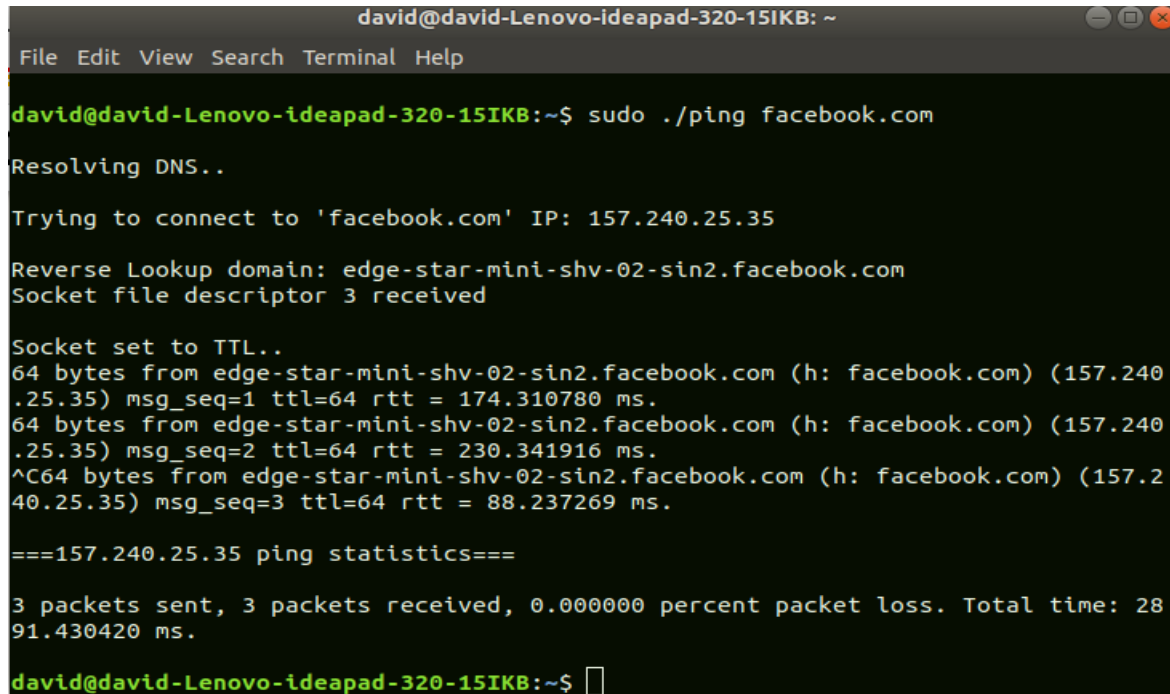
Source code filename : <mac.cpp>



```
david@david-Lenovo-ideapad-320-15IKB: ~  
File Edit View Search Terminal Help  
david@david-Lenovo-ideapad-320-15IKB:~$ g++ -o mac mac.cpp  
david@david-Lenovo-ideapad-320-15IKB:~$ ./mac  
Mac Address : 00:00:79:00:00:00  
david@david-Lenovo-ideapad-320-15IKB:~$
```

**Problem Statement 3:** Write your own version of ping program in C language.

Source code filename : <ping.c>

A terminal window titled 'david@david-Lenovo-ideapad-320-15IKB: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the execution of a custom ping program. The user enters 'sudo ./ping facebook.com'. The program outputs: 'Resolving DNS..', 'Trying to connect to 'facebook.com' IP: 157.240.25.35', 'Reverse Lookup domain: edge-star-mini-shv-02-sin2.facebook.com', 'Socket file descriptor 3 received', 'Socket set to TTL..', and then three lines of ping results: '64 bytes from edge-star-mini-shv-02-sin2.facebook.com (h: facebook.com) (157.240.25.35) msg\_seq=1 ttl=64 rtt = 174.310780 ms.', '64 bytes from edge-star-mini-shv-02-sin2.facebook.com (h: facebook.com) (157.240.25.35) msg\_seq=2 ttl=64 rtt = 230.341916 ms.', and '^C64 bytes from edge-star-mini-shv-02-sin2.facebook.com (h: facebook.com) (157.240.25.35) msg\_seq=3 ttl=64 rtt = 88.237269 ms.'. This is followed by '===157.240.25.35 ping statistics===', '3 packets sent, 3 packets received, 0.000000 percent packet loss. Total time: 2891.430420 ms.', and the prompt 'david@david-Lenovo-ideapad-320-15IKB:~\$' with a cursor.

```
david@david-Lenovo-ideapad-320-15IKB: ~
File Edit View Search Terminal Help

david@david-Lenovo-ideapad-320-15IKB:~$ sudo ./ping facebook.com

Resolving DNS..

Trying to connect to 'facebook.com' IP: 157.240.25.35

Reverse Lookup domain: edge-star-mini-shv-02-sin2.facebook.com
Socket file descriptor 3 received

Socket set to TTL..
64 bytes from edge-star-mini-shv-02-sin2.facebook.com (h: facebook.com) (157.240
.25.35) msg_seq=1 ttl=64 rtt = 174.310780 ms.
64 bytes from edge-star-mini-shv-02-sin2.facebook.com (h: facebook.com) (157.240
.25.35) msg_seq=2 ttl=64 rtt = 230.341916 ms.
^C64 bytes from edge-star-mini-shv-02-sin2.facebook.com (h: facebook.com) (157.2
40.25.35) msg_seq=3 ttl=64 rtt = 88.237269 ms.

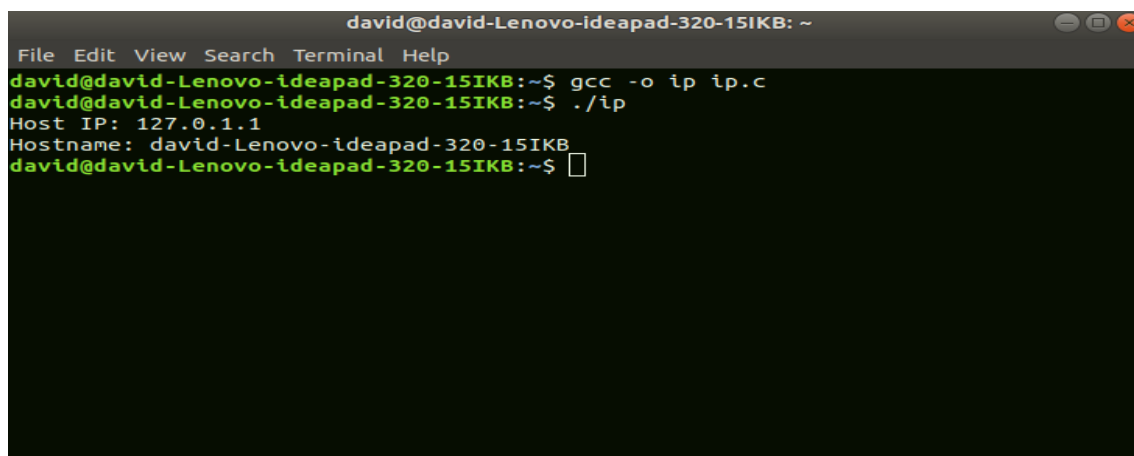
===157.240.25.35 ping statistics===

3 packets sent, 3 packets received, 0.000000 percent packet loss. Total time: 28
91.430420 ms.

david@david-Lenovo-ideapad-320-15IKB:~$
```

**Problem Statement 4:** Write a C program to find the host name and the IP address of your computer

Source Code filename : <ip.c>

A terminal window titled 'david@david-Lenovo-ideapad-320-15IKB: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the execution of a custom IP program. The user enters 'gcc -o ip ip.c' and then './ip'. The program outputs: 'Host IP: 127.0.1.1' and 'Hostname: david-Lenovo-ideapad-320-15IKB'. The prompt 'david@david-Lenovo-ideapad-320-15IKB:~\$' is shown with a cursor.

```
david@david-Lenovo-ideapad-320-15IKB: ~
File Edit View Search Terminal Help

david@david-Lenovo-ideapad-320-15IKB:~$ gcc -o ip ip.c
david@david-Lenovo-ideapad-320-15IKB:~$ ./ip
Host IP: 127.0.1.1
Hostname: david-Lenovo-ideapad-320-15IKB
david@david-Lenovo-ideapad-320-15IKB:~$
```