Compueter Network

Program Assignment #3

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1. The Goals of this Program Assignment

(1) Learn to use JAVA socket program language.
(2) Make computer network theory into practice.

2. The Content of this Program Assignment

1. (Blankenship 6) Using either Java, C++, or C and either a Unix or Windows platform, write a program to send an email. This is an exercise in using Sockets. You may not use a developed email interface.

2. (Blankenship 7) Using either Java, C++, or C and either a Unix or Windows platform, write a program to fetch a DNS record. This is an exercise in using Sockets. You may not use a developed an existing DNS interface.

3. (Blankenship 8) Communicate with another application using the Socket interface. Build a "chat" program.

(*Note: Do 1, 2 extra credit)

3. The Environment of this Program Assignment

(1) Windows XP
(2) MyEclipse 6.0

4. The result of this Program Assignment

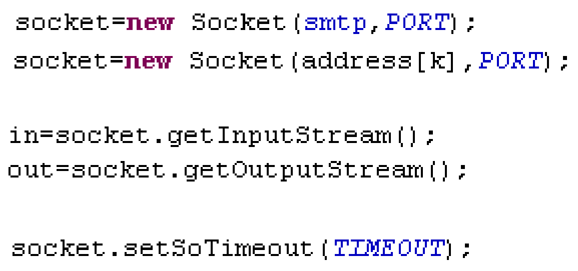
I choose the 1th. and 3th. problems and Complete Successfully.

5. Appendix

Here are the screen shots of my programs:

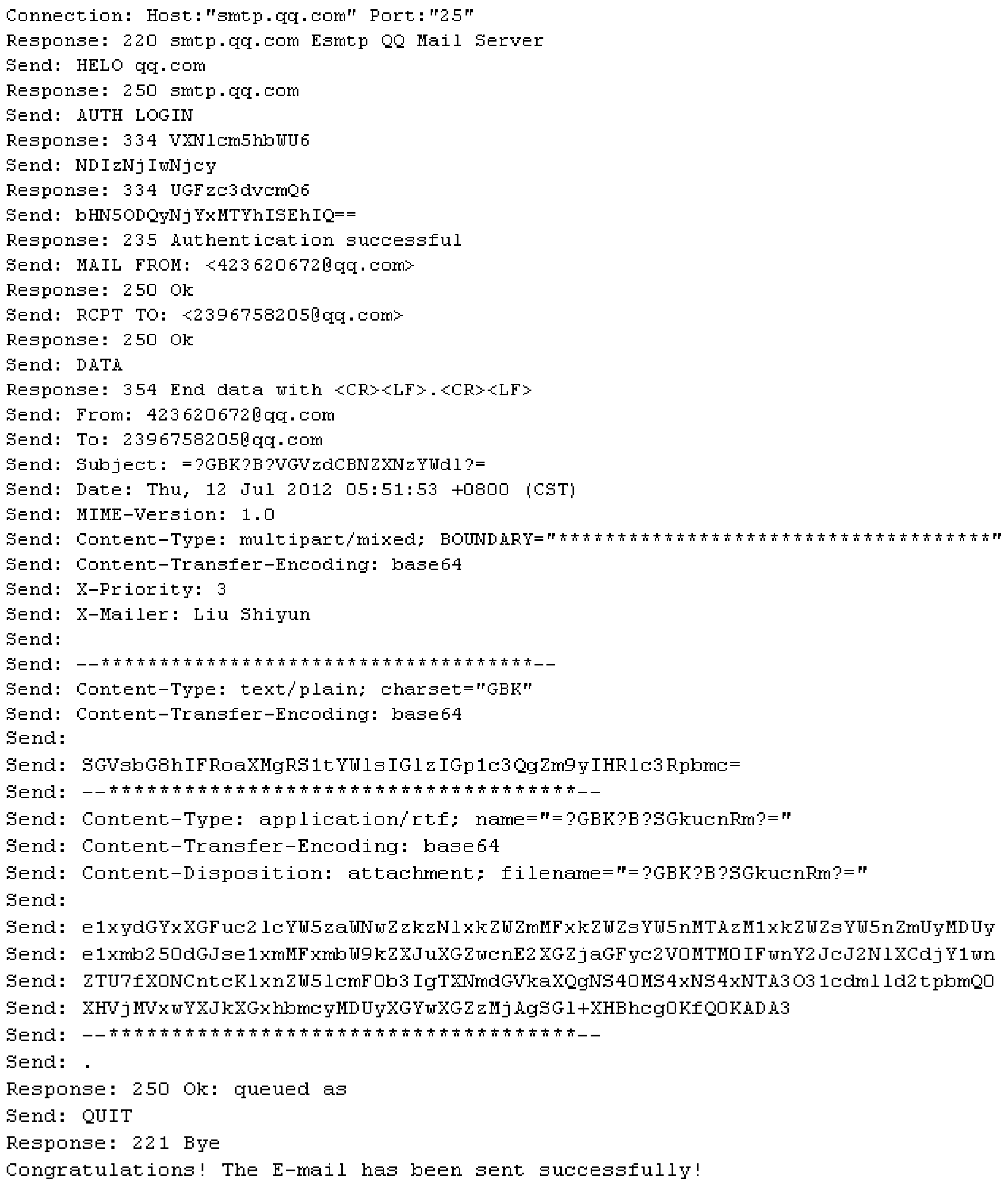
1. E-mail system.
   In this system, I choose JAVA + Socket as the program language and look at some examples as a reference.

   For example,



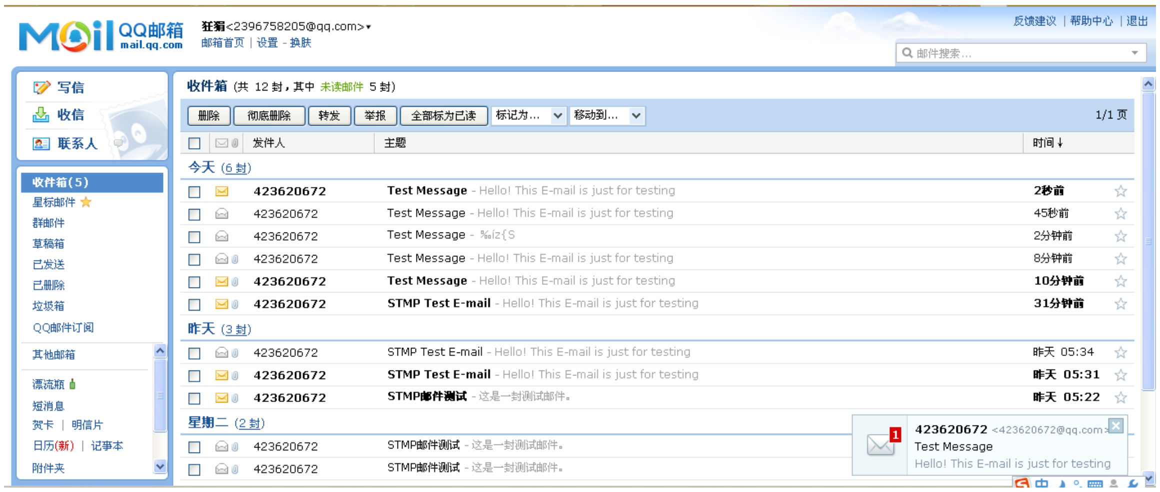
```
socket=new Socket(smtp,PORT);
socket=new Socket(address[k],PORT);

in=socket.getInputStream();
out=socket.getOutputStream();

socket.setSoTimeout(TIMEOUT);
```

The result is :



```
Connection: Host:"smtp.qq.com" Port:"25"
Response: 220 smtp.qq.com Esmtp QQ Mail Server
Send: HELO qq.com
Response: 250 smtp.qq.com
Send: AUTH LOGIN
Response: 334 VXNlcm5hbWU6
Send: NDIzNjIwNjcy
Response: 334 UGFzc3dvcmQ6
Send: bHN5ODQyNjYxMTYhISEhIQ==
Response: 235 Authentication successful
Send: MAIL FROM: <423620672@qq.com>
Response: 250 Ok
Send: RCPT TO: <2396758205@qq.com>
Response: 250 Ok
Send: DATA
Response: 354 End data with <CR><LF>.<CR><LF>
Send: From: 423620672@qq.com
Send: To: 2396758205@qq.com
Send: Subject: =?GBK?B?VGVzdCBNZXNzYWdl?=
Send: Date: Thu, 12 Jul 2012 05:51:53 +0800 (CST)
Send: MIME-Version: 1.0
Send: Content-Type: multipart/mixed; BOUNDARY="**************************************"
Send: Content-Transfer-Encoding: base64
Send: X-Priority: 3
Send: X-Mailer: Liu Shiyun
Send:
Send: --**************************************--
Send: Content-Type: text/plain; charset="GBK"
Send: Content-Transfer-Encoding: base64
Send:
Send: SGVsbG8hIFRoaXMgRS1tYWlsIGlzIGp1c3QgZm9yIHRlc3Rpbmc=
Send: --**************************************--
Send: Content-Type: application/rtf; name="=?GBK?B?SGkucnRm?="
Send: Content-Transfer-Encoding: base64
Send: Content-Disposition: attachment; filename="=?GBK?B?SGkucnRm?="
Send:
Send: e1xydGYxXGFuc2lcYW5zaWNwZzkzNlxkZWZmMFxkZWZsYW5nMTAzM1xkZWZsYW5nZmUyMDUy
Send: e1xmb250dGJse1xmMFxmbW9kZXJuXGZwcnE2XGZjaGFyc2V0MTMOIFwnY2JcJ2NlXCdjY1wn
Send: ZTU7fXONCntcKlxnZW5lcmF0b3IgTXNmdGVkaXQgNS40MS4xNS4xNTA3O31cdmlld2tpbmQO
Send: XHVjMVxwYXJkXGxhbmcyMDUyXGYwXGZzMjAgSGl+XHBhcgOKfQOKADA3
Send: --**************************************--
Send: .
Response: 250 Ok: queued as
Send: QUIT
Response: 221 Bye
Congratulations! The E-mail has been sent successfully!
```

The email has been sent successfully and this program is reference to many examples.

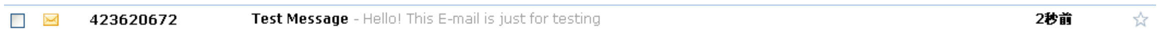


狂狷<2396758205@qq.com>
邮箱首页 | 设置 - 换肤

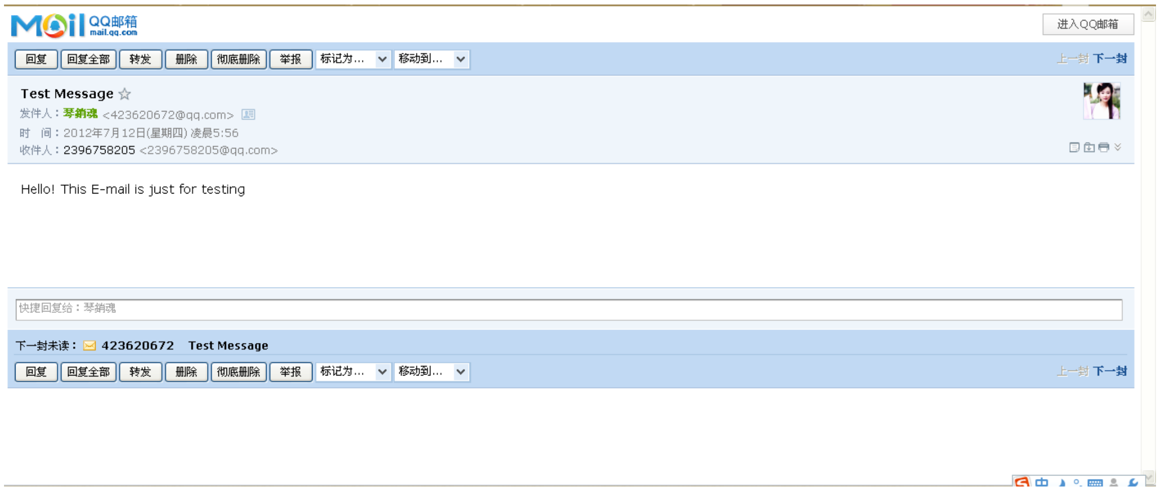
收件箱 (共 12 封，其中 未读邮件 5 封)

发件人	主题	时间
今天 (6 封)		
423620672	Test Message - Hello! This E-mail is just for testing	2秒前
423620672	Test Message - Hello! This E-mail is just for testing	45秒前
423620672	Test Message - %iz{S	2分钟前
423620672	Test Message - Hello! This E-mail is just for testing	8分钟前
423620672	Test Message - Hello! This E-mail is just for testing	10分钟前
423620672	STMP Test E-mail - Hello! This E-mail is just for testing	31分钟前
昨天 (3 封)		
423620672	STMP Test E-mail - Hello! This E-mail is just for testing	昨天 05:34
423620672	STMP Test E-mail - Hello! This E-mail is just for testing	昨天 05:31
423620672	STMP邮件测试 - 这是一封测试邮件。	昨天 05:22
星期二 (2 封)		
423620672	STMP邮件测试 - 这是一封测试邮件。	
423620672	STMP邮件测试 - 这是一封测试邮件。	

423620672 <423620672@qq.com>
Test Message
Hello! This E-mail is just for testing



423620672 Test Message - Hello! This E-mail is just for testing 2秒前



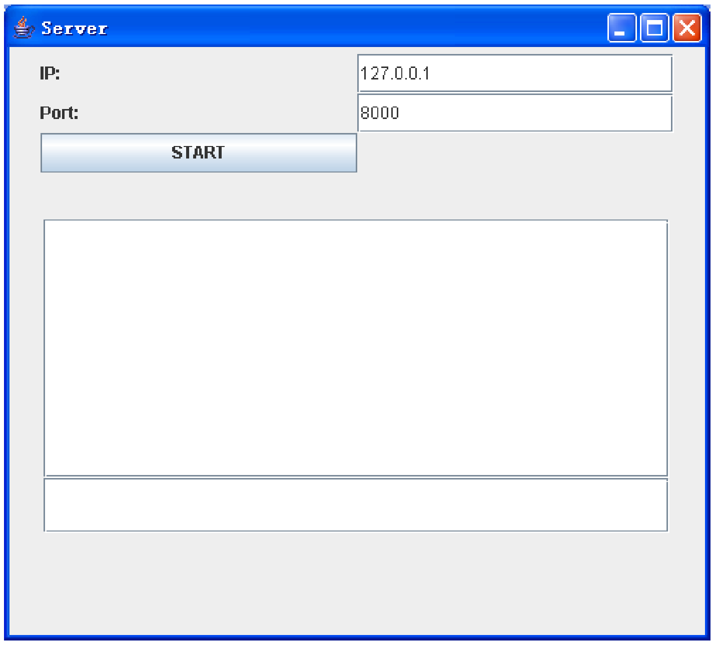
Test Message
发件人：琴納魂 <423620672@qq.com>
时 间：2012年7月12日(星期四) 凌晨5:56
收件人：2396758205 <2396758205@qq.com>

Hello! This E-mail is just for testing

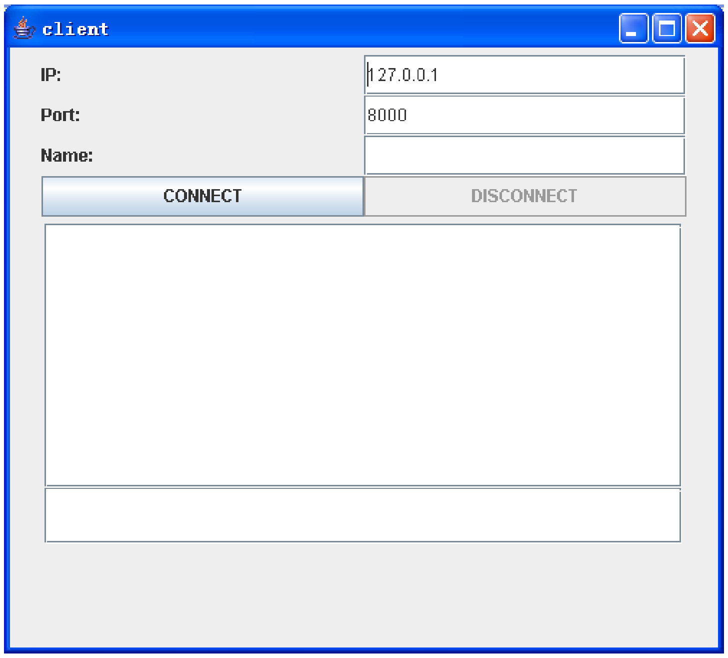
快捷回复给：琴納魂

下一封未读：423620672 Test Message

2. Chat Room
   In this project, I build two windows. One is Server and the other is Client.

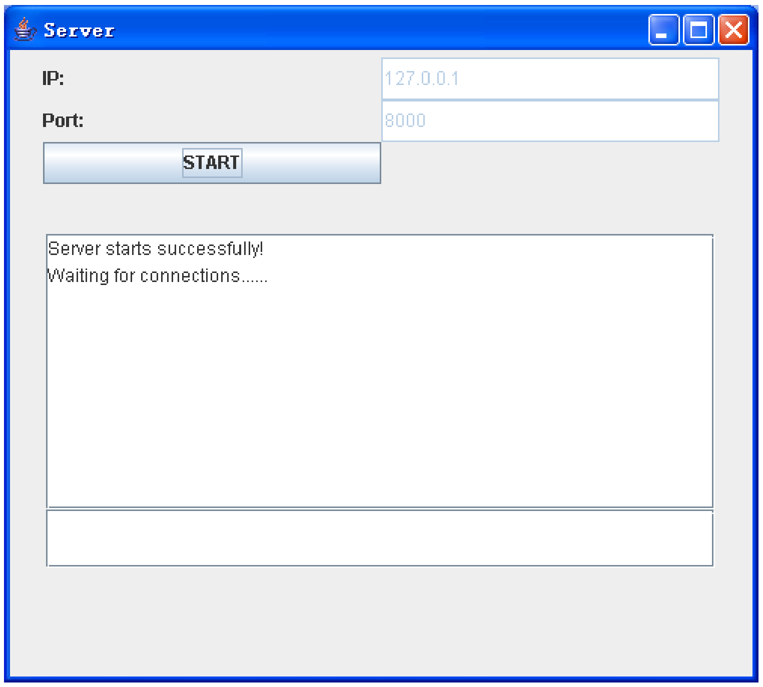


In Server window, there are IP textbox to set the IP address of the Server, Port textbox to set the port number and a START button to start a server.



In Client window, there are IP textbox to set the IP address of the Client (It needs to be the same as the that of Server), Port textbox to set the port number, Name textbox to set the user name of Client and CONNECT and DISCONNECT buttons.

(1) Start the Server



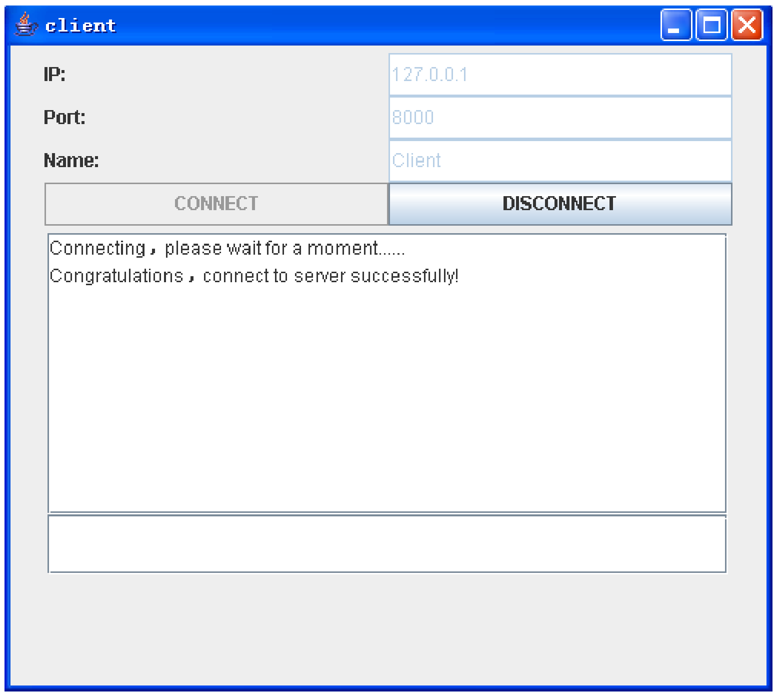
127.0.0.1

8000

```
Server starts successfully!
Waiting for connections......
```

First, we need to start the server to wait for connection.

(2) Client Connect to Server



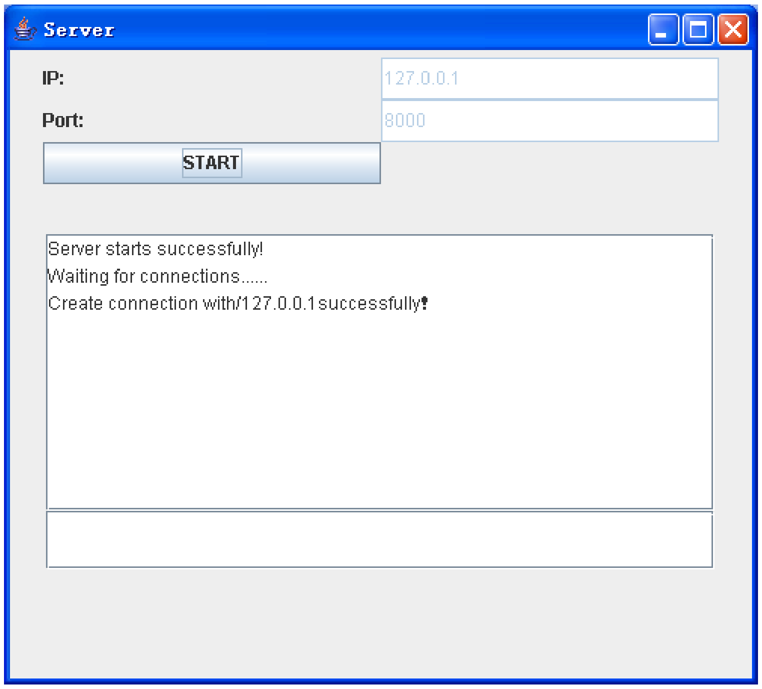
127.0.0.1

8000

Client

```
Connecting，please wait for a moment......
Congratulations，connect to server successfully!
```

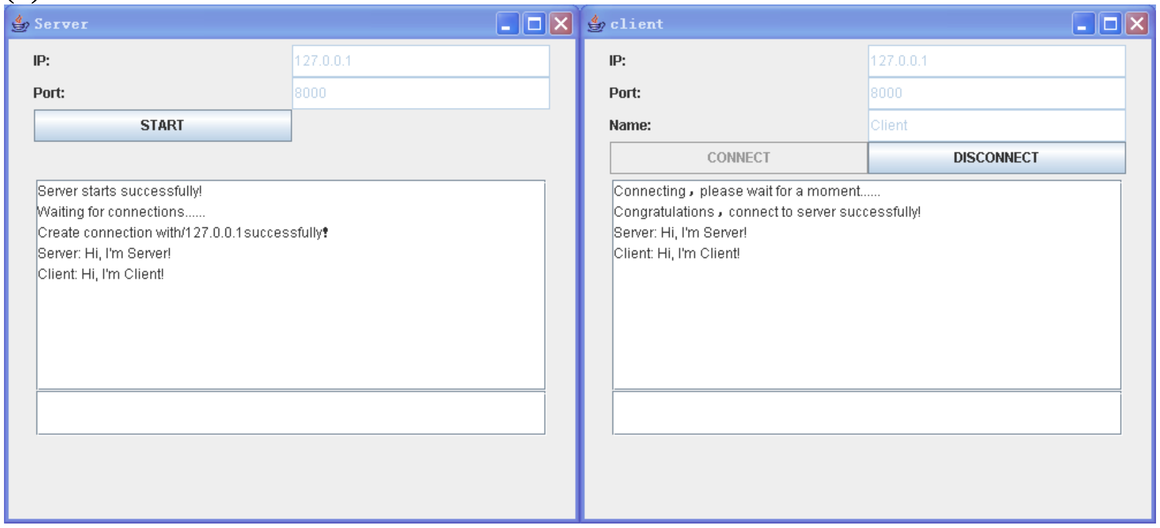
Then the Client connection to the Server after the Server start.



```
Server starts successfully!
Waiting for connections......
Create connection with/127.0.0.1successfully!
```

The Server window also displays the successful information.

(3) Server and Client chat with each other.

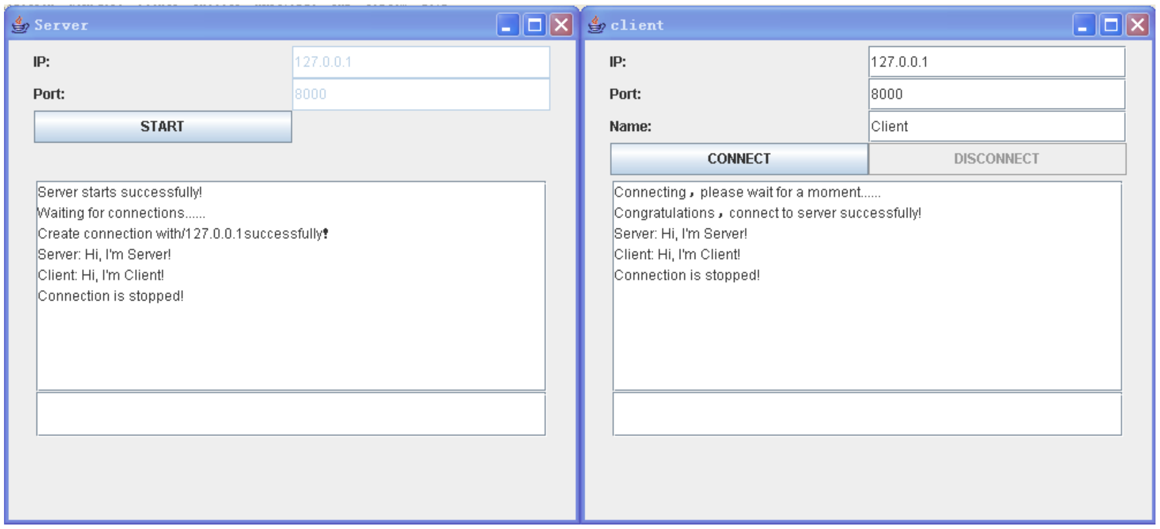


```
Server starts successfully!
Waiting for connections......
Create connection with/127.0.0.1successfully!
Server: Hi, I'm Server!
Client: Hi, I'm Client!
```

```
Connecting, please wait for a moment......
Congratulations, connect to server successfully!
Server: Hi, I'm Server!
Client: Hi, I'm Client!
```

Then the Server and Client can chat with each other.

(4) Realse the connection

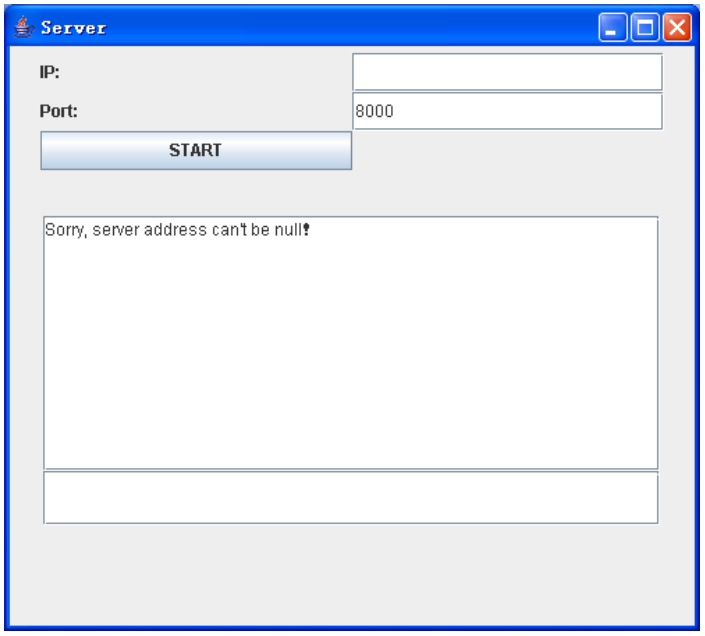


```
Server starts successfully!
Waiting for connections......
Create connection with/127.0.0.1successfully!
Server: Hi, I'm Server!
Client: Hi, I'm Client!
Connection is stopped!
```

```
Connecting， please wait for a moment......
Congratulations， connect to server successfully!
Server: Hi, I'm Server!
Client: Hi, I'm Client!
Connection is stopped!
```

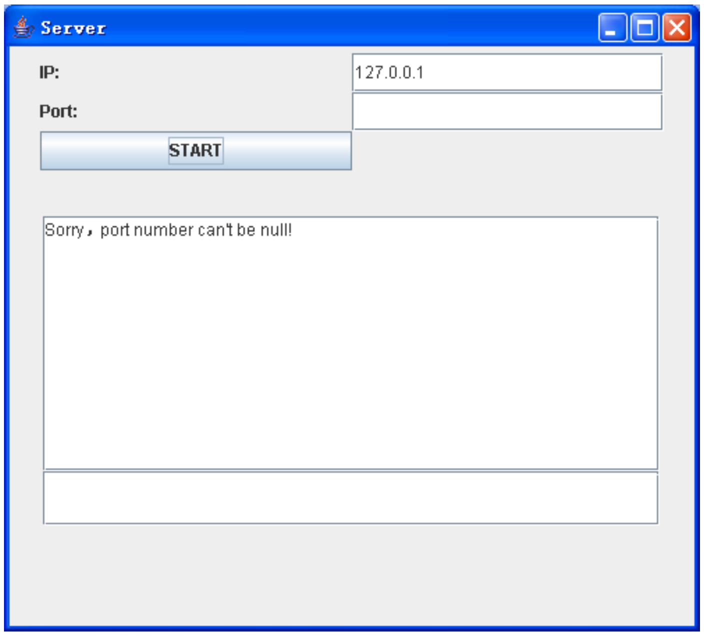
If the Client push the DISCONNECT button, the connection will be released.

There are also some exceptions.:
(1) IP address of Server is NULL



```
Sorry, server address can't be null!
```

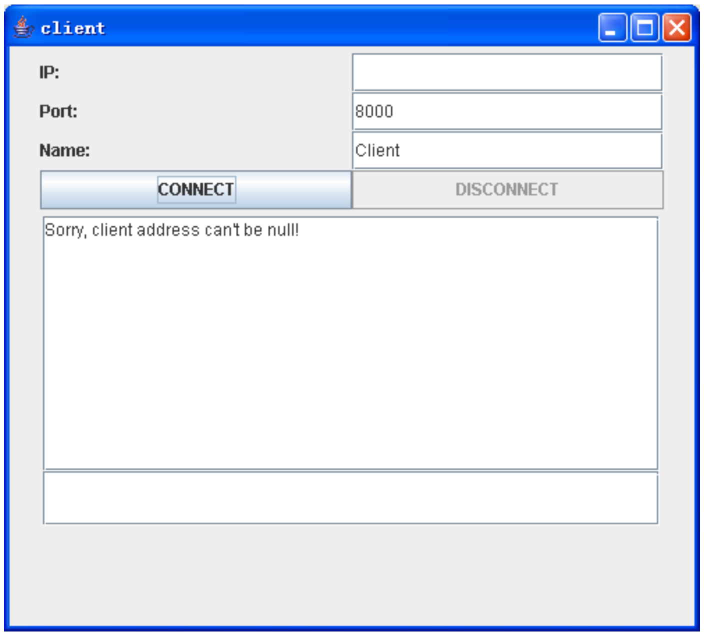
(2) Port Number of Server is NULL



IP: 127.0.0.1

```
Sorry, port number can't be null!
```

(3) IP address of Client is NULL

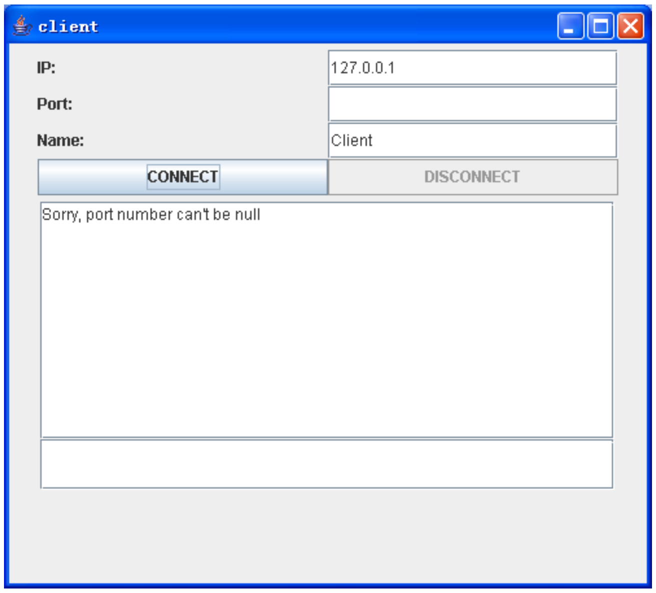


Port: 8000

Name: Client

```
Sorry, client address can't be null!
```

(4) Port number of Client is NULL

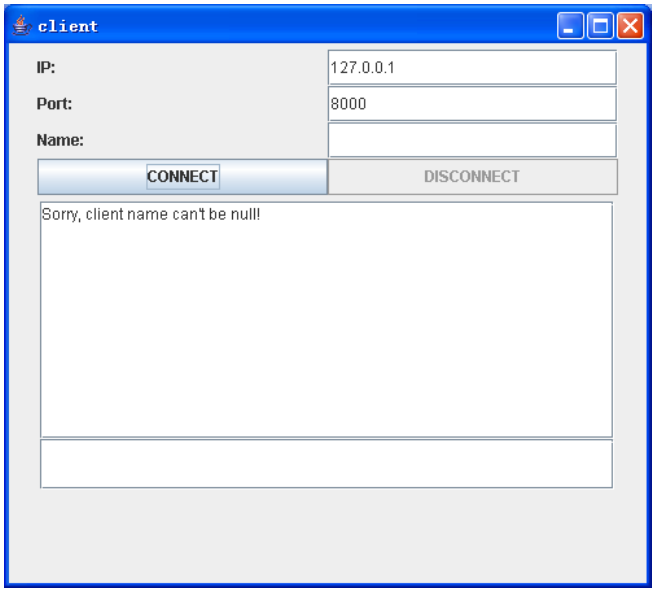


127.0.0.1

Client

Sorry, port number can't be null

(5) Uer name of Cient is NULL

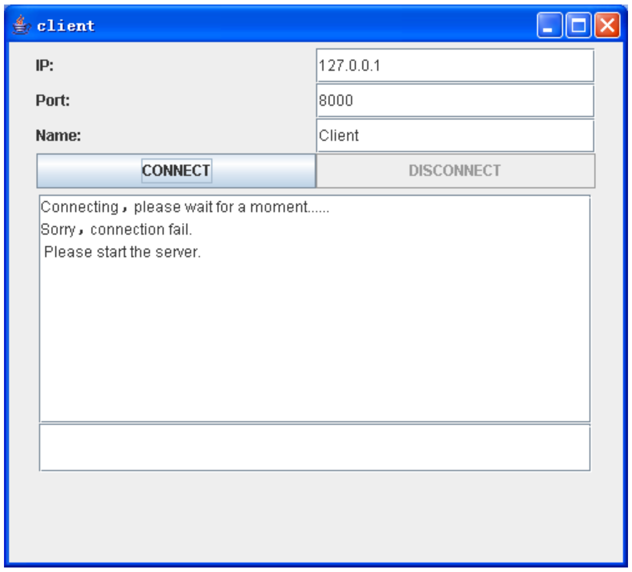


127.0.0.1

8000

Sorry, client name can't be null!

(6) Server hasn’t been started before connecting



IP: 127.0.0.1
Port: 8000
Name: Client

```
Connecting， please wait for a moment......
Sorry， connection fail.
 Please start the server.
```