# *Term Project:* *Instant Messaging App*

Feature Document

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# Introduction

**Provide an overview of this document and the product it describes.**

This is a feature document for an instant messaging app. This feature document describes an instant messaging app that can send and receive messages between users in chat rooms, as well as private and group chats. This feature document provides a more detailed overview of the instant messaging app, including who can use it, why they should use it, and why it should be developed.

## Purpose

**Describe the purpose of this document. How will this document help you or others when developing similar product?**

The feature document is an essential component of the software development process. Developers and team members can gain a better understanding of the product by reading or writing the feature document, and user stories can help developers and team members figure out what features users want and what features to include in the product.

## Target Audience

**Describe the target audience for this document.**

The target audience of this feature document is made up of a variety of people. First and foremost, the product manager, team leader, and team members can use this document to conduct a final check to see if there are any issues before developing the software and whether it is safe to proceed. This document also allows the investor of this project to decide whether to invest in this project or not. Finally, users of this product can learn more about the detailed functions of this software by reading this document.

## Terms and Definitions

**Define any terms or acronyms you will be using for the rest of this document.**

# Product Overview

**Describe the purpose of this section. Give short statement of WHAT, WHO, WHY of this this product.**

The product overview section fully describes all features, operating environment, and design and implementation constraints for an instant messaging app. And through product vision, we explain what is to be developed, who are the target customers for the product and why they should buy the product that we are developing.

WHAT: Instant messaging app

WHO: People who wants to communicate with other people through internet in real time

WHY: Provides secure and reliable communication environment

## Product Vision

**Describe the product vision using Moore’s vision template. (lecture slides Chapter 1 p12-16) (You can read product vision of slack:** [**https://medium.com/@stewart/we-dont-sell-saddles-here-4c59524d650d#Web\_Advice%7Ckromodor**](https://medium.com/@stewart/we-dont-sell-saddles-here-4c59524d650d#Web_Advice%7Ckromodor) **or choose your own favorites)**

FOR people WHO wants to communicate with other people through internet server in real time in private or in public, this instant messaging app is a communication app THAT can be used to host a secure private individual chat or public group chat. UNLIKE Facebook messenger, OUR PRODUCT can give secure and reliable communication environment with very easy to use user interface.

## Product Scope

**Describe all the features of this product using a mind map here. You can use existing instant messaging application as an inspiration. Please be as specific as you can. This mind map should be one of your main references when actually designing sprint backlog.**



## Operating Environment

**Describe the operating environment this product requires.**

Since this program is going to be light weight because it is going to be much simpler than slack, it is not going to require high system performance. For reference, below is the minimum system requirements for slack.

MacOS: OS X 10.14 or above

Windows: Windows 8.1, Windows 10 version 1909 or above, Windows 11

## Design and Implementation Constraints

**When considering implementing all the features in 2.2, what are the languages, libraries, frameworks, or platforms you are going to use? Describe the constraints you might have when designing and implementing the product using these tools.**

The programming language I am most familiar with is C++. Even if I use another programming language, I can proceed the project while learning the programming language at the same time because I have a deep understanding of C++. Because C++ may not be a programming language that is optimized for developing an instant messaging app, I think I need to do a little more research to know exactly which language to use. The development environment will be VScode and GitHub, and tools such as MongoDB, Express.js, React.js, and Node.js will be used to run the project smoothly.

# User Stories

**Describe the purpose of this section. Why is it necessary to understand users’ needs when developing product? How many efforts should be made?**

The user stories section is where we can learn about the target users of an instant messaging app, their own scenarios, and epic user stories. Because a software product is what users use, it is critical to understand their various characteristics, scenarios, and stories. A software product should be user-centered, and in order to provide good features, we must first understand what users want.

## Personas

**Provide at least three target user personas (lecture slides Chapter 3 p8-16) of this product. (2.1 product vision may help you)**

Persona 1: Emma, age 41, is a history teacher in high school

Persona 2: Elena, age 24, is a college student

Persona 3: Edward, age 65, is an elderly man enjoying his life after retirement

## User Scenarios

**Write user scenarios (Chapter 3 p17-25) from the personas you wrote in 3.1.**

**You should stand on the same side with the persona you created. Several scenarios should be derived from one persona. Scenarios should be general with no implementation details.**

### <User Scenarios with Persona 1>

Emma is a history teacher in high school, and she is 41 years old. She wants to deliver further announcements to her students through an instant messaging app, receive individual questions from students, and provide answers to their questions.

First and foremost, she creates a group chat room for her history class to communicate with her students. She makes announcements to her students in this group chat room, and her students communicate with one another about the class.

Moreover, she also receives individual student questions through a private chat room. And she helps students individually by answering their questions in the private chat room.

### <User Scenarios with Persona 2>

Elena is a college student, and she is 24 years old. She wants to use an instant messaging app to make it easier to communicate with her friends.

First, she creates a group chat room with her friends in the same major, where she shares useful information about her major, has productive conversations, and tries to help each other when they need help.

Moreover, she makes a private chatting room with her best friend, in which she shares funny stories, sometimes laughing out loud over their old conversations.

### <User Scenarios with Persona 3>

Edward is an elderly old man who is not working anymore, and he is 65 years old. Whenever there is an announcement to his family, he wants to use an instant messaging app.

He invites his wife, as well as his children, to the group chat room to communicate between family members before or after the holidays or when going to a family reunion. And whenever he has important family announcements, he posts them in the group chat room.

Moreover, depending on the importance of privacy, he chats privately with his wife and with his children.

Other messaging apps are difficult for Edward to use because they have too many features and complex user interfaces, but instant messaging app is simple to use because it has simple features and simple user interface which makes it easy for Edward to use.

## Epic User Stories

**Write at least three epic (Chapter 3 p28 3rd bullet point) user stories (Chapter 3 p27-29) with acceptance criteria in the following template. Try to define each small user story specifically so that they could directly be used in the sprint backlog.**

### <Epic User Stories 1>

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| **Epic 1: Epic User Story for Emma** |
| ***As a*** high school history teacher  ***I want to*** receive and answer individual questions from students through an instant messaging app, while properly delivering announcements to students and enhancing communication between students.  ***So that I can*** improve the productivity and quality of my class. |
| **Acceptance Criteria**  ***Give*** proper communication environment (private & public)  ***When*** the user wants to communicate with other people (private & public)  ***Then*** proper communication environments will be offered |
| <Breakdown the features to a single feature that can be implemented in a sprint>  User story 1: receive message with notification  As a high school history teacher, I want to receive individual questions from students. |
| User story 2: send message in private chat  As a high school history teacher, I want to answer individual questions from students. |
| User story 3: send message in group chat  As a high school history teacher, I want to properly deliver announcements to students. |

### <Epic User Stories 2>

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| **Epic 1: Epic User Story for Elena** |
| ***As a*** college student  ***I want to*** interact with my same major friends by sharing some important information related to my major, as well as having fun with my best friends personally through internet.  ***So that I can*** have fun with my friends and be productive at the same time. |
| **Acceptance Criteria**  ***Give*** proper communication environment (private & public)  ***When*** the user wants to communicate with other people (private & public)  ***Then*** proper communication environments will be offered |
| <Breakdown the features to a single feature that can be implemented in a sprint>  User story 1: create group chat  As a college student, I want to have a group chat with my classmates |
| User story 2: create private chat  As a college student, I want to have a private chat with my best friend. |
| User story 3: add friend through group chat  As a college student, I want to get to know new people through group chat. |

### <Epic User Stories 3>

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| **Epic 1: Epic User Story for Edward** |
| ***As an*** elderly man  ***I want to*** enhance family communication and make family communication more efficient using an instant messaging app.  ***So that I can*** be more productive and enhance communication between family members. |
| **Acceptance Criteria**  ***Give*** proper communication environment (private & public)  ***When*** the user wants to communicate with other people (private & public)  ***Then*** proper communication environments will be offered |
| <Breakdown the features to a single feature that can be implemented in a sprint>  User story 1: create group chat  As an elderly man, I want to have a group chat with my wife and children. |
| User story 2: create private chat  As an elderly man, I want to have a private chat with my family members. |
| User story 3: simple user interface  As an elderly man, I do not want to spend too much time learning how to use the software. |

# Feature List

**Describe the overview of all the features in your product. And also provide a thorough feature list (Chapter 3 p45-47) out of ALL the features you are going to implement. You could sort this list with the highest priority and lowest effort first. This list would be your most important reference when setting up sprint backlog.**

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| **Feature 1:** Create account | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  This will require user input for new ID and new PW. After user input, it will check if the new ID and new PW are acceptable. There cannot be duplicates for user ID and PW must be a combination of numbers, upper case letters, lower case letters, and special characters and the PW cannot start or end with a blank space. If new ID and new PW are acceptable, the account will be created, and it will lead to the log in stage. | | |
| ***Constraints:***  All users must have an account in order to use this software. | | |
| ***Comments:***  Using Google or Facebook credentials for this software will be considered. | | |

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| **Feature 2:** Log in / Log out | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  Log in: This will require user input for user ID and PW. This will check if there is a matching user ID in the account database. If there is no match, it will ask you to enter again. If there is a match, then this will check if the PW is correct. If it is correct, it will lead to the home page. If it is not correct, it will ask you to enter again.  Log out: From home page, it will lead to Log in page. | | |
| ***Constraints:***  All users must go through Log in process in order to use this software. | | |
| ***Comments:***  Auto log in function such as fingerprint or face ID will be considered. | | |

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| **Feature 3:** Display list of friends | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  This will show all the friends in an alphabetical order. User can see who is online and who is offline. | | |
| ***Constraints:***  Users cannot change the order. | | |
| ***Comments:***  Pin the favorite friends to the top will be considered. | | |

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| **Feature 4:** Display list of chats | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  This will show all the chats in a recent activity order. All the private chats and group chats will be shown here. | | |
| ***Constraints:***  Users cannot change the order. | | |
| ***Comments:***  Pin the favorite chats to the top will be considered. | | |

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| **Feature 5:** Display settings | **Priority:** Low | **Effort Required:** 1day |
| ***Description:***  This will show all the options to customize the software and their account to their liking. Options are friend management and data management. In friend management, the user can unblock blocked friends. In data management, the user can change privacy info and delete chatting history. | | |
| ***Constraints:***  All users have limited options. | | |
| ***Comments:***  Adding more options will be considered. | | |

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| **Feature 6:** Display my profile | **Priority:** Low | **Effort Required:** 1day |
| ***Description:***  This will show my name, ID, and part of privacy info that I have designated to disclose. | | |
| ***Constraints:***  All users have same profile interface. | | |
| ***Comments:***  Adding profile picture will be considered. | | |

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| **Feature 7:** Display friend profile | **Priority:** Low | **Effort Required:** 2days |
| ***Description:***  This will show user’s name, ID, and part of privacy info that the user has designated to disclose. From here, the user can directly send a message and it will lead to a private chat. If this is the first time, it will create a private chat. If this is not the first time, it will then enter an existing private chat. Moreover, the user can delete friend or block friend from here. | | |
| ***Constraints:***  All users have same profile interface. | | |
| ***Comments:***  It is unclear whether all the functions will be implemented within the deadline. | | |

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| **Feature 8:** Add friend | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  This will require user input for user ID of the user that the user want to add as a friend. If there is a match, the user will be added to the list of friends. If there is no match, it will ask you to enter again. | | |
| ***Constraints:***  In this page, user ID is the only way to add friend. | | |
| ***Comments:***  Various ways to add friend will be considered. | | |

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| **Feature 9:** Delete friend | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  This will remove the friend from the user’s friends list. The user can always add friend back through add friend. | | |
| ***Constraints:***  There is no undo function. | | |
| ***Comments:***  Without knowing the user ID, the user cannot add the user as a friend again. | | |

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| **Feature 10:** Block friend | **Priority:** Low | **Effort Required:** 3days |
| ***Description:***  This will remove the friend from the user’s friends list and the user will not get any message from the blocked friend. The user can always unblock the friend through settings. | | |
| ***Constraints:***  There is no undo function. | | |
| ***Comments:***  Without knowing the user ID, the user cannot add the user as a friend again. | | |

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| **Feature 11:** Unblock friend | **Priority:** Low | **Effort Required:** 1day |
| ***Description:***  The selected user will be removed from the blocked friends list. The user will be able to receive messages from unblocked user but will not be automatically added as friend. To add friend, the user needs to go through the add friend process. | | |
| ***Constraints:***  Unblocked user will not be automatically added as friend. | | |
| ***Comments:***  When unblock, providing add back to friends list / do not add back to friends list option will be considered. | | |

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| **Feature 12:** Enter chat | **Priority:** High | **Effort Required:** 1day |
| ***Description:***  From list of chats, selecting one of those will open corresponding chat room. | | |
| ***Constraints:***  Cannot enter multiple chat rooms at the same time. | | |
| ***Comments:***  Making chat room as pop up screen so that user can open multiple chat rooms at the same time might be a good option to consider. | | |

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| **Feature 13:** Display history conversation | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  When the user enters the chat room, depending on the user’s database, the previous conversation is loaded. | | |
| ***Constraints:***  Every user has different database so conversation history might differ. | | |
| ***Comments:***  Might need some research on how to load conversation history from database fast and reliable. | | |

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| **Feature 14:** Send / Receive message | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  In the chat room, the user can type in the input box and press the send button to send a message to the chat room. When another user sends a message, I receive a notification if I am not in the chat room. | | |
| ***Constraints:***  Cannot send photos, videos, or files yet. | | |
| ***Comments:***  Implementing sending photos, videos, or files will be highly considered since this is one of the most essential features in communication software. | | |

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| **Feature 15:** Leave chat | **Priority:** High | **Effort Required:** 1day |
| ***Description:***  When the user leaves a chat room, all conversations in that chat room are deleted from the user's database, and the user cannot re-enter the chat room unless the chat room manager invites the user again. | | |
| ***Constraints:***  Even if the user re-enter the chat room after receiving an invitation, the previous conversations are deleted from the database and cannot be loaded. | | |
| ***Comments:***  Considering pop up phrase "<user name> has left the chat room" appear for users remaining in the chat room when the user leaves the chat room. | | |

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| **Feature 16:** Create private chat | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  The user can create a private chat directly from the friend profile by selecting the friend the user wants to chat with from the friend list or can create a private chat by clicking create a new chat from the chat list and invite friend. | | |
| ***Constraints:***  The user cannot create a chat room without a chat partner. | | |
| ***Comments:***  Considering adding a function to invite a user to an individual chat room and make it a group chat room. | | |

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| **Feature 17:** Create group chat | **Priority:** High | **Effort Required:** 2days |
| ***Description:***  The user can create a group chat by clicking create a new chat in the chat list. After clicking create a new chat, select the friends the user wants to invite to the group chat and click create to create a group chat. | | |
| ***Constraints:***  The user cannot create a group chat room without a chat partner or with only one chat partner. | | |
| ***Comments:***  If there is a voting function in the group chat room, it will be useful for many users. | | |

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| **Feature 18:** Exit program | **Priority:** High | **Effort Required:** 1day |
| ***Description:***  Click this button to exit this software. | | |
| ***Constraints:***  If the user terminates the program in any other way than this method, it may cause problems. | | |
| ***Comments:***  The exit button should be clearly visible and placed in the right place and the right size to avoid accidentally pressing it. | | |