example 1

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example1_fork example1_fork.c
root@goorm:/workspace/Network_programming/assignment4# ./example1_fork
parent proc: [9 23]
child proc: [13 27]
```

example 2

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example2_zombie example2_zombie.c
root@goorm:/workspace/Network_programming/assignment4# ./example2_zombie
Child process ID: 441
hi, I am a child process
END child procss
END parent process
```

example 3

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example3_wait example3_wait.c
root@goorm:/workspace/Network_programming/assignment4# ./example3_wait
Child PID: 562
Child PID: 563
child send one: 3
Child send two: 7
```

example 4

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example4_waitpid example4_waitpid.c
root@goorm:/workspace/Network_programming/assignment4# ./example4_waitpid
sleep 3sec
sleep 3sec
sleep 3sec
sleep 3sec
sleep 3sec
Child send 24
```

example 5

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example5_signal example5_signal.c
root@goorm:/workspace/Network_programming/assignment4# ./example5_signal
wait..
Time out!
wait..
Time out!
wait..
Time out!
root@goorm:/workspace/Network_programming/assignment4# ./example5_signal
wait..
^CCTRL+C pressed
wait..
Time out!
wait..
Time out!
```

example 6

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example6_sigaction example6_sigaction.c
root@goorm:/workspace/Network_programming/assignment4# ./example6_sigaction
wait..
Time out!
wait..
Time out!
wait..
Time out!
```

example 7

```
root@goorm:/workspace/Network_programming/assignment4# cc -o example7_remove_zombie example7_remove_zombie.c
root@goorm:/workspace/Network_programming/assignment4# ./example7_remove_zombie
Child process id: 1195
Hi, I am a child process
Child process id: 1196
wait...
Hi, I am a child process
wait...
Remove proc id: 1195
Child send: 12
wait...
wait...
wait...
```

example 8

```
root@goorm:/workspace/Network_programming/assignment4# ./example8_echo_mpserv 9111
new client connected...
client disconnected...
removed proc id: 3581
```

```
root@goorm:/workspace/Network_programming/assignment4# ./example8_echo_mpclient 127.0.0.1 9111
Hi, I am first client
Message from server: Hi, I am first client
Oh my friend go away~
Message from server: Oh my friend go away~
Good bye~
Message from server: Good bye~
q
```

problem 1

1.1) 1 1 1 1 1

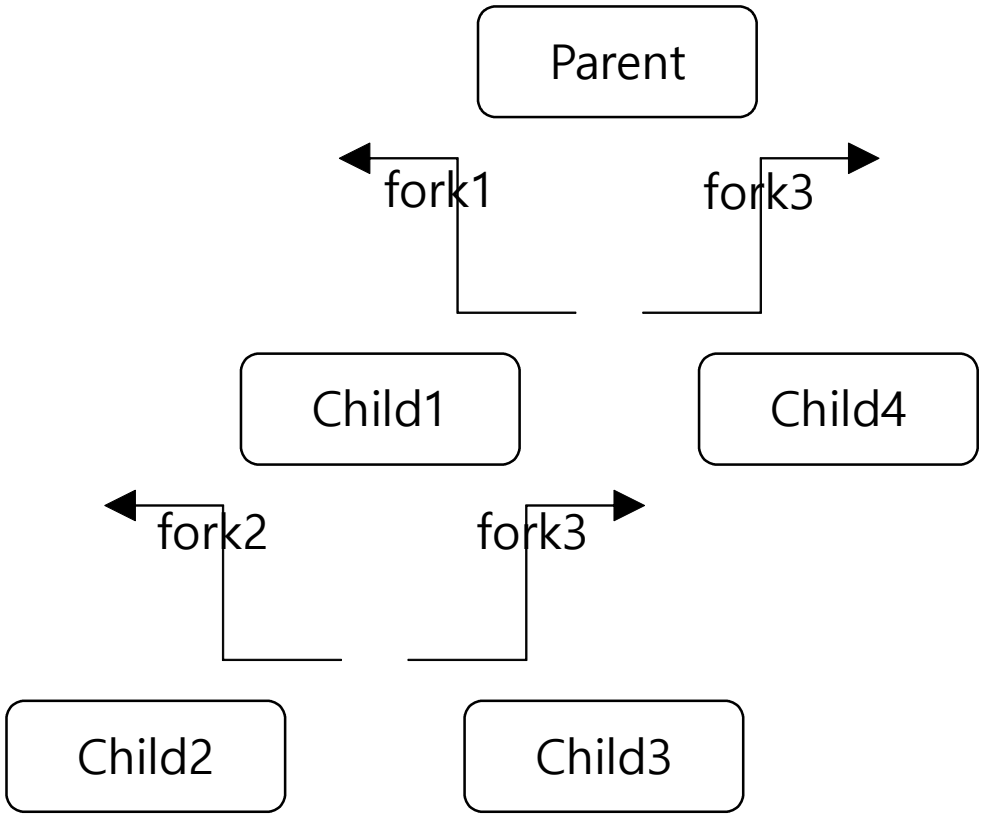
1.2) if 문의 앞의 fork를 fork1, if 문 뒤의 fork를 fork2, if문 내의 fork를 fork3으로 가정하자. 먼저 Parent에서 fork1을 수행하면 child1의 pid(>0)을 return 받으므로 if문을 만족하여 fork2를 수행하지 않고, if문 내의 fork3을 수행해 child4를 생성한다. 그 다음, child1는 fork1에서 생성되었으므로, fork2를 먼저 수행하는데, 이 때 생성된 child2의 pid가 0보다 크므로 fork3까지 수행하여 child3을 생성하게 된다. Child2는 fork2에서 생성되었고, pid가 0이므로 fork3을 수행하지 않으므로, 따라서 parent와 child 1~4가 각각 한 번씩 1을 print하기 때문에 1을 5번 출력하게 된다.

problem 2

```
root@goorm:/workspace/Network_programming/assignment4# ./problem2_server 1234
new client connected...
new client connected...
```

```
root@goorm:/workspace/Network_programming/assignment4# ./problem2_client 127.0.0.1 1234
www.baidu.com
119.63.197.151
119.63.197.139

www.naver.com
223.130.195.200
223.130.195.95
```


Parent
fork1
fork3
Child1
Child4
fork2
fork3
Child2
Child3