

**Test Case Suite 1 – SYS-TS01:** Purpose – To test functional requirement *New Account Creation*

<b>Test Case ID</b>	TS01-NewAccount-01
<b>Path Type</b>	Sunny Day Scenario #1
<b>Preconditions</b>	User has opened the client side application. User is connected to the Intranet. Server is up and running.
<b>Input</b>	Invoke: “Create New Account” button  screen name: “tonia” password: “blades” password verification: “blades” question for password retrieval: “Mother’s Maiden Name?” answer for password retrieval: “Brathwaite”  Invoke: “Submit” button
<b>Expected Output</b>	Message: “Account created successfully” and record added to database.

<b>Test Case ID</b>	TS01-NewAccount-02
<b>Path Type</b>	Alternative Scenario #1
<b>Preconditions</b>	User has opened the client side application. User is connected to the Intranet.
<b>Input</b>	Invoke: “Create New Account” button  screen name: “michael” password: “green” password verification: “green” question for password retrieval: “” answer for password retrieval: “”  Invoke: “Submit” button
<b>Expected Output</b>	Message: “Please fill in all required fields to create a new account”

<b>Test Case ID</b>	TS01-NewAccount-03
<b>Path Type</b>	Alternative Scenario #2
<b>Preconditions</b>	User has opened the client side application. User is connected to the Intranet.
<b>Input</b>	Invoke: "Create New Account" button  screen name: "" password: "november" password verification: "november" question for password retrieval: "Country of Birth?" answer for password retrieval: "Spain"  Invoke: "Submit" button
<b>Expected Output</b>	Message: "Please fill in all required fields to create a new account"

<b>Test Case ID</b>	TS01-NewAccount-04
<b>Path Type</b>	Alternative Scenario #3
<b>Preconditions</b>	User has opened the client side application. User is connected to the Intranet.
<b>Input</b>	Invoke: "Create New Account" button  screen name: "hr004" password: "mypass" password verification: "mypassword" question for password retrieval: "Country of Birth?" answer for password retrieval: "Bermuda"  Invoke: "Submit" button
<b>Expected Output</b>	Message: "Password and password verification do not match!"

	Completeness Questions	YES	NO
1	Are all of the actors defined in the model? <i>(i.e. Have all other systems, hardware or human users that the system will communicate been described?)</i>	X	
2	Has all of the functionality been described in the model? <i>(i.e. are all of the actors goals that must be fulfilled been described in the use cases?)</i>		X
3	Is the output from the system defined for every input from the actor, both for normal flow of events and variations?		X
4	Have all of the variants to the normal flow of events been identified in the use cases?		X
5	Has the include-relation been used to factor out common behaviour?		X
	<b>Correctness Questions</b>		
6	Are all of the actors clearly described, and do you agree with the description?	X	
7	Are all the actors connected to the right use cases?		X
8	Is expected input and output correctly defined in each use case?	X	
9	Are the preconditions and post conditions correctly described for all use cases? <i>(i.e. correct level of detail, do the preconditions and post conditions match for each of the use cases, are they testable?)</i>		X
	<b>Consistency Questions</b>		
10	Are the descriptions of how the actor interacts with the system in the use cases consistent with the description of the actor?	X	
11	Do the use case diagram and the textual descriptions match?		X
12	Are the descriptions of the use cases consistent with reaching the goals of the use cases? <i>(i.e. Is it clear from the descriptions of the use cases how the goals are reached and do you agree with the descriptions?)</i>	X	
13	Are all the use cases described at the same level of detail?	X	
14	Does the behaviour of a use case conflict with the behaviour of other use cases?		X
15	Does each event in the normal flow of events relate to the goal of its use case?	X	
	<b>General Questions (Ambiguities, Extraneous Information)</b>		
16	Are there any superfluous actors in the model? <i>(i.e. human users or other systems that will not provide input to or receive output from the system?)</i>		X
17	Is it clear which actors are involved in which use cases? <i>(i.e. can the actors involvement in the use cases be seen from the use case diagram and textual descriptions?)</i>		X
18	Are all use cases uses cases within the system boundary? <i>(i.e.Do all use cases lead to the fulfillment of a goal for an actor or duplicate already described functionality)</i>		X
19	Are the triggers <i>(i.e. starting conditions)</i> for each use case described at the correct level of detail?	X	
20	Is the flow of events described at a suitable level of detail without details that restrict the user interface or the design of the system?		X
21	Do all the use cases lead to the fulfillment of exactly one goal for an actor, and is the goal clear from the use case name?		X

### 3.2.6 Actual Test Results

Use Case Walkthroughs		
Unique ID	Test Result	Comments
TS01-New Account-001	PASS	
TS01-New Account-002	PASS	
TS01-New Account-003	PASS	
TS01-New Account-004	PASS	
TS01-New Account-005	PASS	
TS01-New Account-006	FAIL	While it is specified that the system will not submit the information, there is no specified action with respect to the window and therefore the form could still be open and onscreen.
TS01-New Account-007	PASS	
TS01-New Account-008	FAIL	No action specified for this flow, therefore no message appears to notify the user that the server is not responding
TS01-New Account-009	FAIL	No action specified for this flow, therefore no message appears to notify the user that the intranet connection is not present.
TS02-ClientLogin-001	PASS	
TS02-ClientLogin-002	PASS	
TS02-ClientLogin-003	PASS	
TS02-ClientLogin-004	PASS	
TS02-ClientLogin-005	PASS	
TS02-ClientLogin-006	FAIL	No actions are specified for this flow of events.
TS02-ClientLogin-007	FAIL	Issue of case sensitivity is not addressed, therefore action at this point cannot be determined.
TS02-ClientLogin-008	FAIL	Issue of a blank field at this point is not address, therefore system does not prompt the user to input the missing screen name.

## Class Coverage

Server_FileHandler	Calls	Server_AccountHandler	Calls	Client_FileHandler	Calls	Client_Control	Calls
RequestFileTransfer()	9	CreateAccount()	7	ReceiveFile()	0	RequestPassword()	12
ForwardFile()	8	AccountExists()	2	SendFile()	10	RequestAccount()	0
<b>Total</b>	<b>17</b>	GetBuddyList()	12	<b>10</b>		UpdateBuddyList()	13
		AddBuddy()	4			RemoveBuddy()	7
		RemoveBuddy()	3			AddBuddy()	6
		AuthenticateLogin()	14	<b>Client_Connection</b>	<b>Calls</b>	Login()	17
<b>Server_Control</b>	<b>Calls</b>	UserLogout()	0	Login()	17	Logout()	0
RequestFileTransfer()	9	RetrievePassword()	9	Logout()	0	ReveiveFile()	12
CreateAccount()	7	UsserLoggedIn()	4	<b>17</b>		SendFile()	12
AccountExists()	2	<b>55</b>				SendText()	6
GetBuddyList()	12			<b>Client_TextHandler</b>	<b>Calls</b>	ReceiveText()	0
AddBuddy()	3			SendText()	6	<b>85</b>	
RemoveBuddy()	3	<b>Server_User</b>	<b>Calls</b>	ReceiveText()	0		
AuthenticateLogin()	14	RetrievePassword()	9	<b>6</b>		<b>Client_BuddyList</b>	<b>Calls</b>
UserLogout()	0	RetrieveSecretQuestion()	9			UpdateBuddyList()	13
RetireveAccount	0	CreateAccount()	9			AddBuddy()	6
ForwardFile()	8	AccountExists()	4	<b>Client_AccountHandler</b>	<b>Totals</b>	RemoveBuddy()	3
ForwardText()	4	GetBuddyList()	15	RequestPassword()	12	<b>22</b>	
RetrievePassword()	9	AddBuddy()	4	RequestAccount()	0		
RetrieveSecretQuestion()	0	RemoveBuddy()	4	<b>12</b>			
<b>Total</b>	<b>71</b>	GetLoginInfo()	14				
		<b>68</b>					
<b>Sever_TextHandler</b>	<b>Totals</b>						
ForwardText()	4						
	<b>4</b>						

### Actual Results of Symbolic Execution of Login Sequence Diagram

<b>Test Case ID</b>	TS02-ClientLogin-001
<b>Path Type</b>	Sunny Day Scenario #1
<b>Results</b>	<b>FAILS</b>
<b>Comments</b>	Reaches 5: <code>GetLoginInfo()</code> but still fails because it does not send back a message to say that the login/authentication has been successful.

<b>Test Case ID</b>	TS02-ClientLogin-002
<b>Path Type</b>	Sunny Day Scenario #2
<b>Results</b>	<b>FAILS</b>
<b>Comments</b>	Reaches 5: <code>GetLoginInfo()</code> but still fails because it does not send back a message to say that the login/authentication has been successful.

<b>Test Case ID</b>	TS02-ClientLogin-003
<b>Path Type</b>	Sunny Day Scenario #2
<b>Results</b>	<b>FAILS</b>
<b>Comments</b>	Reaches 5: <code>GetLoginInfo()</code> but still fails because it does not send back a message to say that authentication has been successful.

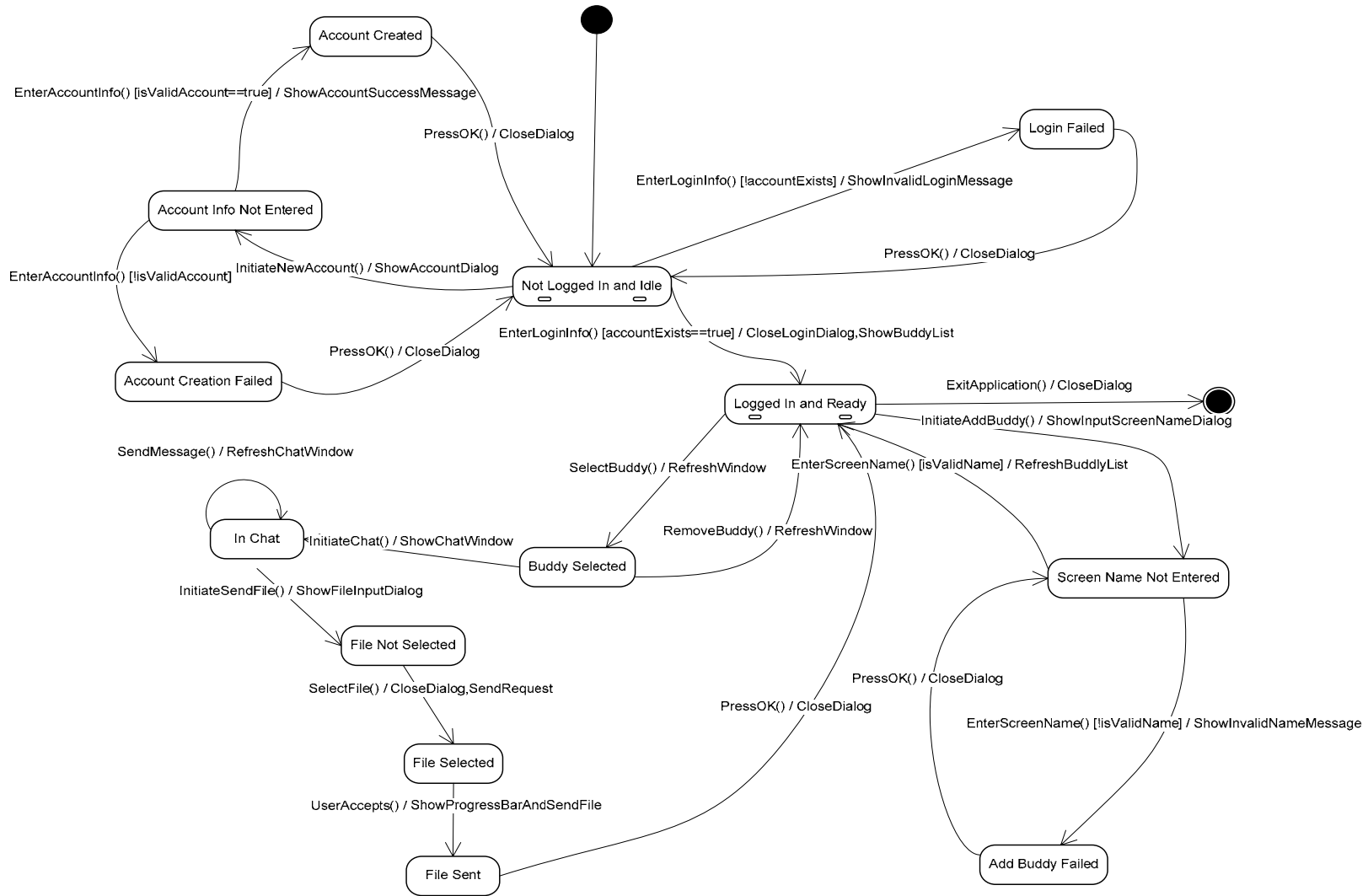
<b>Test Case ID</b>	TS02-ClientLogin-004
<b>Path Type</b>	Alternative Scenario #1
<b>Results</b>	<b>FAILS</b>
<b>Comments</b>	Reaches 4: <code>AuthenticateLogin()</code> but still fails because it does not send back a message to say that the authentication has failed.

### Complete Test Result Averages

Test Cases	Pass	Failed
74 Test Cases	45	29
	60%	

UseCase Checklist	Pass	Fail
21 Questions	8	13
	38%	

Analysis Model Checklist	Pass	Fail
20 Questions	10	10
	50%	





### 3.1.3 Test Criteria and Procedures

#### Test Criteria

The criterion used for coverage of the state chart diagram was all n-transition sequences, with an n value of 3. Hence, test cases were generated for all possible 3-transition sequences in the statechart diagram.

#### Procedures

The statechart diagram to match the specification of the 8Chat software was constructed using documentation available (i.e. use cases, class diagrams, sequence diagrams) and is depicted in Appendix B. A mealy state machine approach (with guarded transitions) was used to create the model. Symbolic execution was then performed by stepping through the 3-transition sequences for each test case by mapping the inputs of the test case onto the event labels on the state chart diagram to perform the necessary transitions; checking for missing or corrupted states, actions and events. The expected output was then evaluated with respect to whether or not the required action labels were exercised and if they had been correctly defined; and whether or not the machine reached its final expected state for the transition sequence.

### 3.1.4 Test Cases

**Test Case Suite 1 – SYS-TS01:** Purpose – To test design of *New Account Creation*

<b>Test Case ID</b>	TS01-NewAccount-01-001
<b>Purpose</b>	To test the following transition sequence in the statechart Not Logged In and Idle → Account Info Not Entered → Account Created → Not Logged In and Idle.
<b>Preconditions</b>	8Chat system is up and running.

	No account with screen name "tariq" exists.
<b>Input</b>	Invoke "Create New Account" Screen Name: "tariq" Password: "tariq" Invoke "OK"
<b>Expected Output</b>	The system is in the Not Logged In and Idle state. (and should have followed the path outlined in the purpose.)

<b>Test Case ID</b>	TS01-NewAccount-06-001
<b>Purpose</b>	To test the following transition sequence in the statechart Not Logged In and Idle → Account Info Not Entered → Account Created → ServerNotRespondingExceptionThrown.
<b>Preconditions</b>	8Chat system is up and running. No account with screen name "tariq" exists.
<b>Input</b>	Invoke "Create New Account" Screen Name: "tariq" Password: "tariq" Shutdown Server
<b>Expected Output</b>	The system is in the ServerNotRespondingExceptionThrown state. (and should have followed the path outlined in the purpose.)

### 3.1.5 Actual Test Results

Unique ID	Result	Comments
TS01-NewAccount-01-001	Success	
<b>TS01-NewAccount-06-001</b>	<b>FAIL</b>	<b>There is no state ServerNotRespondingExceptionThrown</b>
TS01-NewAccount-01-002	Success	
TS01-NewAccount-01-003	Success	
TS01-NewAccount-01-004	Success	
TS02-ClientLogin02-003-001	Success	
<b>TS02-ClientLogin02-007-001</b>	<b>FAIL</b>	<b>There is no state ServerNotRespondingExceptionThrown</b>
TS03-AddBuddy003-001	Success	
TS03-AddBuddy-001-001	Success	

### 3.2.1 Summary of Test Cases

This section summarizes the test cases for system, subsystem and unit testing. See Appendix C on page 61 for full test case details.

SYSTEM TEST CASES	
Test Case ID	Purpose
TS02-Group8-ClientLogin02-001	To test the normal flow of events for Group8-ClientLogin02.
TS02-Group8-ClientLogin02-003	To test the alternative flow of events for Group8-ClientLogin02 caused when a user that is not registered attempts to login.
TS02-Group8-ClientLogin02-004	To test the alternative flow of events for Group8-ClientLogin02 caused when a user cancels a login attempt.
TS02-Group8-ClientLogin02-006	To test the exceptional flow of events for Group8-ClientLogin02 caused when the server is not responding.
TS03-Group8-ServerAuthentication03-001	To test the normal flow of events for Group8-ServerAuthentication03.
TS03-Group8-ServerAuthentication03-003	To test the alternative flow of events for Group8-ServerAuthentication03 caused when a user that is not registered attempts to authenticate.
TS07-Group8-SendMessage08-001	To test the normal flow of events for Group8-SendMessage08.
TS07-Group8-SendMessage08-002	To test the alternative flow of events caused when the user attempts to send an empty message.
TS08-Group8-SendFile09-001	To test the normal flow of events for Group8-SendFile09.
TS08-Group8-SendFile09-003	To test the alternative flow of events for Group8-SendFile09 caused when a receiving user declines a file transfer request.
TS08-Group8-SendFile09-005	To test the alternative flow of events for Group8-SendFile09 caused when a receiving user does not select a filename to which the newly received file should be saved.
TS08-Group8-SendFile09-006	To test the alternative flow of events for Group8-SendFile09 caused when a sending user attempts to send a file that does not exist.
TS10-Responsiveness-001	To test the nonfunctional requirement of responsiveness with respect to logging into the 8Chat system.
TS10-Usability-Group8-SendFile09-001	To test the nonfunctional requirement of usability with respect to sending a file.
TS10-Reliability-Group8-ClientLogin02-001	To test the nonfunctional requirement of reliability with respect to invalid login attempts.



## Chapter 4 – Test Summary Report

This chapter lists all the failures that occurred during testing and proposes solutions on how to correct these failures.

System Test Cases Failures			
Name	Expected Result	Actual Result	Proposed Solution
TS02-Group8-ClientLogin02-004	Login window should close.	Nothing (No cancel button was available)	A cancel button should be implemented
TS02-Group8-ClientLogin02-006	Message: “Server not responding”	Java exception thrown: Connection refused	The exception should be handled by the software with production of appropriate message
TS07-Group8-SendMessage-001	The message appears on the other user screen and also appears on a different color in the current user screen.	Messages appear in both windows but with no color difference	Appropriate messages should be produced on user's screen
TS08-Group8-SendFile-003	Adam receives a message: “File transfer cancelled”	No message was displayed and a dialog box appeared with percentage of the file that has been transferred.	The message should be properly displayed on sender's screen when transfer is cancelled by the reciever

### 3.2.4 Results of System Testing

Test Unique ID	Expected Result	Actual Result	Pass/Fail
TS02-Group8-ClientLogin02-001	Login window should close, buddy list should be displayed on the screen and user's buddies should be able to see him/her online.	Login window closed and the buddy list was displayed on the screen and the user's buddies were able to see him/her online.	Pass
TS02-Group8-ClientLogin02-003	Message: "Incorrect username/password, please try again "	Message: "Incorrect username/password, please try again "	Pass
TS02-Group8-ClientLogin02-004	Login window should close.	Nothing (No cancel button was available)	Fail
TS02-Group8-ClientLogin02-006	Message: "Server not responding"	Java exception thrown: Connection refused	Fail
TS03-Group8-ServerAuthentication03-001	Login window should close, buddy list should be displayed on the screen and user's buddies should be able to see him/her online.	Login window closed and the buddy list was displayed on the screen and the user's buddies were able to see him/her online.	Pass
TS03-Group8-ServerAuthentication03-003	Message: "Incorrect username/password, please try again "	Message: "Incorrect username/password, please try again "	Pass
TS07-Group8-SendMessage-001	The message appears on the other user screen and the also appears on a different color in the current user screen.	Messages appear in both windows but with no color difference	Fail
TS07-Group8-SendMessage-002	The message should not be sent and not appear on either of the user's message dialog boxes.	The message was not sent and did not appear on either users' message dialog box	Pass
TS08-Group8-SendFile-001	File is saved on Rob's computer.	The file was saved on Rob's computer	Pass
TS08-Group8-SendFile-003	Adam receives a message: "File transfer cancelled"	No message was displayed and a dialog box appeared with percentage of the file that has been transferred.	Fail
TS08-Group8-SendFile-005	System should not transfer file		Pass
TS08-Group8-SendFile-006	Message: "File does not exist"	No message is displayed and a file transfer was started.	
TS10-Responsiveness-Group8-ClientLogin02-001	Login window should close, buddy list should be displayed on the screen within 10 seconds.	Login window closed, and the buddy list was displayed on the screen within 10 seconds.	Pass

TS10-Usability-Group8-SendFile09-001	Within 10 Seconds, the user should understand how to use the dialog box to send a file to his/her buddy	User understood how to use the dialog box to send a file to his/her buddy within 10 seconds	Pass
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