ECEN 602 Network Programming Assignment 2

Team 07.

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Test Case 1: Normal operation of the chat client with three clients connected.

SERVER

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (03:02:45 10/02/23)
:: ./server 127.0.0.1 2222 3
Server socket is created.
Binding successful.
Listening successful.
Server accepted the client: user1
Server accepted the client: user2
User 'user1' is idle
User 'user2' is idle
User 'user1' is idle
Server accepted the client: user3
User 'user2' is idle
User 'user1' is idle
User 'user3' is idle
```

USER 1

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (02:50:45 10/02/23)
:: ./client user1 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 1
Server connection successful
User 'user2' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now ONLINE
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now IDLE
```

USER 2

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (02:50:42 10/02/23)
:: ./client user2 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 2 user1
Server connection successful
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
User 'user3' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
User 'user3' is now IDLE
```

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USER 3

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (02:50:30 10/02/23)
:: ./client user3 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 3 user1,user2
Server connection successful
User 'user2' is now IDLE
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now IDLE
User 'user1' is now IDLE
```

Test Case 2: Server rejects a client with a duplicate username

SERVER

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:26:30 10/02/23)
:: ./server 127.0.0.1 2222 3
Server socket is created.
Binding successful.
Listening successful.
Server accepted the client: user1
User 'user1' is idle
User 'user1' is idle
User 'user1' is idle
Server accepted the client: user2
User 'user1' is idle
User 'user2' is idle
User 'user1' is idle
User 'user2' is idle
Another client with the username 'user2' is trying to connect, but the username already exists. Rejecting it.
```

USER 1

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:27:45 10/02/23)
:: ./client user1 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 1
Server connection successful
Time out!! No user input for 10 secs 0 usecs
Time out!! No user input for 10 secs 0 usecs
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now IDLE
```

USER 2

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```
:: ./client user2 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 2 user1
Server connection successful
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
```

USER 3

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:28:43 10/02/23)
:: ./client user2 127.0.0.1 2222
Socket creation is successful
Disconnected.NAK Message from Server is Username is incorrect

[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:28:55 10/02/23)
::
```

Test Case 3: Server allows a previously used username to be reused

SERVER

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:37:48 10/02/23)
:: ./server 127.0.0.1 2222 3
Server socket is created.
Binding successful.
Listening successful.
Server accepted the client: user1
Server accepted the client: user2
User 'user1' is idle
Server accepted the client: user3
User 'user2' is idle
Socket 4 belonging to user 'user1' is disconnected
Server accepted the client: user1
User 'user3' is idle
User 'user2' is idle
User 'user1' is idle
```

USER 1

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```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:35:14 10/02/23)
:: ./client user1 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 1
Server connection successful
User 'user2' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now ONLINE
User 'user2' is now IDLE
^C

[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:38:43 10/02/23)
:: ./client user1 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 3 user2,user3
Server connection successful
User 'user3' is now IDLE
User 'user2' is now IDLE
```

USER 2

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:37:48 10/02/23)
:: ./client user2 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 2 user1
Server connection successful
User 'user1' is now IDLE
User 'user3' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now OFFLINE
User 'user1' is now ONLINE
User 'user3' is now IDLE
Time out!! No user input for 10 secs 0 usecs
```

Test Case 4: Server rejects the client because it exceeds the maximum number of clients allowed

SERVER

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:37:48 10/02/23)
:: ./client user2 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 2 user1
Server connection successful
User 'user1' is now IDLE
User 'user3' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now OFFLINE
User 'user1' is now ONLINE
User 'user3' is now IDLE
Time out!! No user input for 10 secs 0 usecs
```

USER 1

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```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:41:45 10/02/23)
:: ./client user1 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 1
Server connection successful
User 'user2' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now ONLINE
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now IDLE
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now IDLE
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now IDLE
User 'user2' is now IDLE
```

USER 2

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:41:45 10/02/23)
:: ./client user2 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 2 user1
Server connection successful
User 'user1' is now IDLE
User 'user3' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
User 'user3' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
User 'user3' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
User 'user3' is now IDLE
```

USER 3

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:41:45 10/02/23)
:: ./client user3 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 3 user1,user2
Server connection successful
User 'user2' is now IDLE
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now IDLE
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now IDLE
User 'user1' is now IDLE
```

USER 4

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```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:37:48 10/02/23)
:: ./client user4 127.0.0.1 2222
Socket creation is successful
Disconnected.NAK Message from Server is Client count exceeded

[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:44:19 10/02/23)
::
```

Test Case 5: BONUS FEATURES IMPLEMENTED

(1) ACK, NAK, ONLINE, and OFFLINE. The server uses the ACK message to provide an explicit confirmation of the client's JOIN.

(2) The client sends an IDLE message to the server when the user doesn't use the chat session for more than 10 seconds.

SERVER

```
:: ./server 127.0.0.1 2222 3
Server socket is created.
Binding successful.
Listening successful.
Server accepted the client: user1
Server accepted the client: user2
User 'user1' is idle
Server accepted the client: user3
User 'user2' is idle
User 'user1' is idle
A new client is trying to connect, but the client count exceeded. Rejecting it
User 'user3' is idle
User 'user2' is idle
User 'user1' is idle
Socket 5 belonging to user 'user2' is disconnected
```

USER 1

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (14:41:39 10/02/23)
:: ./client user1 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 1
Server connection successful
User 'user2' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now ONLINE
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user3' is now IDLE
User 'user2' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now OFFLINE
```

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USER 2

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (14:41:39 10/02/23)
:: ./client user2 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 2 user1
Server connection successful
User 'user1' is now IDLE
User 'user3' is now ONLINE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
User 'user3' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
^C
```

USER 3

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (14:41:39 10/02/23)
:: ./client user3 127.0.0.1 2222
Socket creation is successful
ACK Message from Server is 3 user1,user2
Server connection successful
User 'user2' is now IDLE
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
User 'user2' is now IDLE
User 'user1' is now IDLE
User 'user2' is now OFFLINE
Time out!! No user input for 10 secs 0 usecs
User 'user1' is now IDLE
Time out!! No user input for 10 secs 0 usecs
```

USER 4

```
[rohan.dalvi]@hera3 ~/ECEN602/Test> (13:44:19 10/02/23)
:: ./client user3 127.0.0.1 2222
Socket creation is successful
Disconnected.NAK Message from Server is Client count exceeded

[rohan.dalvi]@hera3 ~/ECEN602/Test> (14:45:21 10/02/23)
::
```