Testing Report

Course Name: Basic Computer Science Practice

Professor: Li Yugang

Leader: 1820222041 – 温富勝 Alexander Darryl Kristiawan

Member: 1820222021 – 郑国強 Darren Tejaatmaja

1820222030 – 林哲豪 Wilbert Jaya Sucipto

1820222040 – 冯明想 Jesslyn Clarissa Hermanto

Project Topic: Instant Messaging

Designing a concurrency strategy for internet messaging involves ensuring that multiple operations can occur simultaneously without causing data inconsistencies, race conditions, or performance bottlenecks. The general strategy for manage concurrency in an internet messaging system:

Version:

Niaochat 2.0

Objective:

The primary objective of this testing report is to evaluate the functionality, performance, usability, and security of the internet messaging system to ensure that the platform meets quality standards and user expectations.

Scope:

The testing covers

- Functional testing (messaging features, notifications, contacts)
- Performance testing (response time, load handling)
- Usability testing (ease of use)
- Security testing (encryption, data protection)

Test Environment

- **Devices**: [Insert devices used for testing]
- **Operating Systems**: [Insert operating systems]
- **Browsers/Apps**: [Insert browser/app versions tested]

- **Network**: [Wi-Fi, 4G, etc.]

Test Cases:

Test ID	Test Case Description	Steps to Execute	Expected Result	Actual Result	Status (Pass/Fail)	Comments
TC-01	Opening Server	Click ‘Run’ on the Server code or the file	The server is running and ready to host the messenger.	The server is running and ready to host the messenger.	Pass	
TC-02	Opening Multiple Clients	Click ‘Run’ on the Client code or the file	The app-based user interface will pop up showing the log in / register page.	The app-based user interface will pop up showing the log in / register page.	Pass	
TC-03	Make a account by register	Click on the register button and input the determined account username and password	User will be able to enter and the app window will pop up	The app window pops up and the app is usable	pass	
TC-04	Login account	Click on the login button and input the account username and password	The app window will pop up	The app window pops up and the app is usable	pass	
TC-05	Chat	Click on one of the contacts in the chat window and press the text box. Then start typing and	The text from the text box will move upward into a bubble	The text from the text box will move upward into a bubble showing the message has	pass	

		enter the final text.	showing the message has been sent. The other party will receive the message almost instantly.	been sent. The other party will receive the message almost instantly.		
TC-06	Send Emoji	Click on the emoji on the chat window and select the emoji that the user wants to send	The receiver will receive the emoji and can press the emoji sent the enlarge it	The emoji sent well and there is no problem in the image at all	pass	
TC-07	Send Image	Click on the image button on the chat window and select the image that the user wants to send	The receiver will receive the image and can press the image sent the enlarge it	The image is sent well and there is no problem in the image at all	pass	
TC-08	Group chat	Click on the group chat there is in the contact window	Several users will be able to chat in a group	The group chat function has now worked because the messages were not shown and not sending	Fail	

Key Observations:

A. **Performance**: The system performs well under normal loads but experiences delays under heavy traffic. Performance improvements are recommended, particularly in message delivery during high-volume scenarios.

B. **Security**: The messaging system successfully implements end-to-end encryption and safeguards user data. Brute-force protection works as expected.

C. Usability: The platform is user-friendly with smooth transitions between features. The multi-device sync works well.

D. Areas for Improvement:

- Message delivery times under high load need optimization.
- GIF loading times could be improved to enhance the user experience.
- Some minor delays in receiving multiple notifications simultaneously were observed.

Recommendations:

1. **Optimize for high traffic**: Enhance the system's ability to handle simultaneous users and heavy loads, particularly in high-volume group chats.
2. **Improve multimedia performance**: Work on speeding up the load times for GIFs and large video files.
3. **Test group call functionality**: the group call function has not worked and still needs more time to develop. There are problems that occur when chatting in the group chat to make it functional

Conclusion:

The internet messaging system generally performs well in terms of functionality, usability, and security, with a few performance bottlenecks that can be addressed. Further optimizations and load testing are recommended to enhance user experience under high-demand scenarios.