# IT TEST CASES

| Module | Test Case Id | Test Description | Expected Result | Traceability | Test Situation |
|--------|-------------|------------------|-----------------|--------------|----------------|
| Client Module | IT_TEST_ CASE-01 | Client started before the server | Program should exit and throws a connect error | Req ICS_10 | Pass |
| | IT_TEST_ CASE-02 | When number of arguments is less than 2 | Usage error : ./server <port> | Req ICS_10 | Pass |
| | IT_TEST_ CASE-03 | When number of arguments is equal to 2 | Program should run further | Req ICS_10 | Pass |
| Server Module | IT_TEST_ CASE-04 | Writing failed because there are no processes which could read from the pipe. | Prints "Writer to descriptor failed: Broken pipe",exits from the program | Req ICS_04 | Pass |
| | IT_TEST_ CASE-05 | If the socket is not properly closed or the address is already in use | Prints "ERROR: Socket binding failed", exits from program | Req ICS_01 | Pass |
| | IT_TEST_ CASE-06 | If number of clients exceeded MAX_CLIENTS | Prints "ERROR: Maximum clients reached" , exits from the program | Req ICS_01 | Pass |
| | IT_TEST_ CASE-07 | Taking note of joining and leaving users | prints "Active users are :xyz" , "abc has left" | Req ICS_03 | Pass |
| | IT_TEST_ CASE-08 | Chat history of the active server session will be stored in the logfile.txt file | logfile.txt is filled with chat history | Req ICS_09 | Pass |

# IT TESTING REPORT

**IT_TEST_CASE-01 :** Client started before the server

```
Jonas Edward@LAPTOP-3BICFCE0 ~/InstantChatters/CUT/Code/bin
$ ./client.exe 8080
Please enter your name: Jonas
ERROR: connect
```

**IT_TEST_CASE-02:** When number of arguments is less than 2 , User has not provided port number for server or client.

```
USER@DESKTOP-DI40DVI ~/I
$ ./server.exe
Usage: ./server <port>
```

```
USER@DESKTOP-DI40DVI ~/I
$ ./client.exe
Usage: ./client <port>
```

**IT_TEST_CASE-03:** When User provides port number at the time of execution.

```
USER@DESKTOP-DI40DVI ~/InstantCha
$ ./server.exe 8080
=== WELCOME TO THE CHATROOM ===
```

```
USER@DESKTOP-DI40DVI ~/InstantCha
$ ./client.exe 8080
Please enter your name: Licency
```

**IT_TEST_CASE-04:** Writing failed because there are no processes which could read from the pipe.

```
ERROR: write to descriptor failed: Broken pipe
ERROR: -1
```

**IT_TEST_CASE-05:** If the socket is not properly closed or the address is already in use

```
USER@DESKTOP-DI40DVI ~/InstantChatters/CUT/Code/bin
$ ./server.exe 8080
ERROR: Socket binding failed: Address already in use
```

**IT_TEST_CASE-06:** If number of clients exceeded MAX_CLIENTS

```
$ ./server.exe 8000
=== WELCOME TO THE CHATROOM ===

 Active users list is from queue Add :
 Max clients reached. Rejected: 127.0.0.1:43736
```

**IT_TEST_CASE-07:** Taking note of joining and leaving users.

```
Jonas Edward@LAPTOP-3BICFCE0 ~/InstantChatters/CUT/Code/src
$ ./a.exe 8080
=== WELCOME TO THE CHATROOM ===

 Active users are :
clients credential = Jonas : Edward


 Active users are :  Jonas
clients credential = Laxmikanth: 1234

Jonas  has left

 Active users are :  Laxmikanth
Laxmikanth has left

 Active users are :
Aborted (core dumped)
```

**IT_TEST_CASE-08:** Chat history of the active server session will be stored in the logfile.txt file

```
$ ./client.exe 8080
Please enter your name: user11
=== WELCOME TO THE CHATROOM ===
> Enter the pass now user11 :> pass11
> user11 are you a new or old user? Please give 'o' or 'n' only :  > n
> user11 Thanks for credentials , Enjoy chatting !!!
> How are you??
> user15: I am fine.
> user15: Thank you for asking
> Most welcome
>
```

```
$ ./client.exe 8080
Please enter your name: user15
=== WELCOME TO THE CHATROOM ===
> Enter the pass now user15 :> pass15
> user15 are you a new or old user? Please give 'o' or 'n' only :
> n
> user15 Thanks for credentials , Enjoy chatting !!!
> user11: How are you??
> I am fine.
> Thank you for asking
> user11: Most welcome
```

```
$ cat logfile.txt
user2: hey
user1: hello
user2: how are you
user1: Good
user1: And what about you?
user2: I'm good.
user2: Ok. Talk to you later
user1: Bye
user3: Good to see you
user4: Yeah
user5: Hello again
user4: Hii all
user3: How is everything going?
user5: Everything is going on smoothly
user4: Good to know
user55: Hey user20
user20: Hello bro
user55: Having fun?
user20: Yeah! very much
user11: How are you??
user15: I am fine.
user15: Thank you for asking
user11: Most welcome
```

# UT TEST CASES

| Test Case Id | Step | Preconditions / Dependencies | Scenario Description / Test Case | Test Data | Expected Result | Actual Result (Iteration I) | Status (Pass or Fail) | Bug Severity | Comments/Defect No. | Actual Result (Iteration II) | Status (Pass or Fail) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LOGIN _001 | Enter your name | Server should be run first | User enters username of length within 2 to 30 characters | username ="user12" | Password must be less than 30 and more than 2 characters. | Password must be less than 30 and more than 2 characters. | Pass | No | | Password must be less than 30 and more than 2 characters. | Pass |
| LOGIN _002 | Enter your name | Server should be run first | User enters the username of length greater than 30 characters | username ="Jonas Laxmi Licency Sukanya Vibhu" | Name must be less than 30 and more than 2 characters | Name must be less than 30 and more than 2 characters | Fail | Minor | Syntax error | Name must be less than 30 and more than 2 characters | Pass |
| LOGIN _003 | Enter your name | Server should be run first | User enters the username of length less than 2 characters | username ="u" | Name must be less than 30 and more than 2 characters | Name must be less than 30 and more than 2 characters | Pass | No | | Name must be less than 30 and more than 2 characters | Pass |
| LOGIN _004 | Enter password | Valid username should be entered | User enters password of length within 2 to 30 characters | password= "pass123" | Password must be less than 30 and more than 2 characters | Password must be less than 30 and more than 2 characters | Pass | No | | Password must be less than 30 and more than 2 characters | Pass |
| LOGIN _005 | Enter password | Valid username should be entered | User enters password greater than 30 characters | password= "pppppaa aaasssss 11444kkjjj" | Password must be less than 30 and more than 2 characters. | Password must be less than 30 and more than 2 characters. | Pass | No | | Password must be less than 30 and more than 2 characters. | Pass |
| LOGIN _006 | Enter password | Valid username should be entered | User enters password less than 2 | password= "p" | Password must be less than 30 and more than 2 | Password must be less than 30 and | Pass | No | | Password must be less than 30 and more than 2 | Pass |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | characters | | characters. | more than 2 characters. | | | | characters. | |
| LOGIN_007 | Validate users | Valid username and password should be entered | User enters valid credentials | Is new = "n" , Is old ="o" , Invalid input = "p"/"z",alongwith username & password | User will be added to the list | User will be added to the list | Fail | Minor | Unable to take input | User will be added to the list | Pass |
| LOGIN_008 | New user | Check for new or old user | User enters valid credentials | Is new = "n" , Invalid input = "p"/"z" alongwith username & password | User will be added to logfile | User will be added to logfile | Pass | No | | User will be added to logfile | Pass |
| LOGIN_009 | New user | Check for new or old user | User enters valid credentials | Is old = "o" , Invalid input = "p"/"z" alongwith username & password | User will not be added to logfile | User will not be added to logfile | Pass | No | | User will not be added to logfile | Pass |
| ADD_001 | Adding to the active list of users | User should be inside chatroom | User equips a place in structure array | Username ="user1" , Username ="user30" | User will be added to the structure array | User added to structure array | Pass | No | | User added to structure array | Pass |
| REMOVE_001 | Removing from the active list of users | User should not be present inside chatroom | User gets removed from structure array | Username ="user1" , Username ="user30" | User will be removed from the structure array | User removed from structure array | Pass | No | | User removed from structure array | Pass |
| FAIL_001 | Login failure | User should enter correct | Registered user enters correct password | Username ="user12" //valid, Password | User is able to connect | User is able to connect | Fail | Minor | Connection issue | User is able to connect | Pass |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | password | | ="pass11" //valid | | | | | | | |
| FAIL_0 02 | Login failure | User should enter incorrect password | Registered user enters wrong password | Username ="user22" //valid, Password ="pass11" //invalid | Login failed : Password incorrect | Login failed : Password incorrect | Pass | No | | Login failed : Password incorrect | Pass |

# UT TESTING REPORT

**LOGIN_001 :** Valid name

```
void testSunnyCases1(void)
{
    CU_ASSERT_EQUAL(validName("user1"), 1);
    CU_ASSERT_EQUAL(validName("user12"), 1);
}
```

**LOGIN_002, LOGIN_003 :** Invalid name

```
void testRainyCases1(void)
{
    CU_ASSERT_EQUAL(validName("u"), 0);
    CU_ASSERT_EQUAL(validName("Jonas Laxmi Licency Sukanya Vibhu"), 0);
}
```

**LOGIN_004 :** Valid password

```
void testSunnyCases2(void)
{
    CU_ASSERT_EQUAL(validPass("pass1"), 1);
    CU_ASSERT_EQUAL(validPass("Pass123"), 1);
}
```

**LOGIN_005, LOGIN_006 :** Invalid password

```
void testRainyCases2(void)
{
    CU_ASSERT_EQUAL(validPass("p"), 0);
    CU_ASSERT_EQUAL(validPass("pppppaaaaaasssssssss112225544kkk1"), 0);
}
```

**LOGIN_007 :** Validate user

```
void testSunnyCases3(void)
{
    CU_ASSERT_EQUAL(testValid('n', "user44", "passdd"), 1);
    CU_ASSERT_EQUAL(testValid('o', "user55", "pass77"), 1);
}
```

```
void testRainyCases3(void)
{
    CU_ASSERT_EQUAL(testValid('p', "usertt", "passgg"), 0);
    CU_ASSERT_EQUAL(testValid('z', "useryy", "passyy"), 0);
}
```

**LOGIN_008 :** New user

```
void testSunnyCases4(void)
{
    CU_ASSERT_EQUAL(newUser('n', "user11", "pass33"), 1);
}
```

**LOGIN_009 :** Old user

```
void testRainyCases4(void)
{
    CU_ASSERT_EQUAL(newUser('o', "user22", "passs"), 0);
}
```

**ADD_001 :** Adding to queue

```
void testSunnyCases5(void)
{
    CU_ASSERT_EQUAL(queue_add("user11"), 1);
    CU_ASSERT_EQUAL(queue_add("user30"), 1);
}
```

**REMOVE_001 :** Removing users from the list

```
void testSunnyCases6(void)
{
    CU_ASSERT_EQUAL(queue_remove("user11"), 1);
    CU_ASSERT_EQUAL(queue_remove("user30"), 1);
}
```

**FAIL_001 :** Login Success/Failure

```
void testSunnyCases7(void)
{
    CU_ASSERT_EQUAL(loginSuccess("user12", "pass11"), 1);
    CU_ASSERT_EQUAL(loginSuccess("user3", "pass30"), 1);
}
```

**FAIL_002 :** Login Success/Failure

```
void testRainyCases7(void)
{
    CU_ASSERT_EQUAL(loginSuccess("user22", "pas11"), 0);
    CU_ASSERT_EQUAL(loginSuccess("userzzz", "pzzzz"), 0);
}
```

**RESULT :**

```
     CUnit - A unit testing framework for C - Version 2.1-3
     http://cunit.sourceforge.net/


Suite: Name valid or invalid
  Test: test of validName() in normal cases ...passed
  Test: test of invalidName() in error cases ...passed
Suite: Password valid or invalid
  Test: test of validPass() in normal cases ...passed
  Test: test of invalidPass() in error cases ...passed
Suite: User Validation
  Test: test of userValidation() in normal cases ...passed
  Test: test of userValidation() in error cases ...passed
Suite: New user
  Test: test of newUser() in normal cases ...passed
  Test: test of newUser() in error cases ...passed
Suite: Add to active user list
  Test: test of addActiveUser() in normal cases ...passed
Suite: Remove user from active user list
  Test: test of removeUser() in normal cases ...passed
Suite: Login failure
  Test: test of loginSuccessful() in normal cases ...passed
  Test: test of loginFailure() in error cases ...passed

Run Summary:    Type  Total    Ran Passed Failed Inactive
              suites      7      7    n/a      0        0
               tests     12     12     12      0        0
              asserts     22     22     22      0      n/a

Elapsed time =    0.000 seconds
```

Link to excel file :
https://docs.google.com/spreadsheets/d/1LIcwwQwgv98WMSo-wbPfOHfRk_ka3RatEiWTP79pvTo/edit?usp=sharing