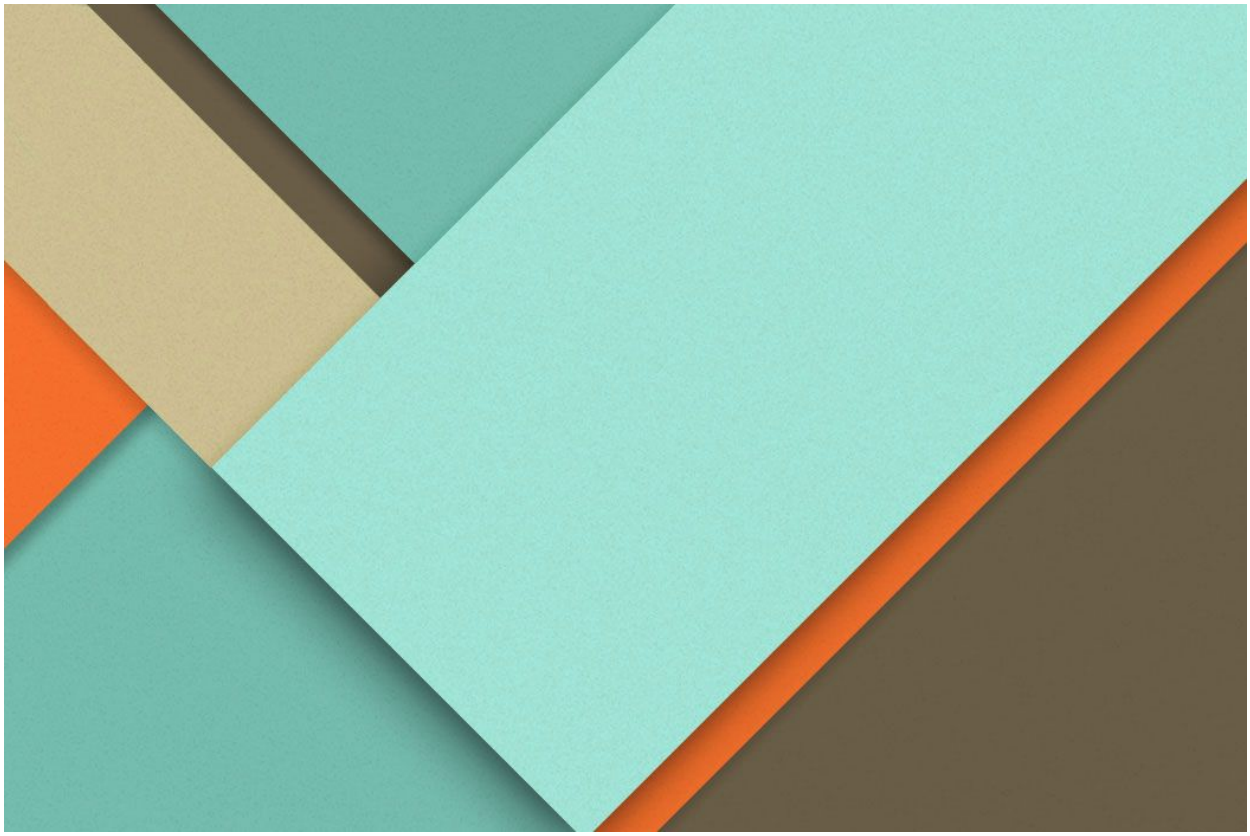

Computer Network Laboratory

Assignment 1

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3rd Year B.Tech CSE
CSN-361

Four problems were given for this assignment. They are,

Question 1 :

Fork two children, and four grandchildren, and print their process ids' in the console

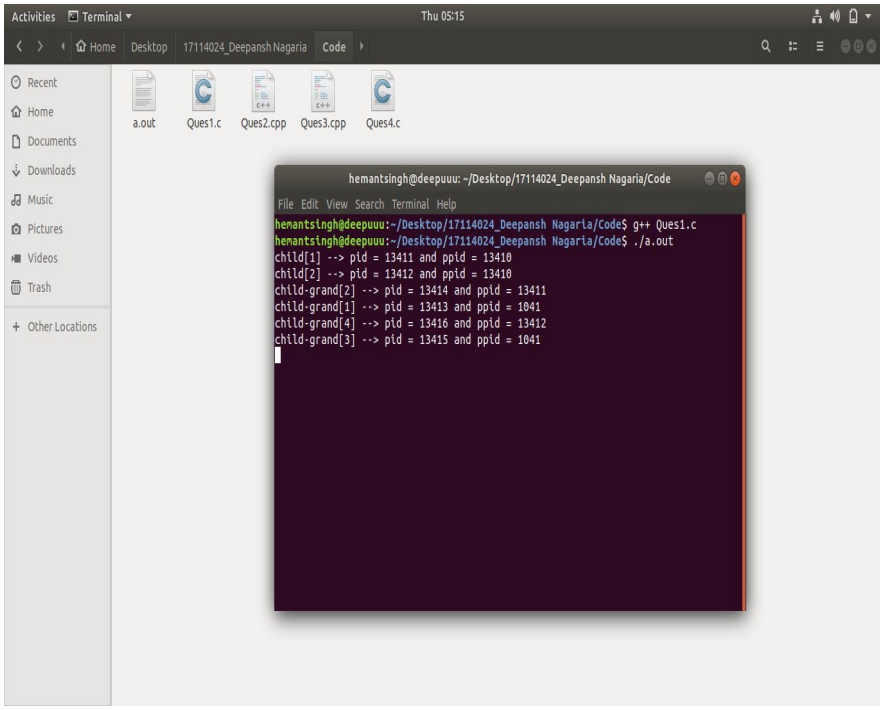
Algorithms used :

1. Busy waiting.

Data structures used :

1. Array: To store the process ids'.
2. Shared memory: So that all processes can copy the process ids to one location in the memory.
3. Pid_t: C struct to store the process id.

Screenshot :



Question 2 :

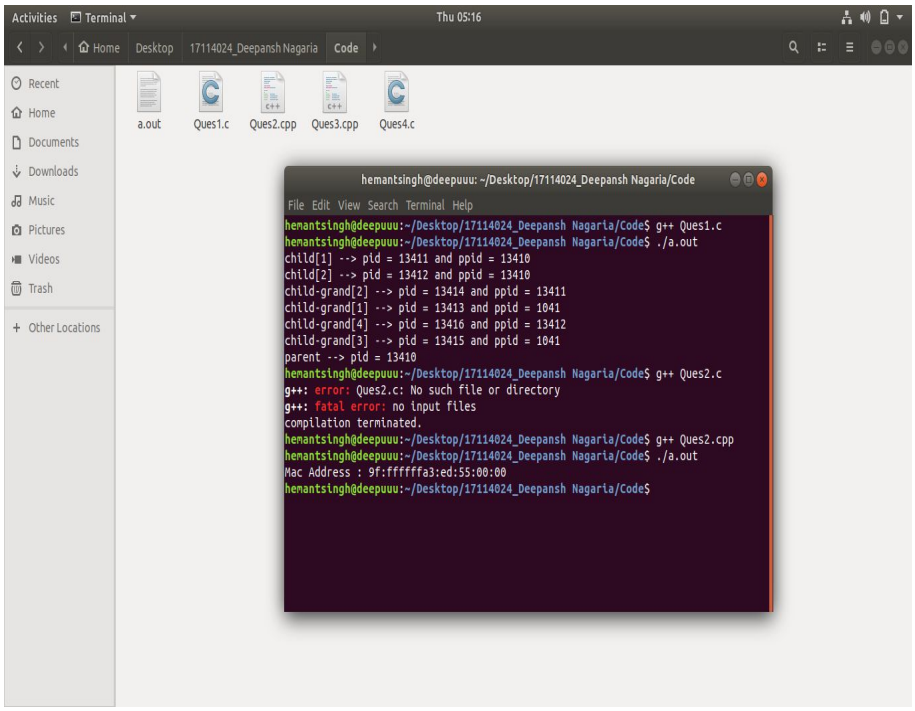
Print the Media Control Access address of your computer.

Algorithms used :

1. ioctl: Input-Output Control Command. To make device-specific system calls.

2. socket: To create a socket for getting the address.

Screenshot :



Question 3 :

Write a ping program in C.

Algorithms used :

1. gethostbyname: to get the IP address of the host.

2. inet_addr: for proper conversion of the IP address returned.

3. socket: to create a socket of AF_INET address family.

4. getpid : system call of the process id.

5. in_cksum: code to calculate the checksum.

6. FD_ZERO: clear an fdset.

7. FD_SET: add a socket descriptor to the fdset.

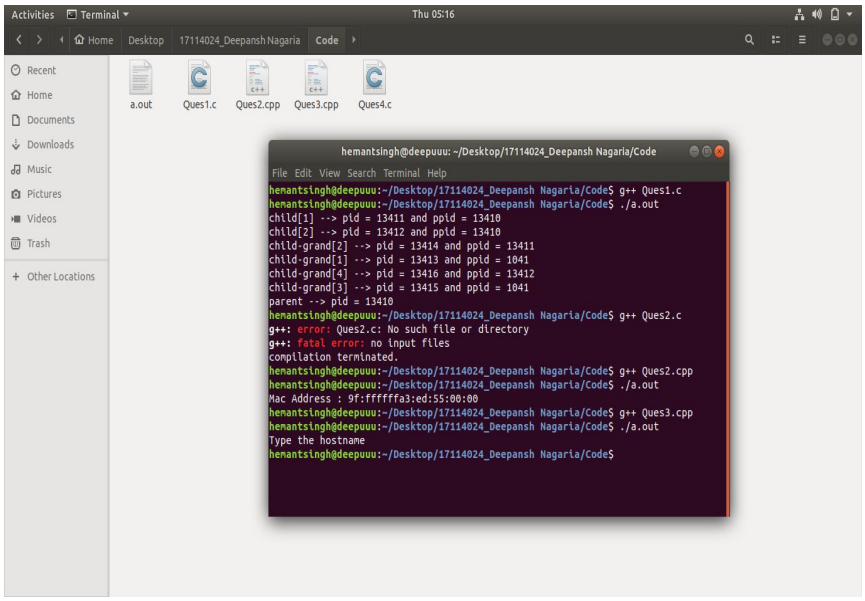
8. select: select return values from different sockets without multithreading.

9. sendto: To send the data to the opened socket to the specified IP address.

10. recvfrom: To receive the data from the socket.

11. gettimeofday: To calculate the ping time.

Screenshot :



Question 4 :

Print the IP address when a hostname is given.

Algorithms used :

1. gethostbyname: returns details about a host if we give a hostname.

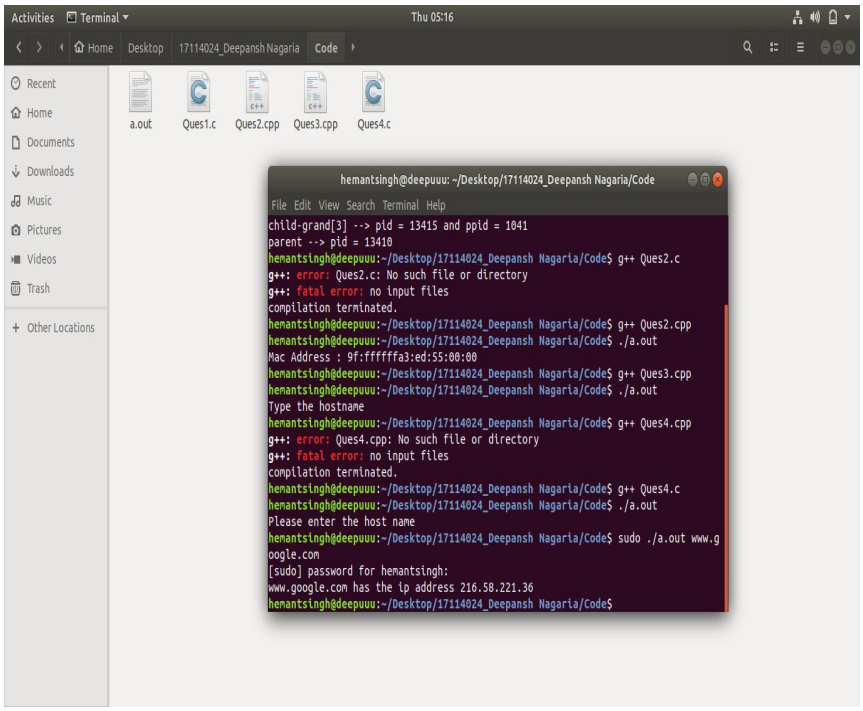
2. inet_ntoa: returns the dots-and-numbers string format of the IP address.

Data Structures used :

1. hostent: To store the return value of gethostbyname().

2. in_addr: To store the internet address.

Screenshot :


Activities
Terminal
Thu 05:16
Home
Desktop
17114024_Deepansh Nagaria
Code
Recent
Home
Documents
Downloads
Music
Pictures
Videos
Trash
Other Locations
a.out
Ques1.c
Ques2.cpp
Ques3.cpp
Ques4.c
hemantsingh@deepuuu: ~/Desktop/17114024_Deepansh Nagaria/Code
File Edit View Search Terminal Help
child-grand[3] --> pid = 13415 and ppid = 1041
parent --> pid = 13410
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ g++ Ques2.c
g++: error: Ques2.c: No such file or directory
g++: fatal error: no input files
compilation terminated.
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ g++ Ques2.cpp
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ ./a.out
Mac Address : 9f:ffffffa3:ed:55:00:00
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ g++ Ques3.cpp
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ ./a.out
Type the hostname
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ g++ Ques4.cpp
g++: error: Ques4.cpp: No such file or directory
g++: fatal error: no input files
compilation terminated.
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ g++ Ques4.c
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ ./a.out
Please enter the host name
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$ sudo ./a.out www.google.com
[sudo] password for hemantsingh:
www.google.com has the ip address 216.58.221.36
hemantsingh@deepuuu:~/Desktop/17114024_Deepansh Nagaria/Code$