

1. Building

The project is created by eclipse and JavaFX, the source code can be build using eclipse, the source code is in \src folder, but it will be complex to build it just using "javac" command.

I have built two files, server.jar and client.jar. The server.jar should be started first, and then you can distribute and run the client.jar in different computers. The default IP setting for server is 127.0.0.1.

Due to the limitation of time, I only test the program in a single computer.

2. Design

Server:

Server keep a map to save all nicknames and the corresponding IP, the server will also start a keep-alive thread to check whether all the clients are still online or not.

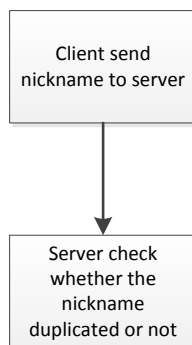
Client:

Client will need to check the IP of nicknames in the server, and communicate with each other in a P2P way.

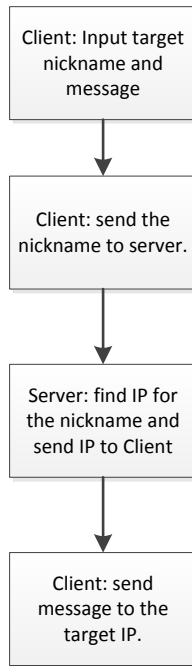
The client will start two threads except for the main thread. One of them is used for listening message from other clients; the other one is used for responding the keep-alive request of server.

The GUI is implemented using JavaFX. And server do not have a GUI interface.

Sign in process:



Send one message process:



3. Code Implementation

The following picture is the implementation of client. server is simple and only host the nicknames, so the code structure is easy to read.

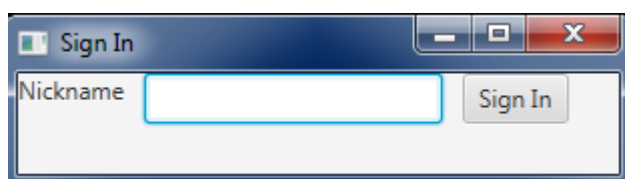
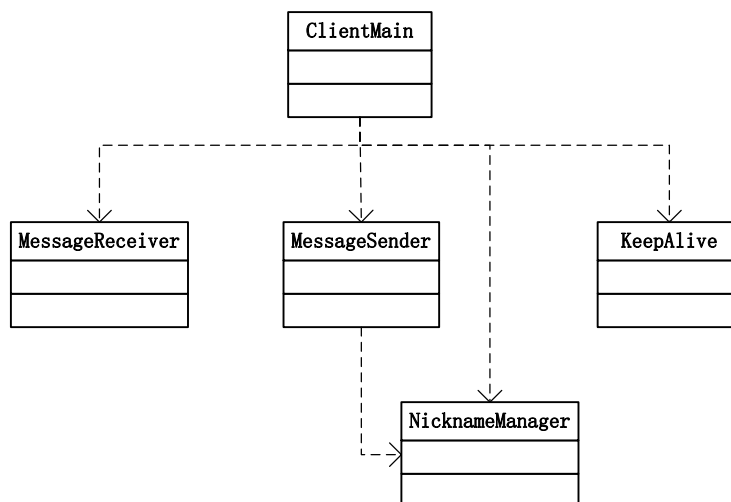
ClientMain: The GUI class for client.

MessageSender: Singleton class, encapsulate functions for sending message and broadcasting message.

MessageReceiver: A thread for listening message from other clients.

KeepAlive: Respond the check-alive message of server.

NickNameManager: Used for the nickname related operation.



Send Message

Receiver:

Message:

yexl

xianglin