



Software Design & Architecture Project

Real-Time Chat Application: Project Proposal

CRN: 43509

Group 7

Kalapan Kannathasan - 100759041

Yash Patel - 100746810

Sujeev Uthayakumar - 100744194

Zirak Mughal - 100749132

Date: November 8, 2021

1. Use Case Models

The use case model in Figure 1.1 represents the most relevant use cases that showcase the functionality of the USChat chatting application.

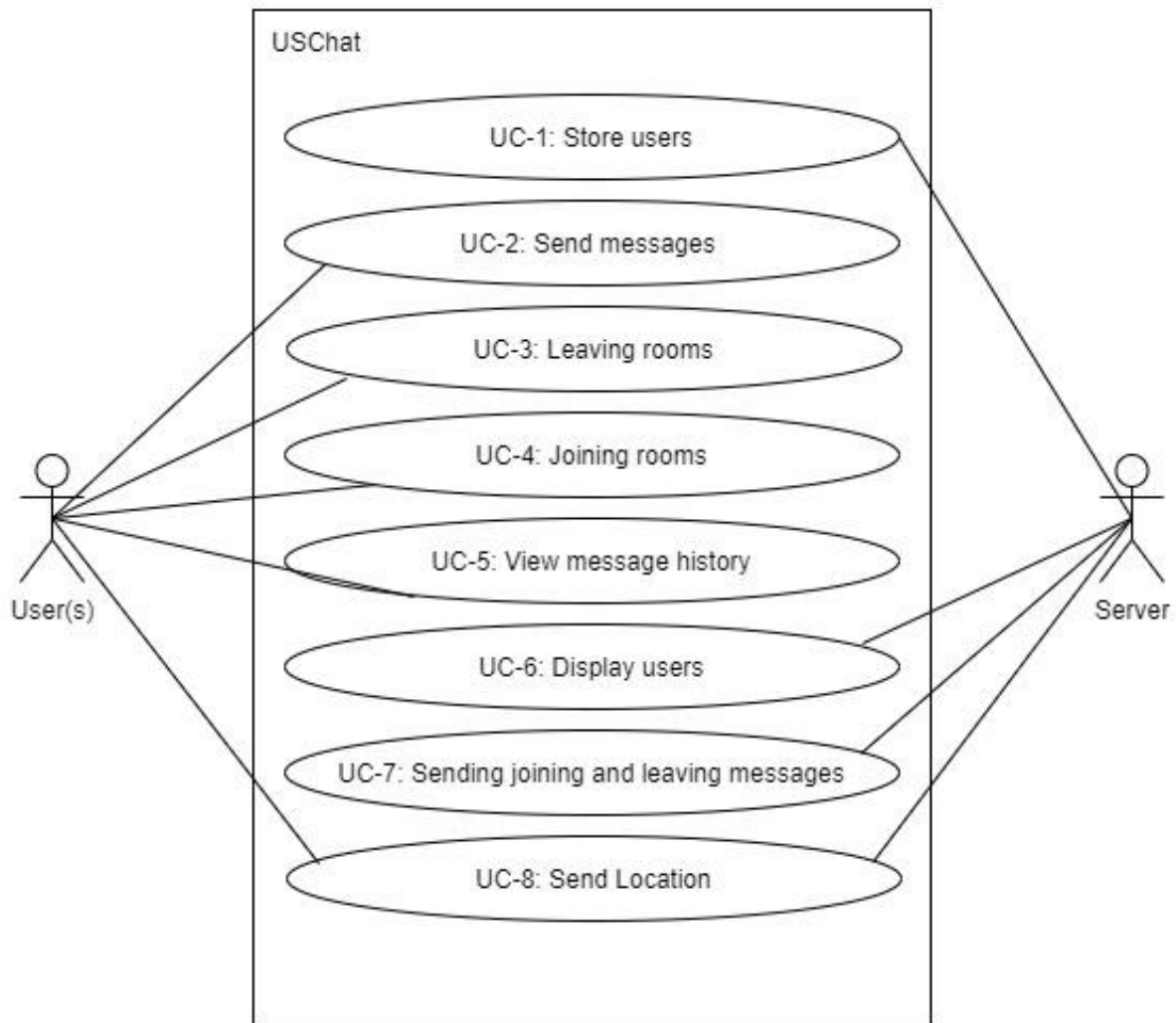


FIGURE 1.1 Use case model for the USChat chatting system

2. Quality Attribute for the Use Cases

In addition to these use cases, a number of quality attribute scenarios were elicited and documented. The most relevant quality attribute scenarios are listed below.

ID	Quality Attribute	Scenario	Associated
QA-1	Scalability	Create a user and send it to be stored within the server, with an ever-expanding user base.	UC-1
QA-2	Usability	User is able to send messages and the timestamps are recorded	UC-2
QA-3	Security	Send location coordinates but shift it slightly	UC-8
QA-4	Performance	The ability to perform all tasks without comprising real-time functionality. Where messages are seen within a second of being sent.	All
QA-5	Availability	Users are able to see other users as well as the admin	UC-6

FIGURE 2.1 Table of quality attributes for the use case

3. System Constraints for the Use Cases

A set of constraints of the system and the inner workings of these constraints were collected.

ID	Constraints
CON-1	A minimum of 10 users must be supported
CON-2	Messages should be sent in less than 1 second on either end
CON-3	Users should be authenticated before joining the room
CON-4	Network connection between user and server must have low bandwidth and be reliable
CON-5	The system must be accessed through a web browser such as (Chrome, Firefox Safari, etc)
CON-6	Large amount of messages will have to be stored in a single session

FIGURE 3.1 Table of system constraints for the use case