

# Assign-04 : The “*Can We Talk*” System [TESTS]

## Who Is Doing the Testing?

**User-1** Name and Linux VM IP Address

Name: \_\_user1\_\_ DeyiZou\_\_\_\_\_

IP Address: \_\_\_\_ 127.0.0.1\_\_\_\_\_

**User-2** Name and Linux VM IP Address

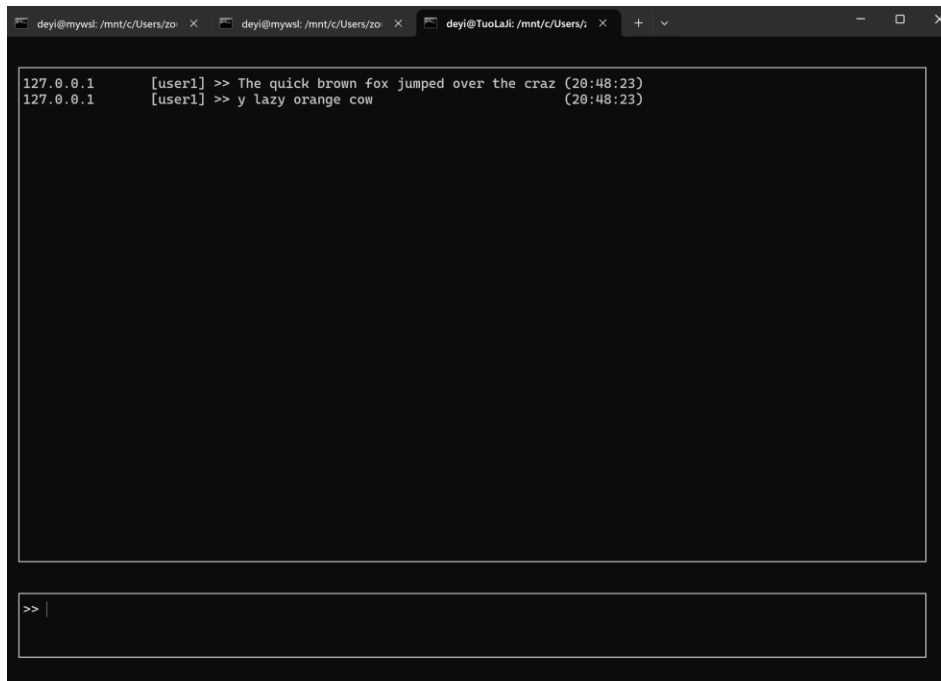
Name: \_\_user2\_\_ Zhizheng Dong\_\_\_\_\_

IP Address: \_\_\_\_ 172.19.208.1\_\_\_\_\_

## Functional Tests

Test ID	FT-01
Steps	<p>1. User-1 send a 57 character message as follows:</p> <p><b>The quick brown fox jumped over the crazy lazy orange cow</b></p> <p>2. Each user takes and records a screen capture of their client application after the message is sent and received</p>

User1:

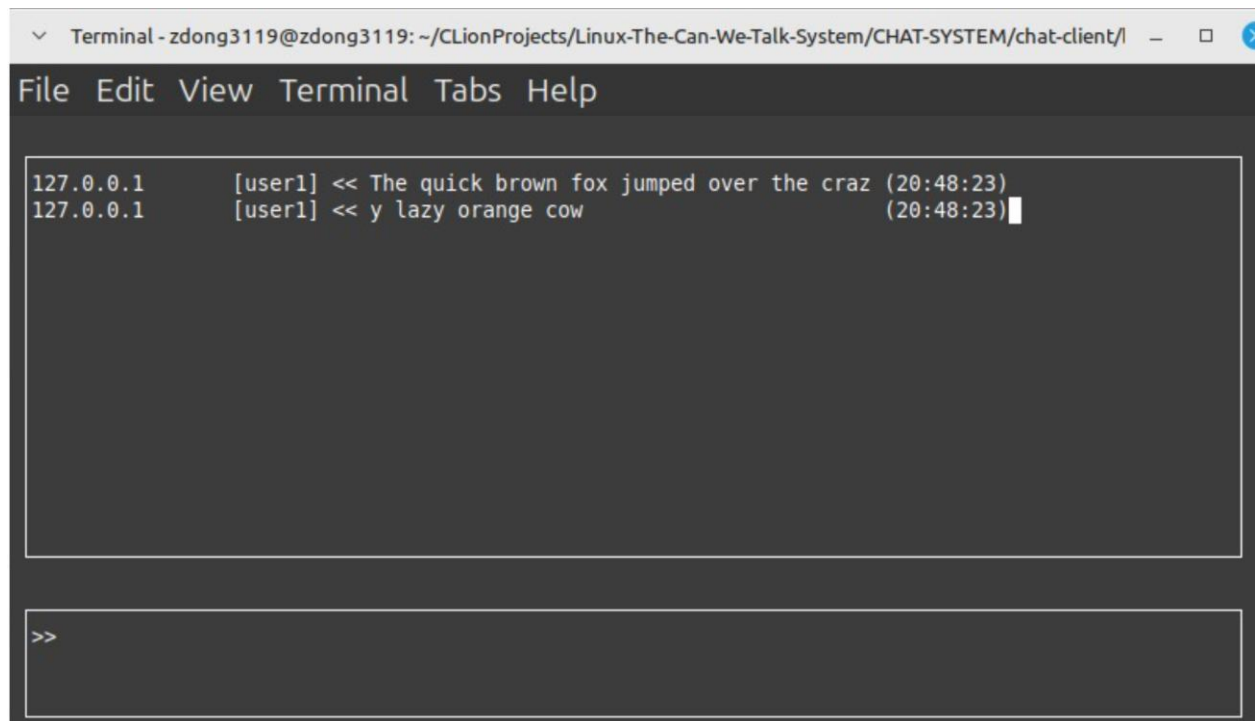


A terminal window with three tabs. The first two tabs are titled 'deyi@mywsl: /mnt/c/Users/zo' and the third is 'deyi@TuoLai: /mnt/c/Users/'. The terminal content shows two lines of chat messages from 127.0.0.1. The first line is '[user1] >> The quick brown fox jumped over the craz (20:48:23)' and the second line is '[user1] >> y lazy orange cow (20:48:23)'. Below the messages is a large empty text area and a prompt '>> |'.

```
127.0.0.1      [user1] >> The quick brown fox jumped over the craz (20:48:23)
127.0.0.1      [user1] >> y lazy orange cow (20:48:23)
```

>> |

User2:



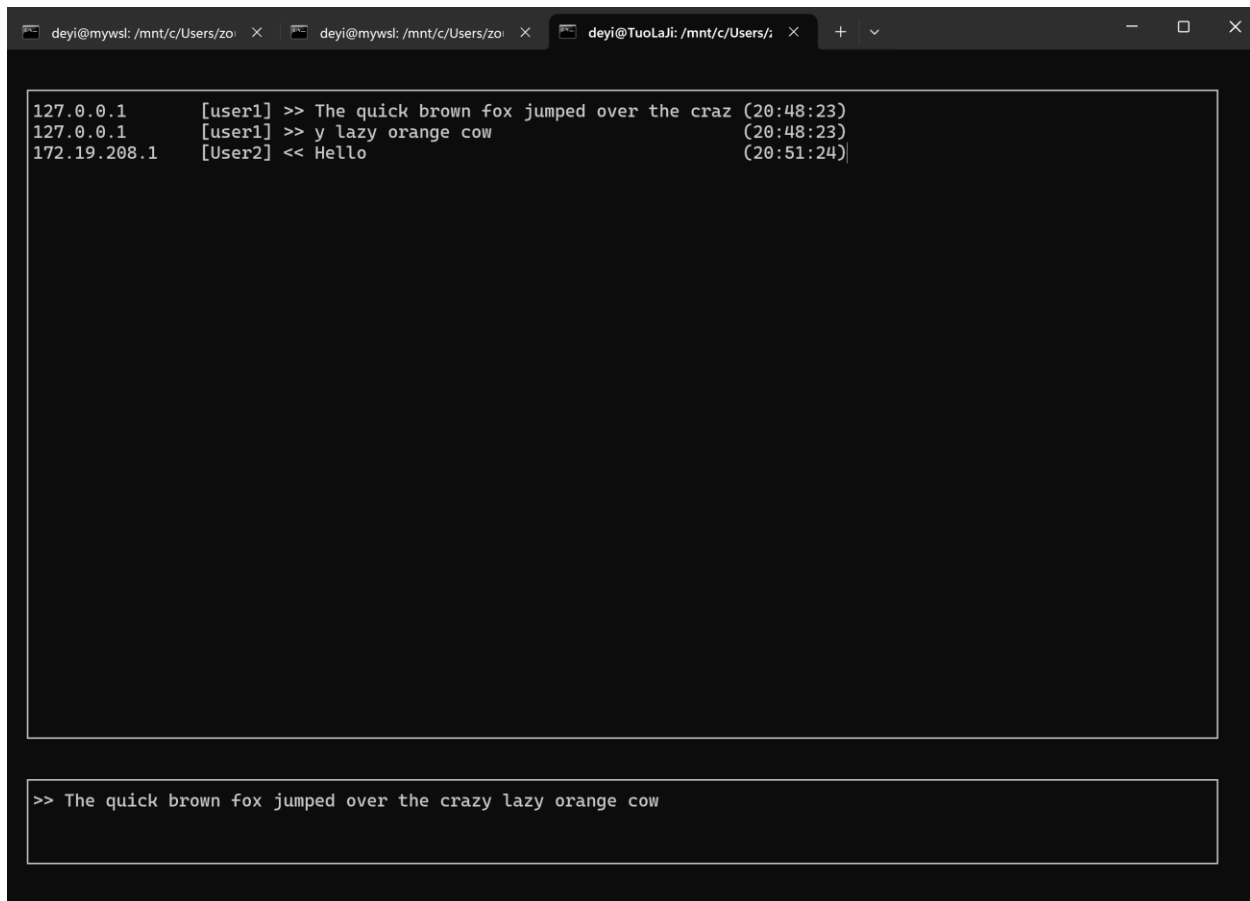
A terminal window titled 'Terminal - zdong3119@zdong3119: ~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/'. The terminal content shows two lines of chat messages from 127.0.0.1. The first line is '[user1] << The quick brown fox jumped over the craz (20:48:23)' and the second line is '[user1] << y lazy orange cow (20:48:23)'. Below the messages is a large empty text area and a prompt '>>'.

```
127.0.0.1      [user1] << The quick brown fox jumped over the craz (20:48:23)
127.0.0.1      [user1] << y lazy orange cow (20:48:23)
```

>>

Test ID	FT-02
Steps	<ol style="list-style-type: none"><li>1. This test can be completed immediately following FT-01</li><li>2. User-1 begins to enter a 57 character message as follows:  The quick brown fox jumped over the crazy lazy orange cow</li><li>3. While User-1 is entering the message (and before pressing send on the message), User-2 enters the message Hello and presses send.</li><li>4. User-1 takes and records a screen capture as soon as the Hello message arrives from User-2</li><li>5. Each user exits the client application and the chat-server application is to be terminated</li></ol>

User1:

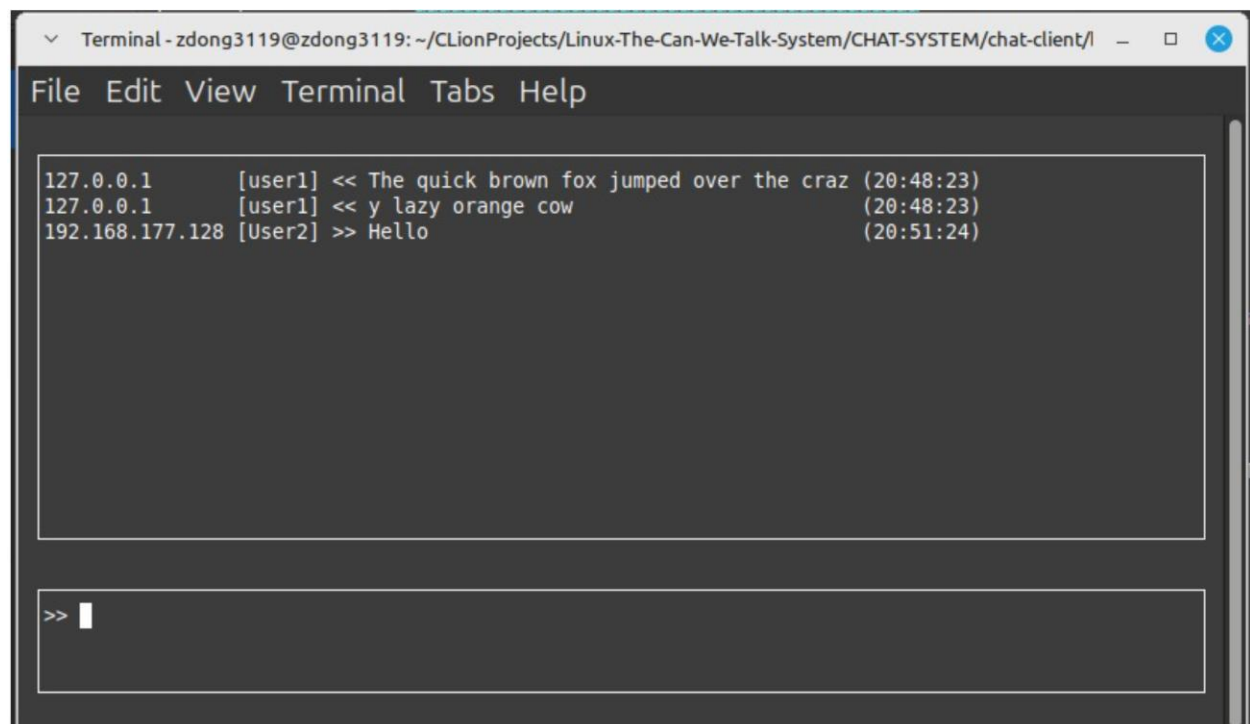


The screenshot shows a web browser window with three tabs. The active tab is titled 'deyi@TuoLaji: /mnt/c/Users/'. The browser's address bar and tabs are at the top. The main content area is a dark-themed chat interface. It displays a list of messages on the left and a text input field at the bottom. The messages are as follows:

IP Address	Sender	Message	Timestamp
127.0.0.1	[user1]	>> The quick brown fox jumped over the craz	(20:48:23)
127.0.0.1	[user1]	>> y lazy orange cow	(20:48:23)
172.19.208.1	[User2]	<< Hello	(20:51:24)

The text input field at the bottom contains the text: >> The quick brown fox jumped over the crazy lazy orange cow

User2:



The screenshot shows a terminal window titled 'Terminal - zdong3119@zdong3119: ~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/'. The terminal has a menu bar with 'File', 'Edit', 'View', 'Terminal', 'Tabs', and 'Help'. The main content area is a dark-themed chat interface, similar to the one in the first screenshot. It displays a list of messages on the left and a text input field at the bottom. The messages are as follows:

IP Address	Sender	Message	Timestamp
127.0.0.1	[user1]	<< The quick brown fox jumped over the craz	(20:48:23)
127.0.0.1	[user1]	<< y lazy orange cow	(20:48:23)
192.168.177.128	[User2]	>> Hello	(20:51:24)

The text input field at the bottom is empty, with a cursor visible.

Server:

```
deyi@mywsl:/mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-server/bin$ ./chat-server
Server (PID: 503) listening on port 8080...
User registered: user1 (IP: 127.0.0.1)
User registered: User2 (IP: 172.19.208.1)
Message from user1: The quick brown fox jumped over the crazy
Message from user1: y lazy orange cow
Message from User2: Hello
User leave: User2 (IP: 172.19.208.1)
Message from user1: The quick brown fox jumped over the crazy
Message from user1: y lazy orange cow
User leave: user1 (IP: 127.0.0.1)
the number of threads reaches 0, server shutdown
```

Test ID	FT-03
Steps	<ol style="list-style-type: none"><li>1. The chat-server application and both chat-client applications need to be restarted</li><li>2. User-1 and User-2 will take turns entering and sending messages (back and forth). The message contents will simply be in the format <b>message-##</b> where <b>##</b> starts at <b>01</b> for each user and ends at <b>05</b>.</li><li>3. After each user has entered their next message – each user takes and records a screen capture of their client application</li></ol>

User1:

```
deyi@mywsl: /mnt/c/Users/zo... x  deyi@mywsl: /mnt/c/Users/zo... x  deyi@TuoLaji: /mnt/c/Users/;... x  +  v  -  □  x

127.0.0.1      [user1] >> 01                                     (20:54:03)
127.0.0.1      [user1] >> message-01                 (20:54:54)
172.19.208.1   [User2] << message-01                 (20:56:35)
127.0.0.1      [user1] >> message-02                 (20:56:37)
172.19.208.1   [User2] << message-02                 (20:56:50)
127.0.0.1      [user1] >> message-03                 (20:56:51)
172.19.208.1   [User2] << message-03                 (20:56:58)
127.0.0.1      [user1] >> message-04                 (20:56:59)
172.19.208.1   [User2] << message-04                 (20:57:03)
127.0.0.1      [user1] >> message-05                 (20:57:04)
172.19.208.1   [User2] << message-05                 (20:57:08)

>>
```

User02:

```
Terminal - zdong3119@zdong3119: ~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/
File Edit View Terminal Tabs Help

127.0.0.1      [user1] << 01 (20:54:03)
127.0.0.1      [user1] << message-01 (20:54:54)
192.168.177.128 [User2] >> message-01 (20:56:35)
127.0.0.1      [user1] << message-02 (20:56:37)
192.168.177.128 [User2] >> message-02 (20:56:50)
127.0.0.1      [user1] << message-03 (20:56:51)
192.168.177.128 [User2] >> message-03 (20:56:58)
127.0.0.1      [user1] << message-04 (20:56:59)
192.168.177.128 [User2] >> message-04 (20:57:03)
127.0.0.1      [user1] << message-05 (20:57:04)
192.168.177.128 [User2] >> message-05 (20:57:08)

>> █
```

Test ID	FT-04
Steps	<div>1. This test is to be completed after FT-03 without restarting any application</div> <div>2. User-1 enters the message <b>message-06</b> and presses send</div> <div>3. Each user takes and records a screen capture of their client application</div>

User1:

```
deyi@mywsl: /mnt/c/Users/zo... X deyi@mywsl: /mnt/c/Users/zo... X deyi@TuoLaJi: /mnt/c/Users/... X + v - □ X

127.0.0.1 [user1] >> 01 (20:54:03)
127.0.0.1 [user1] >> message-01 (20:54:54)
172.19.208.1 [User2] << message-01 (20:56:35)
127.0.0.1 [user1] >> message-02 (20:56:37)
172.19.208.1 [User2] << message-02 (20:56:50)
127.0.0.1 [user1] >> message-03 (20:56:51)
172.19.208.1 [User2] << message-03 (20:56:58)
127.0.0.1 [user1] >> message-04 (20:56:59)
172.19.208.1 [User2] << message-04 (20:57:03)
127.0.0.1 [user1] >> message-05 (20:57:04)
172.19.208.1 [User2] << message-05 (20:57:08)
127.0.0.1 [user1] >> message-06 (20:58:18)

>> |
```

User2:

```
Terminal - zdong3119@zdong3119: ~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/ - □

File Edit View Terminal Tabs Help

127.0.0.1 [user1] << 01 (20:54:03)
127.0.0.1 [user1] << message-01 (20:54:54)
192.168.177.128 [User2] >> message-01 (20:56:35)
127.0.0.1 [user1] << message-02 (20:56:37)
192.168.177.128 [User2] >> message-02 (20:56:50)
127.0.0.1 [user1] << message-03 (20:56:51)
192.168.177.128 [User2] >> message-03 (20:56:58)
127.0.0.1 [user1] << message-04 (20:56:59)
192.168.177.128 [User2] >> message-04 (20:57:03)
127.0.0.1 [user1] << message-05 (20:57:04)
192.168.177.128 [User2] >> message-05 (20:57:08)
127.0.0.1 [user1] << message-06 (20:58:18)

>>
```



## Boundary Tests

Test ID	BT-01
Steps	<ol style="list-style-type: none"><li>1. This test is to be completed after FT-04 without restarting any application</li><li>2. <b>Synchronizing the sending of the message in this test is critical!</b> So please ensure that  both users press send at the same time on their keyboards</li><li>3. Each user enters the message <b>Let's see if this works</b> and waits to press enter to send ...<ul style="list-style-type: none"><li>• Since you are potentially testing on one VM – then ensure that you have entered the text (without pressing send) in your two <i>client</i> windows</li><li>• Prepare your two client windows so that you can switch between them and press enter as quickly as possible ... clearly you will not be able to press enter at the same time in both windows – but press enter (in the following step) as quickly as you can in both client windows</li></ul></li><li>4. Each user presses enter (in order to send the message) <b>at approximately the same time</b></li><li>5. After receiving the messages, each user takes and records a screen capture of their client application</li></ol>

User1:

```
deyi@mywsl: /mnt/c/Users/zo X deyi@mywsl: /mnt/c/Users/zo X deyi@TuolaJi: /mnt/c/Users/zo X + v X
```

```
127.0.0.1 [user1] >> 01 (20:54:03)
127.0.0.1 [user1] >> message-01 (20:54:54)
172.19.208.1 [User2] << message-01 (20:56:35)
127.0.0.1 [user1] >> message-02 (20:56:37)
172.19.208.1 [User2] << message-02 (20:56:50)
127.0.0.1 [user1] >> message-03 (20:56:51)
172.19.208.1 [User2] << message-03 (20:56:58)
127.0.0.1 [user1] >> message-04 (20:56:59)
172.19.208.1 [User2] << message-04 (20:57:03)
127.0.0.1 [user1] >> message-05 (20:57:04)
172.19.208.1 [User2] << message-05 (20:57:08)
127.0.0.1 [user1] >> message-06 (20:58:18)
172.19.208.1 [User2] << Let's see if this works (21:01:53)
127.0.0.1 [user1] >> Let's see if this works (21:01:53)
```

```
>> |
```

**User2:**

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```
127.0.0.1      [user1] << 01 (20:54:03)
127.0.0.1      [user1] << message-01 (20:54:54)
192.168.177.128 [User2] >> message-01 (20:56:35)
127.0.0.1      [user1] << message-02 (20:56:37)
192.168.177.128 [User2] >> message-02 (20:56:50)
127.0.0.1      [user1] << message-03 (20:56:51)
192.168.177.128 [User2] >> message-03 (20:56:58)
127.0.0.1      [user1] << message-04 (20:56:59)
192.168.177.128 [User2] >> message-04 (20:57:03)
127.0.0.1      [user1] << message-05 (20:57:04)
192.168.177.128 [User2] >> message-05 (20:57:08)
127.0.0.1      [user1] << message-06 (20:58:18)
192.168.177.128 [User2] >> Let's see if this works (21:01:53)
127.0.0.1      [user1] << Let's see if this works (21:01:53)
```

>>

## Exception Tests

Test ID	ET-01
Steps	<ol style="list-style-type: none"><li>1. This test is to be completed after BT-01 without restarting any application</li><li>2. User-1 needs to determine the PID of the chat-server process</li><li>3. <b>Synchronizing the sending of the message in this test is critical!</b> So please ensure that  both users press send at the same time on their keyboards</li><li>3. Each user enters the message <b>Let's see if this works</b> and waits to press enter to send ...<ul style="list-style-type: none"><li>• Since you are potentially testing on one VM – then ensure that you have entered the text (without pressing send) in your two <i>client</i> windows</li><li>• As well in this test case, you need a third window (perhaps the window that the server is running in) – enter the <b>kill</b> command in the following step into this window and do not press enter</li><li>• Prepare your two client windows as well as the third window (with the kill command) so that you can switch between them and press enter as quickly as possible ... clearly you will not be able to press enter at the same time in both windows – but press enter (in the following step) as quickly as you can in both client windows</li></ul></li><li>4. User-1 enters the command <code>kill -9 &lt;PID&gt;</code> (where PID was determined in step 2 above) in a terminal on their machine<ul style="list-style-type: none"><li>• execute the kill command in the third window and then switch to the two client windows and (as quickly as possible) execute steps 5 below</li></ul></li><li>5. Each user then presses enter (in order to send the message) <b>at approximately the same time</b></li><li>6. Each user takes and records a screen capture of the terminal window where their client application was running after pressing send</li></ol> <p>- ensure that each client is closed</p>

User1:

```
127.0.0.1      [user1] >> message-01      (21:08:43)
172.19.208.1   [User2] << message-01      (21:09:16)
127.0.0.1      [user1] >> message-02      (21:09:17)
172.19.208.1   [User2] << message-02      (21:09:38)
127.0.0.1      [user1] >> message-03      (21:09:41)
172.19.208.1   [User2] << message-03      (21:09:45)
127.0.0.1      [user1] >> message-04      (21:09:46)
172.19.208.1   [User2] << message-04      (21:09:50)
127.0.0.1      [user1] >> message-05      (21:09:50)
172.19.208.1   [User2] << message-05      (21:09:55)
127.0.0.1      [user1] >> message-06      (21:09:56)
127.0.0.1      [ sys ] << Server is down. (21:10:44)
```

```
>> Let's see if this works
```

```
deyi@mywsl: /mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-client --user user2 --server 127.0.0.1
UserID set to: user2
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user2
Enter messages (or 'bye' to quit):
deyi@mywsl: /mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-client --user user1 --server 127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl: /mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-client --user user1 --server 127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl: /mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-client --user user1 --server 127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl: /mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$
```

User2:

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```
127.0.0.1      [user1] << message-01      (21:08:43)
192.168.177.128 [User2] >> message-01      (21:09:16)
127.0.0.1      [user1] << message-02      (21:09:17)
192.168.177.128 [User2] >> message-02      (21:09:38)
127.0.0.1      [user1] << message-03      (21:09:41)
192.168.177.128 [User2] >> message-03      (21:09:45)
127.0.0.1      [user1] << message-04      (21:09:46)
192.168.177.128 [User2] >> message-04      (21:09:50)
127.0.0.1      [user1] << message-05      (21:09:51)
192.168.177.128 [User2] >> message-05      (21:09:55)
127.0.0.1      [user1] << message-06      (21:09:56)
10.243.86.250  [ sys ] << Server is down.      (21:10:44)
```

```
>> Let's see if this works
```

```

UserID set to: User2
Server set to: 10.243.86.250
Connected to server at 10.243.86.250:8080
Client IP: 192.168.177.128
Registered with server as User2
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ chat-c
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ chat-c
lient --userUser2 --server10.243.86.250
UserID set to: User2
Server set to: 10.243.86.250
Connected to server at 10.243.86.250:8080
Client IP: 192.168.177.128
Registered with server as User2
Enter messages (or 'bye' to quit):
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$

```

Test ID	ET-02
Steps	<ol style="list-style-type: none"> <li>1. The chat-server application and both chat-client applications need to be restarted</li> <li>2. User-1 enters the message &gt;&gt;<b>bye</b>&lt;&lt; and sends it. After the message is sent, ensure that each user takes and records a screen capture of their client application</li> <li>3. User-2 enters the message &gt;&gt;<b>bye</b>&lt;&lt; and sends it. After the message is sent, ensure that each user takes and records a screen capture of their client application</li> <li>4. On the Linux VM where the chat-server application is running, launch a new terminal and enter the command: <code>ps -eaf   grep chat</code> Take and record a screen capture of the results.</li> </ol>

User1:



```
deyi@mywsl: /mnt/c/Users/zo X deyi@mywsl: /mnt/c/Users/zo X deyi@Tuolaji: /mnt/c/Users/zo X + v - □ X
t --useruser1 --server127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl:/mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-clien
t --useruser1 --server127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl:/mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-clien
t --useruser1 --server127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl:/mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ ./chat-clien
t --useruser1 --server127.0.0.1
UserID set to: user1
Server set to: 127.0.0.1
Connected to server at 127.0.0.1:8080
Client IP: 127.0.0.1
Registered with server as user1
Enter messages (or 'bye' to quit):
deyi@mywsl:/mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ |
```

User2:

Terminal - zdong3119@zdong3119: ~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/

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```
>> bye
```

```

Registered with server as User2
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ chat-c
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ chat-c
lient --userUser2 --server10.243.86.250
UserID set to: User2
Server set to: 10.243.86.250
Connected to server at 10.243.86.250:8080
Client IP: 192.168.177.128
Registered with server as User2
Enter messages (or 'bye' to quit):
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$ chat-c
lient --userUser2 --server10.243.86.250
UserID set to: User2
Server set to: 10.243.86.250
Connected to server at 10.243.86.250:8080
Client IP: 192.168.177.128
Registered with server as User2
Enter messages (or 'bye' to quit):
zdong3119@zdong3119:~/CLionProjects/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-client/bin$

```

Server:

```

deyi@mywsl:/mnt/c/Users/zoude/Downloads/GitHub/Linux-The-Can-We-Talk-System/CHAT-SYSTEM/chat-server/bin$ ./chat-serve
r
Server (PID: 546) listening on port 8080...
User registered: User2 (IP: 172.19.208.1)
User registered: user1 (IP: 127.0.0.1)
User leave: user1 (IP: 127.0.0.1)
User leave: User2 (IP: 172.19.208.1)
the number of threads reaches 0, server shutdown

```

Final:

```

deyi@mywsl:/mnt/c/Users/zoude$ ps -eaf | grep chat
deyi      555      469  0 21:16 pts/5      00:00:00 grep --color=auto chat
deyi@mywsl:/mnt/c/Users/zoude$

```