Individual Report

Fundamental Practice of Computer Science

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## 19th August 2024

I was assigned to a group with 康隽秀 (1820222039), 金俊希 (1820222044), and 博文 (1820222023) for the project. During our initial meeting, we held a discussion to divide responsibilities in preparation for the first deadline. As part of this collaboration, I assumed responsibility for drafting the Team Contract, ensuring that our team’s guidelines and expectations were clearly documented. Additionally, I was tasked with providing support to 金俊希 on the implementation and optimization of the client-server protocol, contributing to the technical foundation of our project.

## 20th August 2024

I began drafting the Team Contract after researching and reviewing several examples I found online. This being my first experience both writing and reading a contract, I initially encountered some challenges. However, the reference contracts provided valuable guidance in structuring the document. After completing a draft, I handed it over to 康隽秀 for her review and editing, allowing her to refine and adjust the content as necessary to ensure it aligned with our team's expectations and project needs.

## 21st August 2024

In the morning, I clarified project requirements with the teacher and confirmed that the instant messaging system must be developed on a Linux OS. Fortunately, I already had Fedora Linux installed on my laptop, so I took responsibility for the coding tasks. Later in the afternoon, we held a group meeting to review our progress. 康隽秀 and 博文 presented the conversation design, and I also consulted with 金俊希 regarding the client-server protocol. He had already coded the foundational elements, and my task was to ensure that it could run smoothly on the Linux platform.

## 22nd August 2024

In the morning, the teacher informed us that the deadline for the first task was extended from the 22nd to the 23rd. With the extra time, I decided to focus on finalizing the client-server protocol. The task proved to be challenging because the code 金俊希 provided was initially written for a Windows environment. Adapting it for Linux required significant effort, as I had to research suitable socket options that would work on Fedora. After extensive searching and troubleshooting, I successfully identified the appropriate socket and rewrote the necessary code to ensure compatibility with the Linux operating system.

## 23rd August 2024

康隽秀 shared the GitHub repository with me, adding me as a collaborator. After reviewing the client-server protocol with my team members to ensure everything was in order, I uploaded the finalized code to the repository. Following this, as the group leader, 康隽秀 took the responsibility of submitting our work by sending both the repository link and a zip file containing the project to the teacher for evaluation.

## 26th August 2024

During our group meeting to plan for the second deadline, we divided the responsibilities for the upcoming tasks. I took on the responsibility of developing the concurrency strategy, which initially posed a challenge because I was unfamiliar with the concept. Out of curiosity, I also inquired about the tasks my team members were handling. 康隽秀 was in charge of creating the UI sketch (a paper-based design), preparing the demo video, and collaborating with 金俊希 on the testing strategy. It was at this point that I realized 博文, aside from contributing to the conversation design, had not actively participated in any other tasks and had failed to adhere to the terms outlined in the Team Contract.

## 28th August 2024

康隽秀 reached out to me for assistance in getting the code to run, as the current version was only compatible with Fedora Linux and required the files to be placed in a specific folder (Alternatively, the make file could be modified to reference files in a different location). We met up, and I helped her get the code functioning properly for the demo video. At this stage, the code lacked a user interface, so we used terminal windows to simulate chat boxes, with one window dedicated to being the server.

康隽秀 then uploaded the necessary materials to the GitHub repository. She then submitted our work by emailing the teacher a link to the repository along with a zip file containing all the project materials.

## 29th August 2024

During class, we discussed the third project deadline, scheduled for the 19th of September, and divided the remaining tasks. I took responsibility for the implementation phase, which involves ensuring that the code runs smoothly and integrates a functional user interface. 康隽秀 and 金俊希 were assigned to handle the testing phase and prepare the corresponding testing report.

## 30th August 2024

I initially downloaded QT Creator and spent a considerable amount of time working on the UI design, but later realized I had downloaded the wrong software—QT Studios was what I needed. To add to the setback, I had also mistakenly installed it on the Windows OS, which meant I had to start over from scratch.

## 2nd September 2024

Using Fedora Linux, I downloaded the correct software, QT Studios, and began designing the UI system. The software provides a user-friendly experience by allowing me to drag and drop widgets such as; QPushButton, QTextEdit, and QListWidget. The design window then automatically translates the layout into code, which significantly reduces the time and effort needed, as I no longer have to manually code the graphics from scratch in a .qml file.

## 14th September 2024

I took a break from the project since we had some time until the deadline, and my group and I were occupied with the third week of the small semester and the first week of the main semester.

The main.cpp was easy to write as it is just a short code resizing and excuting the window. I'm currently facing difficulties connecting the existing code to the user interface due to the socket used for the client-server protocol. After exploring alternatives, I decided to switch to WebSocket for improved compatibility. I have rewritten most of the websocketthread.cpp and websocketthread.h files and have started implementing the WebSocket server. At the same time, I've been working on writing the `mainwindow.cpp` to integrate the user interface with the server.

## 16th September 2024

I have completed writing the client-server code and am currently in the process of testing it to resolve any issues that arise. After ensuring that the code no longer requires any adjustments, I sent it to 康隽秀. The code is now compatible with platforms beyond Linux, which makes it more accessible for my team members to compile and test on their own systems.

## 17th September 2024

Having completed my part of the project, I'm now focusing on writing my individual report, summarizing my work over the past month. This journey has been challenging, but it has also been an invaluable learning experience that significantly improved my coding skills. At the start, I doubted my ability to build an instant messaging system, but through persistent research, learning, and the support of my team members, I was able to overcome the challenges and complete the project successfully.