

(1) 打开 Linux (我默认是 Ubuntu) 的终端, 进入 build 目录, 依次执行 cmake 和 make 指令 (GitHub 文件夹已经执行 cmake 和 make, 如要重新生成, 请先删除 build 和 bin 内文件)

```
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/build$ cmake ..
-- The C compiler identification is GNU 4.8.5
-- The CXX compiler identification is GNU 4.8.5
-- Check for working C compiler: /usr/bin/cc
-- Check for working C compiler: /usr/bin/cc -- works
-- Detecting C compiler ABI info
-- Detecting C compiler ABI info - done
-- Detecting C compile features
-- Detecting C compile features - done
-- Check for working CXX compiler: /usr/bin/c++
-- Check for working CXX compiler: /usr/bin/c++ -- works
-- Detecting CXX compiler ABI info
-- Detecting CXX compiler ABI info - done
-- Detecting CXX compile features
-- Detecting CXX compile features - done
-- Configuring done
-- Generating done
-- Build files have been written to: /home/fangchen/instant_messaging_utility/build
```

```
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/build$ make
Scanning dependencies of target chatroom_client
[ 16%] Building CXX object CMakeFiles/chatroom_client.dir/src/Client.cpp.o
/home/fangchen/instant_messaging_utility/src/Client.cpp: In member function 'void Client::Start()':
/home/fangchen/instant_messaging_utility/src/Client.cpp:108:44: warning: ignoring return value of 'char* fgets(char*, int, FILE*)', declared with attribute warn_unused_result [-Wunused-result]
        fgets(message, BUF_SIZE, stdin);
        ^
[ 33%] Building CXX object CMakeFiles/chatroom_client.dir/src/ClientMain.cpp.o
[ 50%] Linking CXX executable ../bin/chatroom_client
[ 50%] Built target chatroom_client
Scanning dependencies of target chatroom_server
[ 66%] Building CXX object CMakeFiles/chatroom_server.dir/src/Server.cpp.o
[ 83%] Building CXX object CMakeFiles/chatroom_server.dir/src/ServerMain.cpp.o
[100%] Linking CXX executable ../bin/chatroom_server
[100%] Built target chatroom_server
```

(2) 然后进入 bin 目录, 首先运行 chatroom_server

```
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_server
Init Server...
Start to listen: 127.0.0.1
fd added to epoll!
```

(3) 之后打开新的终端运行 chatroom_client

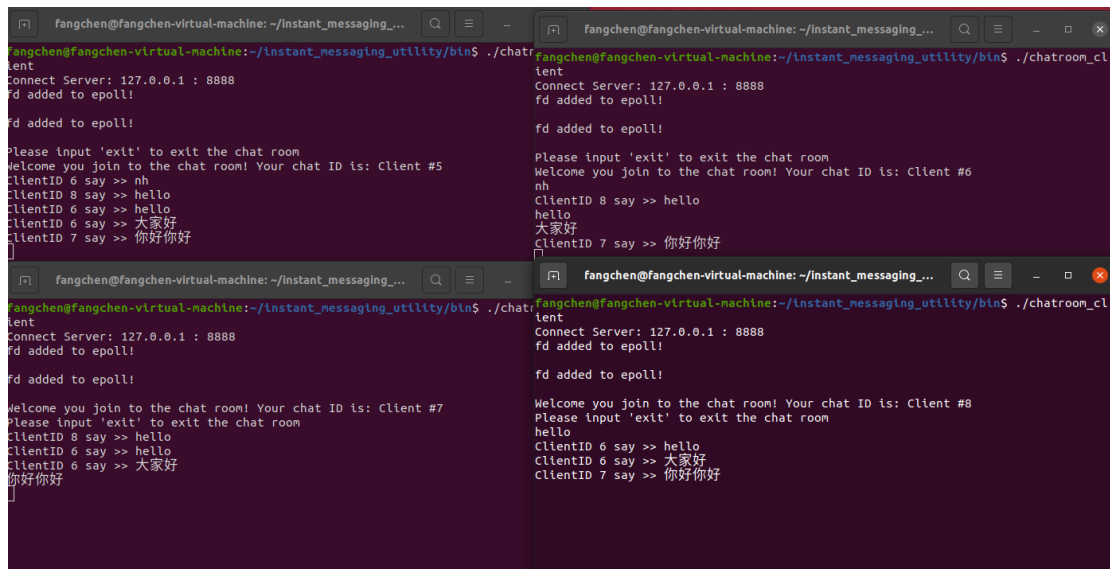
```
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_client
Connect Server: 127.0.0.1 : 8888
fd added to epoll!

fd added to epoll!

Please input 'exit' to exit the chat room
Welcome you join to the chat room! Your chat ID is: Client #5
```

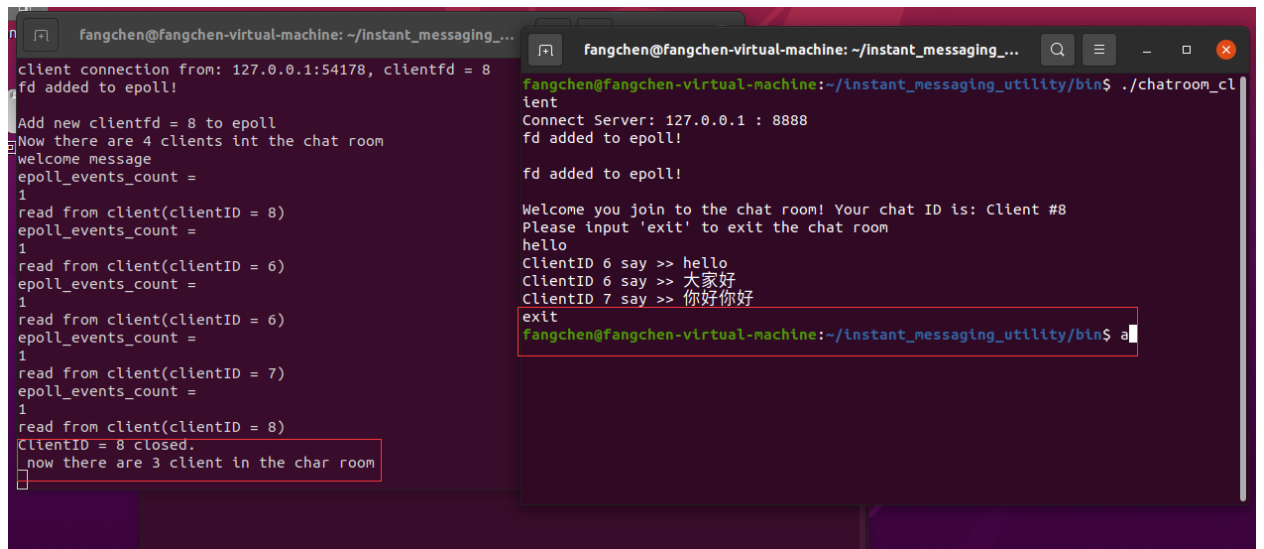
(4) 可以看到服务端和客户端分别有一些日志输出, 客户端也会收到欢迎信息。为了加入更多的客户, 可以打开新的终端, 启动新的客户, 每个客户的 clientfd 是不同的, 发出去的消息在其他客户界面都可以看到来源。

(5) 在不同的客户端界面发送信息，结果如下



```
fangchen@fangchen-virtual-machine: ~/instant_messaging_...  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_client  
Connect Server: 127.0.0.1 : 8888  
fd added to epoll!  
fd added to epoll!  
Please input 'exit' to exit the chat room  
Welcome you join to the chat room! Your chat ID is: Client #5  
ClientID 6 say >> nh  
ClientID 8 say >> hello  
ClientID 6 say >> hello  
ClientID 6 say >> 大家好  
ClientID 7 say >> 你好你好  
[  
]  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_client  
Connect Server: 127.0.0.1 : 8888  
fd added to epoll!  
fd added to epoll!  
Please input 'exit' to exit the chat room  
Welcome you join to the chat room! Your chat ID is: Client #6  
nh  
ClientID 8 say >> hello  
hello  
ClientID 6 say >> hello  
大家好  
ClientID 7 say >> 你好你好  
[  
]  
fangchen@fangchen-virtual-machine:~/instant_messaging_...  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_client  
Connect Server: 127.0.0.1 : 8888  
fd added to epoll!  
fd added to epoll!  
Welcome you join to the chat room! Your chat ID is: Client #7  
Please input 'exit' to exit the chat room  
ClientID 8 say >> hello  
ClientID 6 say >> hello  
ClientID 6 say >> 大家好  
你好你好  
[  
]  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_client  
Connect Server: 127.0.0.1 : 8888  
fd added to epoll!  
fd added to epoll!  
Welcome you join to the chat room! Your chat ID is: Client #8  
Please input 'exit' to exit the chat room  
hello  
ClientID 6 say >> hello  
ClientID 6 say >> 大家好  
ClientID 7 say >> 你好你好  
[  
]  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ a
```

(6) 输入 exit 推出聊天室



```
fangchen@fangchen-virtual-machine: ~/instant_messaging_...  
client connection from: 127.0.0.1:54178, clientfd = 8  
fd added to epoll!  
Add new clientfd = 8 to epoll  
Now there are 4 clients int the chat room  
welcome message  
epoll_events_count =  
1  
read from client(clientID = 8)  
epoll_events_count =  
1  
read from client(clientID = 6)  
epoll_events_count =  
1  
read from client(clientID = 6)  
epoll_events_count =  
1  
read from client(clientID = 7)  
epoll_events_count =  
1  
read from client(clientID = 8)  
ClientID = 8 closed.  
now there are 3 client in the char room  
[  
]  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ ./chatroom_client  
Connect Server: 127.0.0.1 : 8888  
fd added to epoll!  
fd added to epoll!  
Welcome you join to the chat room! Your chat ID is: Client #8  
Please input 'exit' to exit the chat room  
hello  
ClientID 6 say >> hello  
ClientID 6 say >> 大家好  
ClientID 7 say >> 你好你好  
exit  
fangchen@fangchen-virtual-machine:~/instant_messaging_utility/bin$ a
```