INFO2222 Usability

CC10-3
SID:520196944
SID:520199901

Step 1: User Investigation

User type selection: Student

Based on the survey data provided and the PACT analysis in the reference document, we decided to select students as the target user type.

1. PACT Analysis

People：

- Age distribution: Most students were between 18 and 25 years old, with 36.2% between 21 and 25 years old, 46.8% between 18 and 20 years old, and a few older than 25 years old (10.6%).
- Gender distribution: 55.3% were male, 42.6% were female, and a few did not want to disclose their gender (2.1%).
- Occupation: The vast majority (85.1%) were students.
- Cognitive Differences: Considering the different adaptability of each user to web applications, we explicitly use text to express each function on the page, avoiding the use of icons that would make users unable to accurately distinguish the role of each function, which would lead to a poor experience.
- Physical differences: Considering the physical differences of users, such as myopia, astigmatism, farsightedness, etc., our website makes a clear distinction between the fonts of the functions and the background, and bolds the relevant fonts, which is more friendly to users with special needs.
- Psychological differences: Each user has different attention and memory to things under different emotions, so our website meets the basis of physical differences with simple and clear page design, bolded keywords, and color changing effects when clicking buttons to help users understand the information.

- Experience and Expectation: Most of the users are novices and need a simple and easy to understand interface and clear navigation logic.
- Culture: Considering students from different cultural backgrounds, we try to use text for labeling when designing icons and interactions to avoid misunderstanding.

Activities：

- Goals, tasks, and actions: Students' tasks can be explicit (e.g., completing an assignment or submitting a project) or vague (e.g., finding learning resources or discussing a problem with classmates). Users can find what they need by viewing different posts.
- Continuous or interrupted: Students may need to interrupt and continue tasks several times during the learning process, such as using the site on different devices or studying at different times of day. The site should provide an auto-save function and a resume function to help users find their way around.
- Individual vs. collaborative work: Students' tasks include both individual learning tasks and collaborative tasks. The website should support personal chat rooms as well as post viewing can be switched freely.
- Task length: Students have long and short learning tasks with different peak and trough periods. For example, before the exam is the peak period, the task is intensive; usually is the trough period, the task is relatively scattered. The website should support quick responses to help students complete tasks efficiently during peak periods.
- Responding to errors: The website should provide clear error messages to help students quickly understand and solve problems. For example, input errors should prompt specific error causes and solutions. For important or safety-critical errors, the system provides effective protection measures to avoid data loss or security issues.

Context：

- Physical environment: Students study and use the website mainly at home, in quiet places such as libraries or coffee shops.
- Social/organizational environment: The school provides lectures, tutorials, etc. to help students understand and consolidate their knowledge. Students can also interact with each other through opportunities provided by the school.
- Organizational environment: The school serves as the main social organization for students, providing academic support and a platform for communication.
- Environment where activities take place: Students usually study in a quiet, comfortable environment, such as at home or in the library.
- Activity support: Schools provide lectures, tutorials and learning resources that play an important role in supporting students' learning activities.

Technologies（技术）:

- Input: Students input and acquire knowledge primarily through text, sometimes including code. The website is mainly a platform for communication and learning, supporting the exchange of text and code.
- Output: The website provides a clear text display function to help students quickly understand and apply their knowledge.
- Communication: It supports real-time communication and messaging between students to facilitate discussion and collaboration.
- User Interface: Uses a simple and clear user interface that is easy for students to quickly get started and use.
- Network Connection: The website requires a stable network connection to support real-time data synchronization and information exchange.
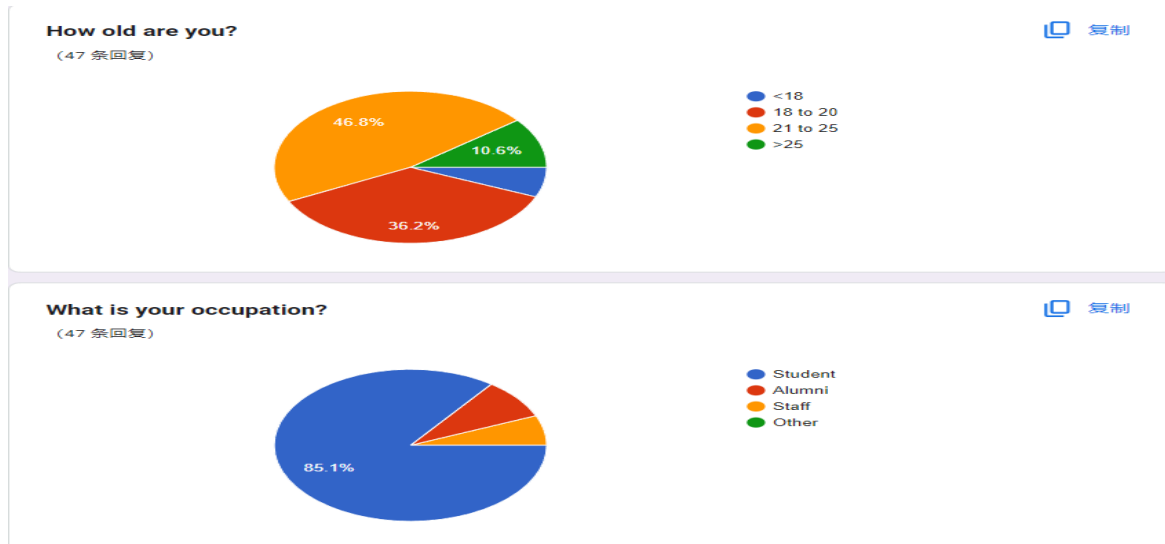
2. Outline of the user survey process

- Questionnaire: a questionnaire containing questions on age, occupation, gender, commonly used messaging apps, frequency of messaging app use, frequency of

Edstem use, and importance of checking friends' status was designed and 47 valid responses were collected.

- Interviews: in-depth one-on-one interviews were conducted to understand the specific needs of students when using messaging apps and Edstem.
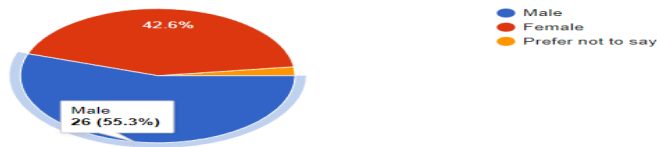
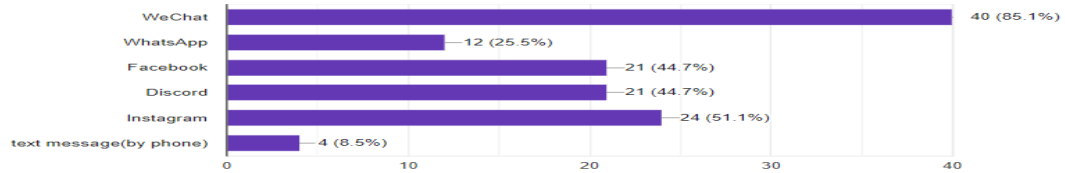## 3. Data materials collected

How old are you?
（47 条回复）

46.8%
36.2%
10.6%

- <18
- 18 to 20
- 21 to 25
- >25

复制

What is your occupation?
（47 条回复）

85.1%

- Student
- Alumni
- Staff
- Other

复制

What is your gender?

(47 条回复)

- Male
- Female
- Prefer not to say

42.6%

Male
26 (55.3%)

复制

What are your preferred or often used messaging apps?

(47 条回复)

WeChat	40 (85.1%)
WhatsApp	12 (25.5%)
Facebook	21 (44.7%)
Discord	21 (44.7%)
Instagram	24 (51.1%)
text message(by phone)	4 (8.5%)

复制

Select the features you prefer in your messaging application.

(47 条回复)

- Messages have timestamp
- Users can be blacklisted
- Messages can be withdrawn
- Edit personal homepage
- Customized Chat Background

23.4%
31.9%
29.8%

复制

How important is it for you to see your friend's status in the app?

(47 条回复)

9 (19.1%)   8 (17%)   11 (23.4%)   12 (25.5%)   7 (14.9%)

1   2   3   4   5

复制
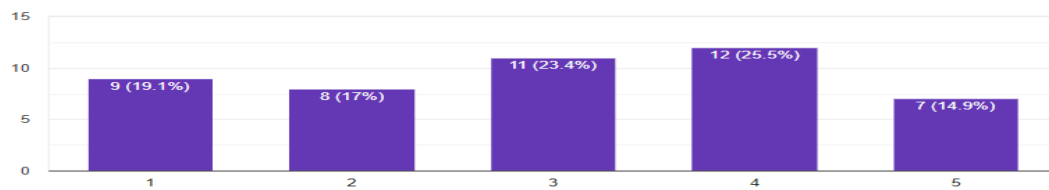
How often do you think you use messaging apps?

(47 条回复)

- less 1h
- 1-2 h
- 2-4 h
- more than 4h

17%
51.1%
8.5%
23.4%

1-2 h
24 (51.1%)

复制
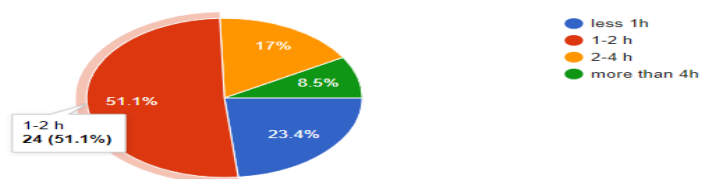
How often do you use/look Edstem?

(47 条回复)

- many times everyday
- 1-2 times everyday
- 3-6 times a week
- less 3 times a week

21.3%   21.3%
31.9%   25.5%

复制
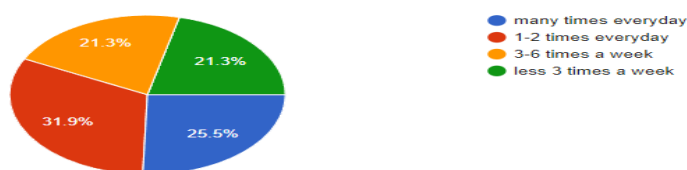
4. Target Role Documentation

Role: Student User

- Background: Most of them are between 18 and 25 years old, with a more balanced male-female ratio, mainly full-time students.
- Needs: Efficient study and communication tools, easy to communicate with classmates and teachers, timely access to course and assignment information.
- Goal: Improve study efficiency, maintain good communication with classmates and teachers, and conveniently access and share study materials.

Step 2: Navigation design

Open card sorting result :

The results matrix ⓘ

	Start Page	Home Page	Ed Forum	Friend	unsorted
Sign up	7				
Login	7				
Log Out		7			
Friend List		4		3	
Add Friend			1	6	
Friend Request				7	
Chat		7			
Delete Friend				7	
ED Forum		3	4		
Create thread			6	1	
Edit thread			7		
Write Comments			7		

Popular placements matrix ⊙

	Start Page	Home Page	Ed Forum	Friend	unsorted
Login	100%				
Sign up	100%				
Chat		100%			
Log Out		100%			
Friend List		57%		43%	
Edit thread			100%		
Write Comments			100%		
Create thread			86%	14%	
ED Forum		43%	57%		
Delete Friend				100%	
Friend Request				100%	
Add Friend			14%	86%	

Based on the previous questionnaires and the open/close card categorization we conducted, we have framed the site model in the following way
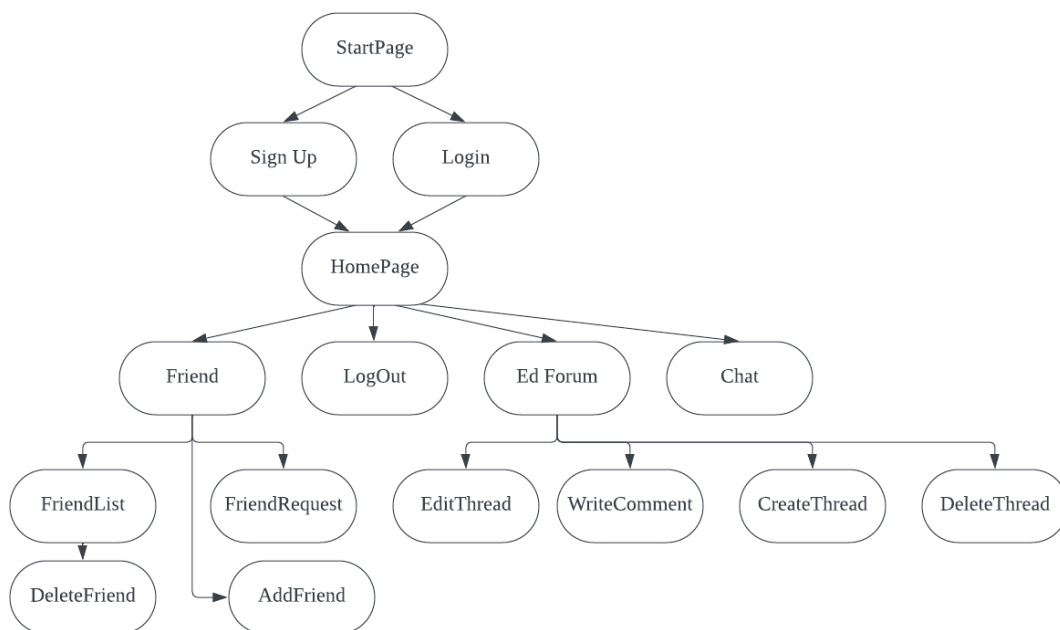
Sign Up: Provides login for new users

Login：Enter account password to enter HomePage

HomePage: Includes the entrance to all functions and the initial page after successful login.

Logout: Logout of the account and return to the Start Page

Friend Request: View the status of all friend requests and whether or not they are agreed to by other users.

FriendList: View friend list, click on a friend to enter chat, delete a friend

DeleteFriend: Delete added users

AddFriend: Can add users who do not exist in the friend list.

Chat: Chat by looking up a username or clicking on a friend's name.

Create Thread: Users can post related threads

Edit Thread: Users can edit their own published threads, Admin can edit all threads

Delete Thread: Users can delete their own published threads, Admin can delete any threads

Write Comment: Users can comment on all the posts that have been published

Based on the above requirements, we roughly designed such an information architecture diagram. When you open it and enter the Start Page, you can enter the main interface through Login, and if you are a new user, you need to register first. There are three sections in the main interface, corresponding to the four functions mentioned above: Ed Forum, Friend, Chat and Logout. Admin can edit and delete all the posts, and can set permissions for others.

Step 3: Design-Evaluate(Low Prototype):

A prioritized list of features

Private User Chat: allows students to have private one-on-one chats with each other to improve communication.

Profile Management: Users can manage their own posts and messages, including editing and deleting their own content.

Knowledge Sharing Forum: Provides a platform where students can post and share study materials and questions.

Favorites Function: Users can favorite their favorite posts for future reference.

Notification function: notify users of new messages and replies in real time to improve interactivity.

Blacklist: For users who have been rejected, they are blacklisted by default and cannot send friend requests again.

Search function: Provides site-wide search, which is convenient for users to find the information they need quickly.

File upload: Users can upload study materials in the forum for easy sharing and downloading.

Multi-device support: Ensure the website works well on different devices (e.g., cell phones, tablets, computers).

Auto-save: Provide auto-save function to prevent users from losing data due to network problems or misuse.

Accessibility Support: Ensure the website is friendly to users with visual or hearing impairments.

According to the priority list, we will gradually implement these features:

User Private Chat, we need to be able to generate direct communication between users, so as to facilitate the exchange of forum content.

Ed Forum, we provide a forum for students to share knowledge and communicate with each other, users can ask their own questions in this forum, or view other people's posts in order to get new knowledge or answers.

According to the survey results, we found that in addition to the implemented features, users had the highest requests for the ability to blacklist users, so we implemented a blacklist feature to avoid users from being bothered by the constant addition of other users.
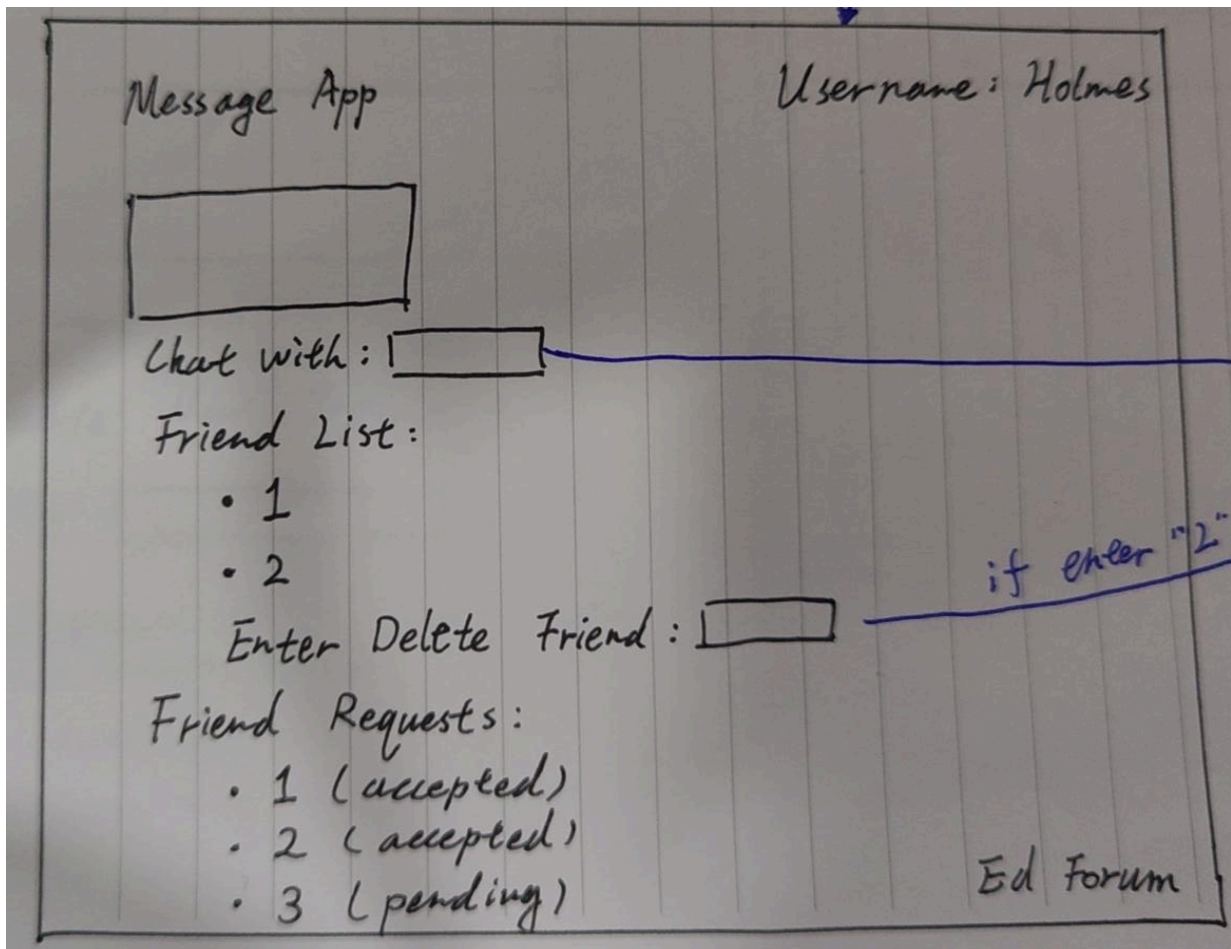
The Low Fidelity Prototype Wireframe:
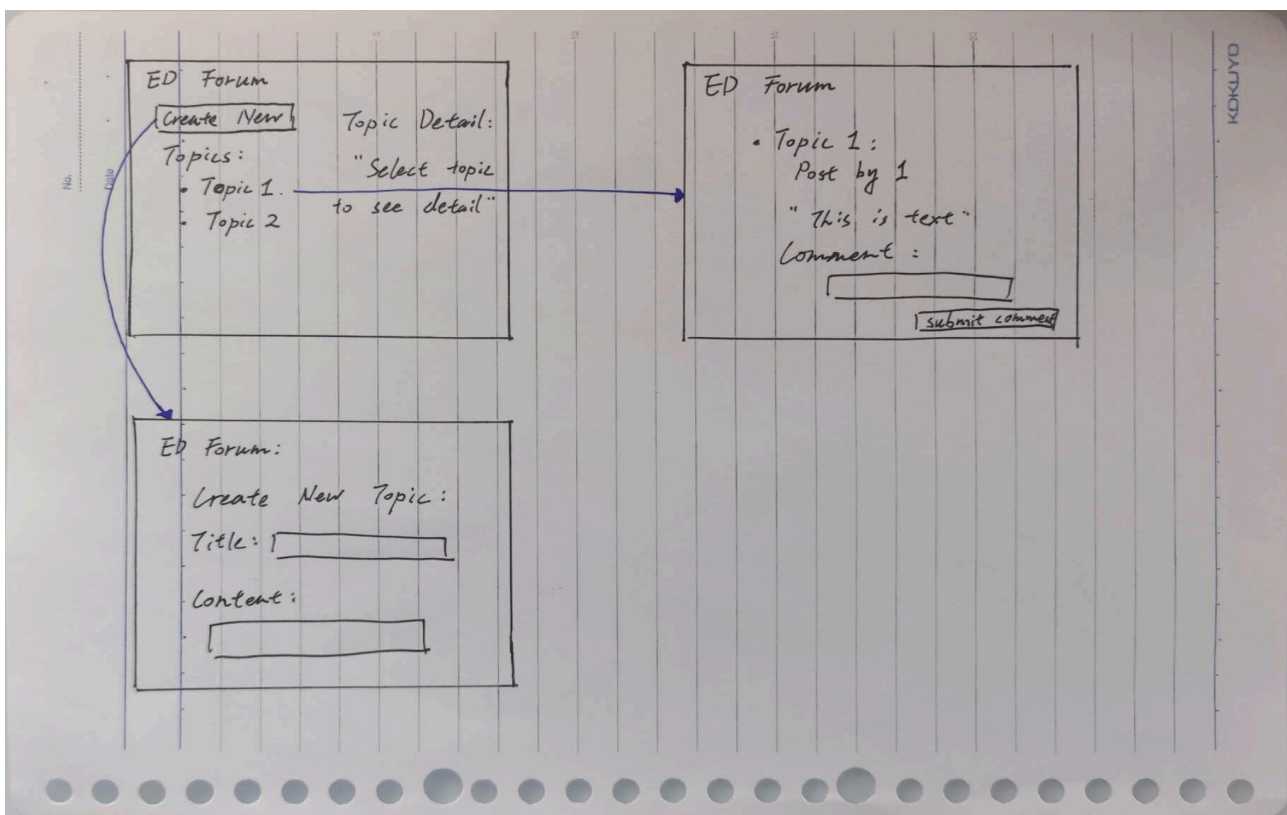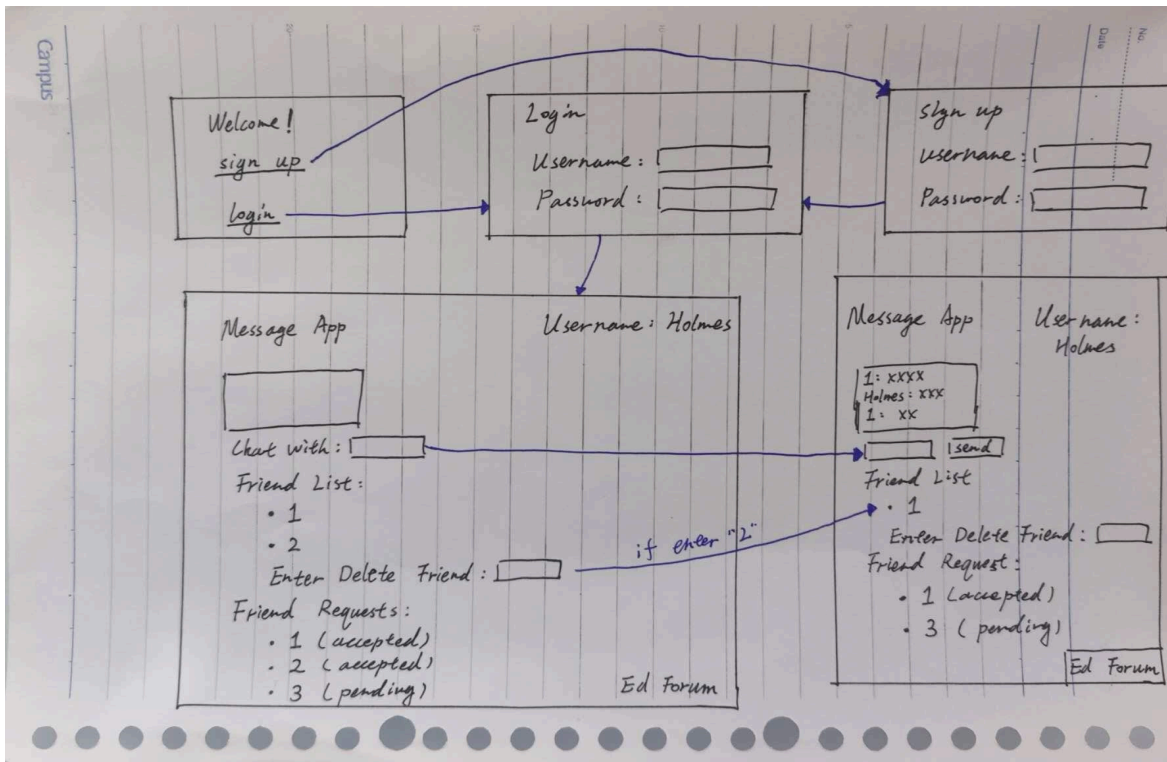

Guerrilla Test:

Tester1 - Sen Wang

I think the framing of the Homepage should be adjusted to make it look better, a better way to do this would be to adjust the Friend module on the bottom left to the right, as the current arrangement looks cramped and would make me feel that the page is badly designed!

Tester2 - Hangyu Ning

I think the implementation of friend deletion could be improved, as I find that I need to type in the name of the friend when deleting them, which seems like a lot of work, and I think it would be a good idea to add a "Delete" button to the end of each friend, or try something else to make it seem easier to use.
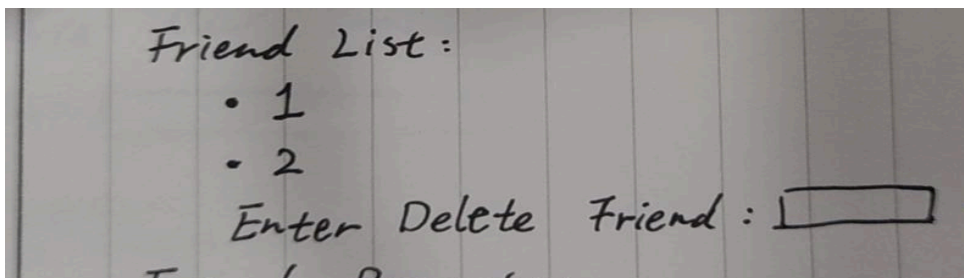
Tester3 - Shengzhe Lou

I think there are two problems

Firstly, you need to add "Back" to every page, because without it, the user can only "go back to the previous page" each time by using the browser's "Back". This is because without this button, the user can only "go back to the previous page" by using the browser's "Back" button each time, so I think adding the "Back" button can greatly improve the user experience.

Secondly, I think Ed Forum's page still needs to be improved, you can refer to Edstem display, when you open a post, you can still see other titles, instead of when you open, the content of this post occupies the whole interface, so if I want to frequently switch between the two posts, it will cause great inconvenience.
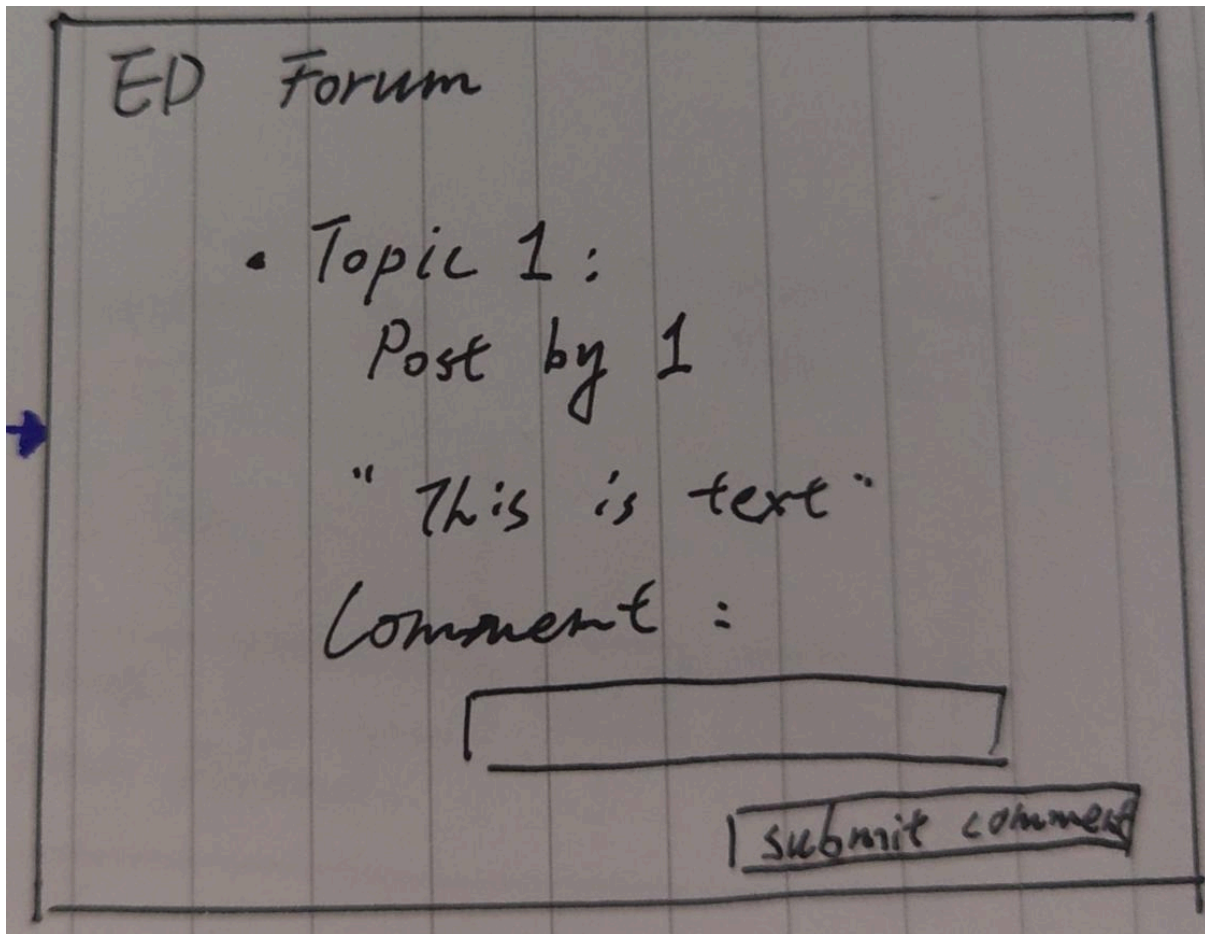
Overall,we have updated a few things through guerrilla testing:

Adjusted the position of the Friend module in the homepage, moved the Ed Forum and Logout buttons to the top of the page, added a "Back" button to each page, and adjusted the display of About posts to follow the Edstem model.

And modified the related wireframes:

Messaging App — User: Holmes

	Log Out
	Ed Forum

Friend List:
- 1 [Remove]
- 2 [Remove]

Chat with:

| "Enter:" | [Send] |

Add Friend:

| Enter: | [Add] |

Friend Request:
- 1 (accepted)
- 2 (accepted)

| ED Forum | Create New Topic | Back | Holmes (student) |

Topics:

Topic 1 [Edit] [Delete]

Topic 2

Topic 1
   Posted by Holmes

Content:
   "This is text"

Comment:
   "great" —— admin

Your Comment:

[submit]

Step 4: Design-Evaluate (High Prototype)

Based on the current implementation of the registration, login, chat and friend functions of the security section, we have hand-drawn a low-fidelity design wireframe, in this prototype design, we will implement some of the functions related to friends and forum functions.

Tester1 - Zhangbin Wang

Feedback:The Homepage page should be a bit cleaner, and I think there should be some buttons to switch between pages more quickly.

Following this feedback, we have a navigation bar in the homepage (homepage) of the web page, this is to provide a user friendly web experience, the navigation bar allows users to quickly find the information they need or different parts of the website. This improves user satisfaction and the efficiency of using the website. A clear navigation bar helps users understand the structure of the website, lets them know where they currently are and how to return to a previously viewed page or jump to another page. In addition, well-designed navigation enhances the overall user experience and makes users feel more comfortable and easy to navigate the website.

Tester2 - Eric

Feedback: I think I need to know what the status of my friends is so that it lets me know if they are going to respond to my messages in a timely manner and makes it easier for me to communicate on the site.

In the previous development, we didn't set the status of the friends, for this feedback, we will set the four statuses of the friends: Online, Offline, Disconnected and Chatting. This will help the user to effectively determine whether a friend is able to communicate and discuss in a timely manner.
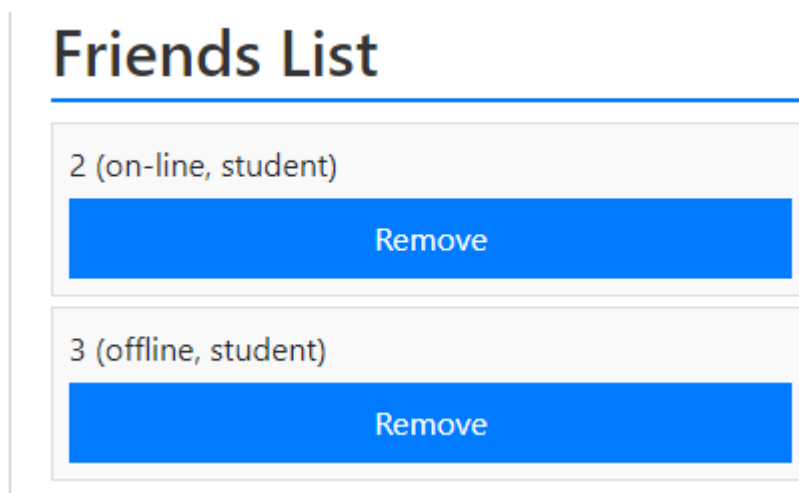
Tester3 - Mingrui Zhao

Feedback: I was editing my post and realised that when I use "Edit" I can't view my original post, which will have a big impact on my compilation as I can't cross reference my previous content.

The reason for this problem is that when the user compiles the content, the Edit page takes over the original content page, so we can't see the original content. To solve this problem, we have tried to use a popup window for Edit, which will replace the original frame, and the popup window will float on top of the Thread without affecting your ability to view the original content.

Tester4 - Ethan

Feedback: What I found when I tried to use the admin section was that if I was the only one with admin rights then I would need to look at every post that had been made to make sure there was no offending content, but that would be wasting most of my time on the matter, so I think I need to set up more permissions to solve this problem.

For the problem of administrative privileges, we will be modified from the original only one administrator into a variety of permissions, respectively, the use of Admin, staff, student, has been other these four kinds of permissions, admin can be given to other users in addition to admin other than the permissions, staff can be managed by the student and the other, student and other No administrative power.

After four iterations, we have a relatively well-developed learning web page.

Outline of achievements:

1. User registration and login

2. Buddy list, adding and deleting of buddies, and status of buddy requests

3. User chat

4. Learning Forum (Ed Forum), where each person can add, modify and delete their own posts. As well as view and comment on other posts.

5. Special feature: you can blacklist users.

6.Admin Function