

# **Final Reflective Report for Software Engineering Group Project**

2021/2022 Semester 2

< Student Service App for XJTLU >

< <http://47.110.224.16:8080/> >

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## Introduction

This report will evaluate a student service application in different aspects: system design, individual work, software testing, change management, teamwork, and some professional issues. Our team completed this app in approximately eight weeks. During these periods, our team followed the principle of "Agile" methodology, appointing one product owner (PO), one scrum master (SM) and seven developers to complete each task. Initially, we tended to develop a university timetable system to manage the activities on campus a day of every student, attempting to solve the time planning problem in the university. However, after comprehensive discussion and consideration, we decided to develop a student service application directly instead of a simple daily schedule application, providing students with a network platform to acquire university information and learning sources. It will assist XJTLU students in managing their time and learning efficiently.

However, after discussing and considering carefully, we decided to develop a student service application, which provides students with a network platform to acquire university information and learning sources. It will assist XJTLU students in managing their time and learning efficiently. From my own perspective, to analyse the final product, although it sacrificed the intuitional view to look up the daily schedule, it provided more functionalities than the initial ones, which are more mature and robust.

The source code is packed into a ZIP file and attached to this report. The code is also synchronised to a GitHub repository and can be accessed by visiting [https://github.com/Zirui-Zhou/CPT202\\_GroupA15\\_XJTLU\\_APP\\_Ass2](https://github.com/Zirui-Zhou/CPT202_GroupA15_XJTLU_APP_Ass2) on GitHub.

## System Design

### System Overview

This project aims at providing various website services for students in the XJTLU. The primary services are news browse, guide helper and resource access. The news is contributed to and maintained by all the students, classified into different categories, such as news, university, clubs, and academic. Articles can be searched through title or author and record every student's visited or liked status. The "Guide" page provides quick links to official university websites and link collections of other platforms like "GenieBunny" for students to learn more about campus life. The "Module" page provides course resources from diverse schools and majors, such as course slides, past examination papers, or notes from students, which can be downloaded directly. The "Student" page displays some individual information and the posted, viewed or liked article lists. The avatar upload is also supported to customise the students' personalised profiles. In further developments, the setting panel is provided to change dark mode, change language, change password, and view the About page. The article edit page is developed to add a new article or edit one existing article.

This web application satisfies most stakeholders' requirements in general. It provides students with a convenient platform to obtain campus news, university information, and learning materials. However, there are still some drawbacks existing from my perspective. Firstly, this

project shows apparent weakness in robustness among detailed designs. For example, some authentication functions are not realised globally, which may trigger some display problems after web page refreshment or cookie elimination. Then, the comment function in each article page is not under actual installation. It contains only placeholder components at the bottom of each article page, which indicates that students cannot share their ideas concerned about the article for now. The existing drawbacks must be improved in further development and maintenance to guarantee stability and practicability.

### System Architecture

The system architectures are divided into two parts, Vue in the frontend and Spring Boot in the backend.

There are three parts in the frontend: Model, View, and View Model, in the standard Vue structure. Generally, developers focus on the three parts respectively instead of considering the connections between each component. The router is powered by "vue-router". The data management is powered by "vuex". Internationalisation is powered by "vue-i18n". The user interface components are powered by "Element Plus". There are also some three-party packages to provide diverse functions and features, such as "v-md-editor" and "darkreader".

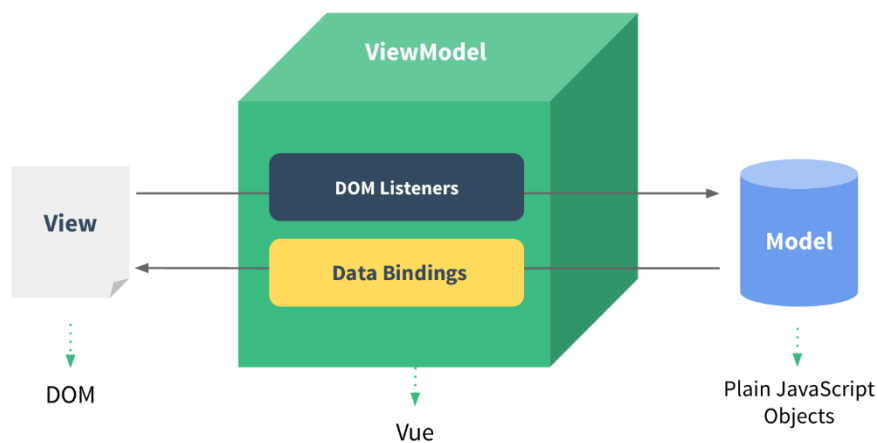


Figure 1. The architecture of Vue MVVM structure.

The backend has five parts: controller, service layer, MyBatis repository, model, and database. Based on the conventional system architecture, our application uses the HyperText Transfer Protocol (HTTP) to establish the connection between the client, i.e., the frontend and the controller. Then, this controller interacts with the service layer to process and modify the model and database through the MyBatis repository, which could inject the relevant dependency. Moreover, this application used the MyBatis repository to control the database instead of the JPA entity. Furthermore, a view page will be returned and shown to clients whether any error occurs.

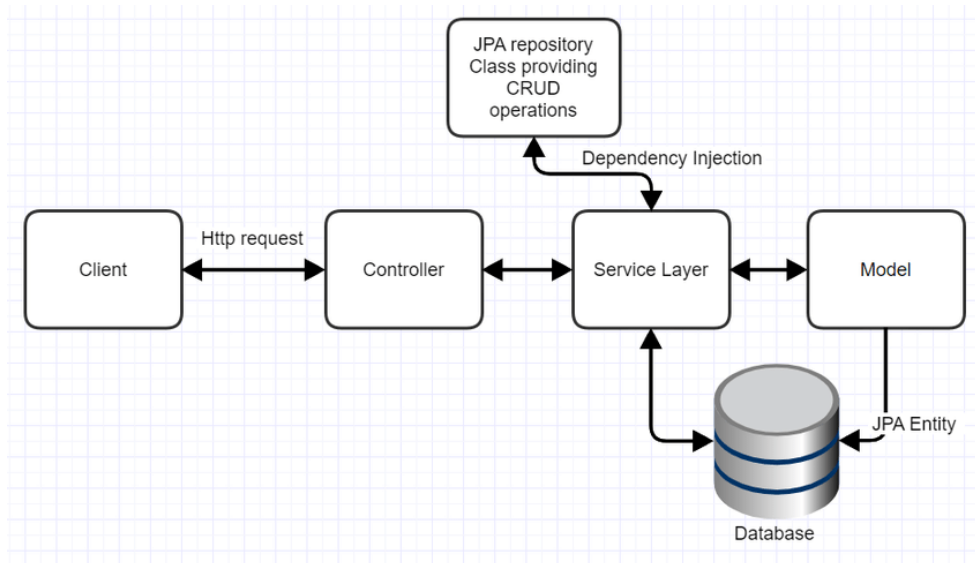


Figure 2. The architecture of a typical Spring Boot application.

Personally, the system architecture is through selection and group discussion, which is appropriate for this project. However, there can be some justifications in the design. For example, this backend architecture does not include the Redis database for possible session storage. Furthermore, Nuxt is not through enough consideration to apply, which serves as an intuitive framework based on Vue for server rendering. Despite this, the architecture of this project keeps lightweight and expandable to transplant into a new framework with little effort.

### High-level Database Design

The design of this product database is divided into the following four steps: requirement analysis, conceptual design, logical design and physical design. Firstly, through detailed discussions with the product owner and scrum master, developers extract the project's functional requirements and understand the data to store. Next, based on the analysis and induction of user requirements, Entity-Relationship diagrams are established to abstractly represent the data structure of the project, which is the conceptual design of the database.

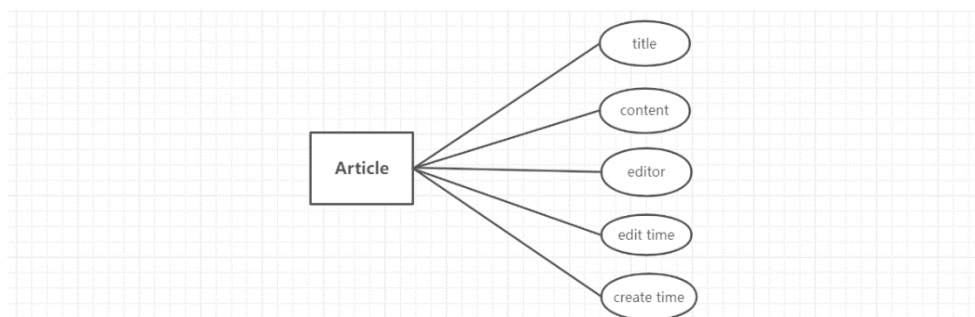


Figure 3: The original ER diagram for the article entity.

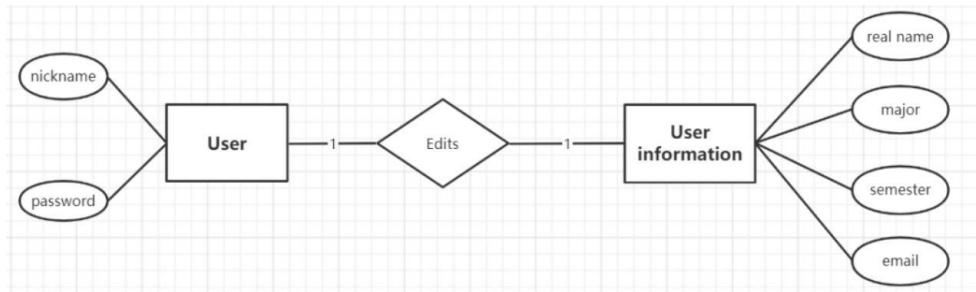


Figure 4: The original ER diagram for user account and information.

After that, the conceptual structure of the database is transformed into the data model supported by the data management system. Finally, developers design data tables according to the established data model for each data type. The following is the final database form of the product.

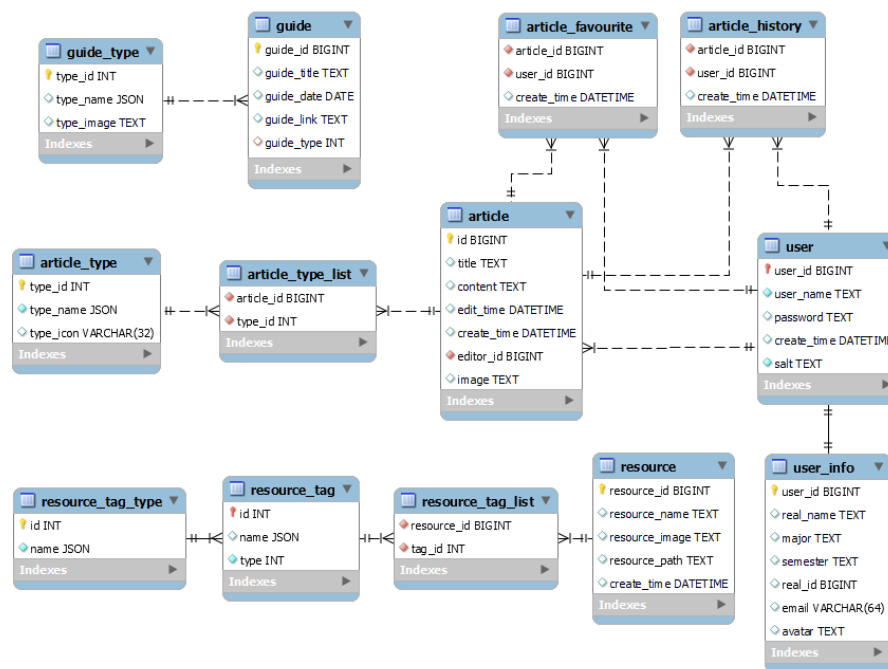


Figure 5: The ER diagram of the whole database in MySQL Workbench.

In addition, the product database is deployed on the provided Alibaba Cloud server, which means that each developer can connect and get access to this shared database at any time, facilitating the collaboration between frontend and backend development teams.

Personally, the database design satisfies the basic requirements of this project. However, there can be some justifications in the design. For example, the column types of strings are widely set to "TEXT" instead of "VARCHAR", which is ineffective in a large-scale environment. Furthermore, the deployed database lacks foreign keys or alternative regulations to restrict the removal or modification of the relevant data, which can cause fatal problems.

## Functional Design

Our product aims to provide XJTLU students with a convenient platform to acquire campus information and learning materials. The system's primary functions cover six components: account details viewing, searching function, campus resource acquiring, system setting, login function, and news browsing.

As for the account details viewing, it was designed and implemented on the "Student" page. Students can check their personal information like their name, university major, student ID and grade. Moreover, they can edit their avatar by uploading an image from the local. Furthermore, they are supposed to check their article viewing history and their favourite articles on this page. From my perspective, some potential functions could be achieved in the future, such as visiting others' student spaces and editing own personal information in a reasonable range.

In terms of the searching function, it offers students a searching bar at the top-right corner. Students could search some news and modules by inputting relevant keywords. Personally, the full-text search can be essential, due to the imprecise user-made title, with search engines like Elasticsearch.

Concerning campus resources acquisition, it is a friendly-designed function that provides students with a link to look up or download the related materials directly, which is convenient and valuable. In my opinion, detailed content pages for every resource should be developed to provide more information about the chosen item.

There is also a Setting menu triggered by the icon next to the searching bar or float icon at the bottom. It contains night mode, language switching, password changing and logout, the hidden functions. This setting system provides users with more options to get a better browsing experience. Personally, the application style should be highly customised by users, such as font style, instead of limiting to night mode and language.

The login system provides students with an interface to register and log in to the software, containing "password resetting" and "user remembering", two options. From my personal view to evaluate, there is one web robot verification missing here, like standard CAPTCHA, to avoid the possible attack.

The news browsing function offers students access to share, favourite, or upload the articles on the "Home" page. In my opinion, the article uploading function was also a considerable process to complete, leaving some unsolved verifications and bugs in the final product due to the limited developing time. For instance, uploaded images could not be deleted from the server if the image is cancelled or replaced, causing file redundancy in the backend.

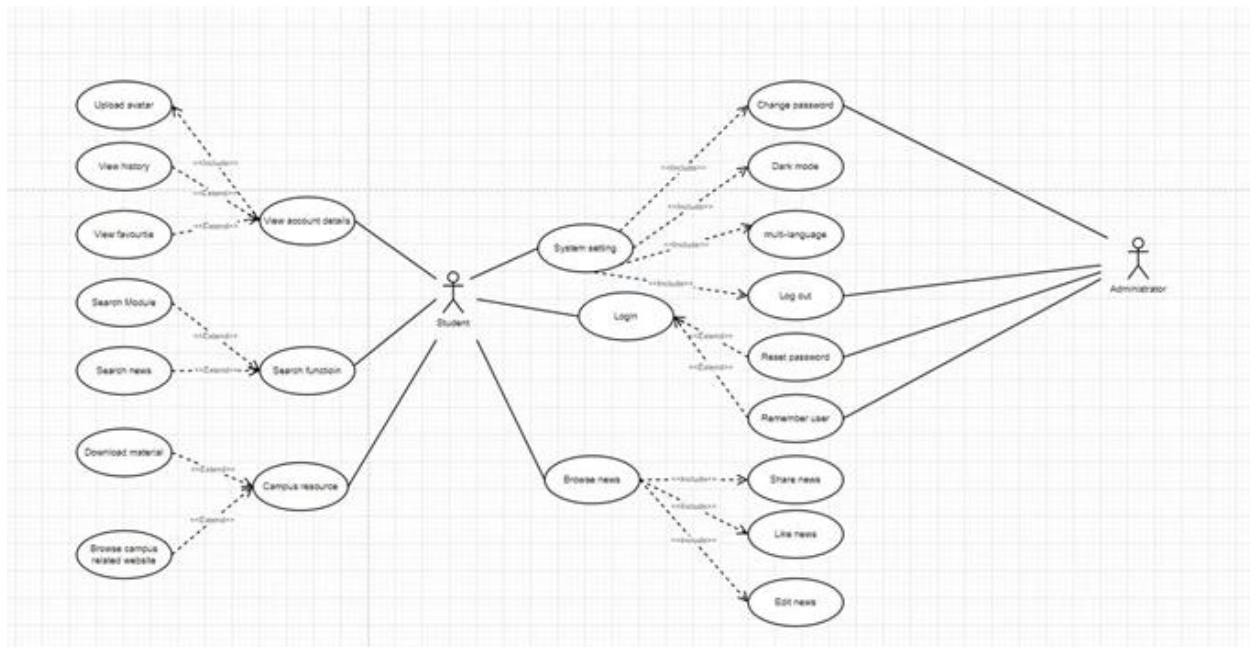


Figure 6: The UML diagram of the full functionalities of the project.



## Individual Work

### Overview of Previous Works

In Sprint 1, the group spend much time learning the basic framework and conceptions. I learn the basic framework of the Spring Boot, the user authentication filters of Shiro, and the fundamental conception of the JSON Web Token (JWT) interface. Then, my contributions centre on the backend framework. Generally, I implement the functions of the login and register part and design the JPA based database. Specifically, MD5 and relative salts are utilised to store the hashed password to ensure security.

In Sprint 2, I am responsible for the connections between the frontend and backend. Thus, I spent some time learning about Vue and relative packages. Then, I handle the frontend connection interfaces with Axios and the cross-origin problem in the backend with essential Cross-Origin Resource Sharing (CORS). Finally, I designed the article, module and student pages with Element Plus, which could simplify the design work and normalise the UI style.

In Sprint 3, some processes in Sprint 2 are completed in Sprint 3 when it comes to the schedule in the strict sense. Thus, the report lists these contents in this Sprint 3 part corresponding to the commitment records. Firstly, it is about the frontend part. I develop the avatar upload button, student information list, and timeline post list, including mine, history, and favourite on the "Student" page. I developed the carousel image displayer and infinite scrolled post list on the "Home" page. I develop the guide card list, guide items page, and the reference list on the "Guide" page. I develop the type selection list and the module card list on the "Module" page. I develop the search function and the reusable user card in the menu. I handle the reuse of some components in global and normalise the utility and API scripts. Second, it is about the backend part. I integrate the MyBatis database connector into the project to alternate the JPA one, including entities and relative mappers in SQL. I develop the image upload interface, which serves the images as the static resources. The database structure is through a redesign to support dynamic types for articles and modules. The static guide lists are integrated into the database as well. Finally, it is about Python scripts. I develop a simple Python script to scan the provided group excel table to import the student information into the database as the substitution of the standard registration function.

### Sprint 4 Overview

In Sprint 4, the group paid more attention to creating a Setting menu at the top-right corner, containing "switching dark mode", "changing languages", "changing password", and "logging out" four functionalities, which are hidden until users click the setting icon.

The Product Backlogs involved in Sprint 4 will be shown in detail below.

- 1) As a user  
I want to add a setting panel  
So that I can change some default settings.
- 2) As a user  
I want to have a night browsing function

So that I can browse this software more comfortable at night.

3) As a user

I want to change the language of software into different ones

So that I can read and understand the contents of the software rapidly.

4) As a user

I want to change my password to this software regularly

So that I can guarantee the safety of my account.

5) As a user

I want to have an exit icon to logout

So that I can avoid personal information stolen

The Sprint Backlogs for Sprint 4 will be listed below.

1. Design a setting icon in the top-right corner
2. Develop a setting menu to hide some functionalities
3. Develop a night browsing functionality in the setting menu
4. Develop a language switching functionality in the setting menu
5. Develop a password changing functionality in the setting menu
6. Develop a logout functionality in the setting menu

#### Personal Contribution to Sprint 4

The personal contributions to Sprint 4 can be summarised in Figure 11 in the Appendix. Firstly, it is about the frontend part. I develop the setting drawer and relevant dialogues. The dark mode is implemented by the "Dard Reader" package developed by the dark reader team. The internationalisation is implemented by "vue-i18n" in the frontend part. The texts are organised in JSON format scripts, which means new language localisation can be added easily. I contribute the original English texts and Chinese localisation. I invite my friends, Berthier and Qianchao Sum, to contribute the French and Spanish localisation translation, respectively, to whom I am very grateful. Second, it is about the backend part. The internationalisation of the word entries in the database is implemented through the JSON column in MySQL. I develop relative mappers, which serve English as the default language. The API is designed to carry the target language abbreviation in the "Accept-Language" in the request header to identify the language. The interface and service for changing the password are also developed over strict verification.

My contributions in Sprint 4 reflect that the structure in the frontend and backend changes a lot due to internationalisation. It is error-prone to replace the raw texts in the templates with i18n variables. Some original "TEXT" columns in the database are modified into a "JSON" one, which means incompatibility with the old version and large-scale modifications in mappers. One reason for this situation is that this requirement is brought up officially at a later stage, which is not considered initially. However, the project should be developed considering the maximum compatibility. For example, the i18n can be imported without internationalisation, as it is convenient to manage the texts of one language application.

## Sprint 5 Overview

Sprint 5 aims to develop the edit page for editing articles and provide relative functionalities for them, which needs the relevant internet interfaces and database mappers.

The Product Backlogs involved in Sprint 5 will be shown in detail below.

- 1) As a user  
I want to add a new article  
So that I can share my idea in this web application.
- 2) As a user  
I want to edit one existed own article  
So that I can change some information in the article.
- 3) As a user  
I want to use some provided tools when editing markdown content  
So that I can edit the article content more effectively, even when I am not familiar with the markdown format.
- 4) As a user  
I want to remove or reset the article  
So that I can save time in deleting all the information.
- 5) As a user  
I want to save the draft of an unfinished article  
So that I can finish one article at a different time.

The Sprint Backlogs for Sprint 5 will be listed below.

1. Develop a fixed float button and card edit icon to enter the edit page
2. Develop an input box for the article title on the edit page
3. Import a markdown editor on the edit page
4. Develop a selector for article type on the edit page
5. Develop the article card preview on the edit page
6. Develop the draft save function
7. Develop the article submit function
8. Develop the article delete function
9. Provide two modes for adding a new article and editing one existed own article

## Personal Contribution to Sprint 5

The personal contributions to Sprint 5 can be summarised in Figure 12 in the Appendix. Firstly, it is about the frontend part. I develop all the components in the edit page, such as the title input box. It is hard to unify the styles between self-made components and the markdown editor from a third party, but it is solved finally. I also develop all the relative API scripts, such as adding articles and editing articles. Second, it is about the backend part. I encapsulate the image upload function into a more extendable status, which serves the images as static resources. The relevant RESTful APIs are developed to add or edit articles of the target user. Finally, because it is the final sprint, some structure optimisation and bug fixing are finishing touches, such as code cleaning in Vue files. Some additional files are collected and added to the

repository, such as the SQL structure file exported from the deployed MySQL database, the MIT license of this project, and original prototype images created by the scrum master.

My contributions in Sprint 5 reflect that there remain some foreseeable but unhandled bugs in the final version due to the limited development periods. For example, the uploaded images for article screenshots will not be deleted in the server if the image is removed by users in the frontend, which means this interface can be abused and lead to file redundancy in the backend. When it comes to the frontend part, the article edit process lacks verification and notification in the provided information, leading to invalid values such as empty titles or screenshot images. Reasonable maintenance is one responsibility for the developers, at least the detailed documentation for the known bugs.

## Software Testing

### Unit Test

In the project, our group utilises some techniques in the unit test: Postman, Junit, MyBatis logging, Vue devtools plugin, web browser developer tools, and official documentation if it counts.

Firstly, the recommended Postman is utilised to test the RESTful APIs in the Spring Boot of the backend. A collection of templates can be organised to send Post, Get or other requests to a target URL with customised headers and payloads. It is used to test whether the interfaces can be connected correctly and return expected feedback. In some situations, it alternates the Junit Test to locate which unit goes wrong. It also serves as a connection detection tool like "ping" to detect whether the deployed remote server works.

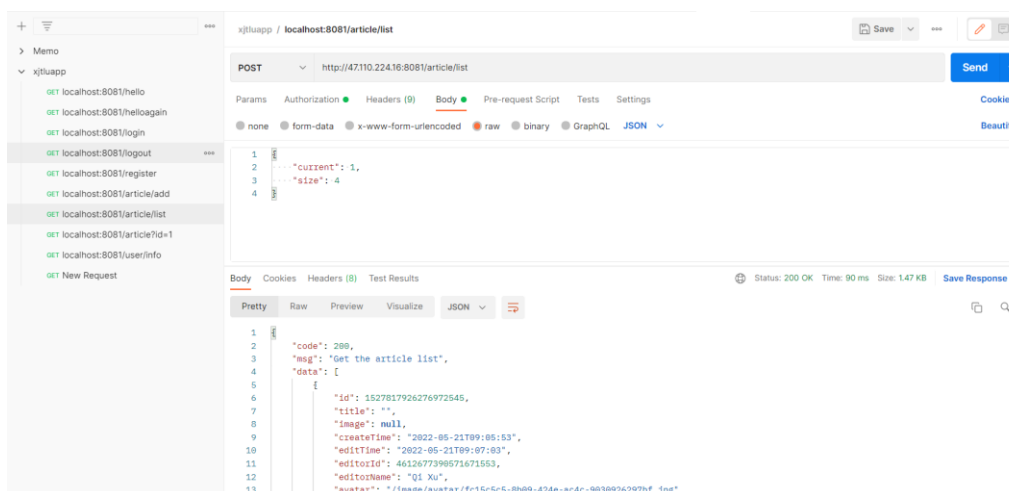


Figure 7: The Postman interface for one article API test.

Secondly, Junit Test is utilised to test some utility functions such as "JwtUtils" and "SecureUtils" in the backend at the very beginning. It is also used to test some source codes from the programme forums like Stack Overflow and CSDN. The outdated source codes for Junit Test are

Then, the built-in MyBatis logging is utilised to test the dynamic MySQL statements in the MyBatis mappers. It could be enabled manually by setting the value of "mybatis-plus.configuration.log-impl" in the Spring Boot application configuration. This logging system will output all the database query processes, including detailed dynamic statements annotated with relevant parameters. The provided information will help developers locate the wrong statements in target mapper files. For example, I depend on the loggings to handle the association and collection problems of "resultmap" in the mappers.

Figure 8: The partial MyBatis logging output for one article service, which is the same as above.

Finally, the web browser's built-in developer tools can be the essential debugging tool, widely known as the shortcut key F12. The console shows all the warnings and errors caught by the kernels. The information as the parameters of "console.log()" is also output in this console.

Moreover, the element window lists all the HTML structures of the current page containing the CSS style, which can be easily edited. The function "Select one element to check" is also indispensable in the development to locate a visible element quickly. I use these tools throughout the entire development. In most situations, I acquire the encapsulated components' "class" value and relevant style and make some changes to determine whether the modified style works.

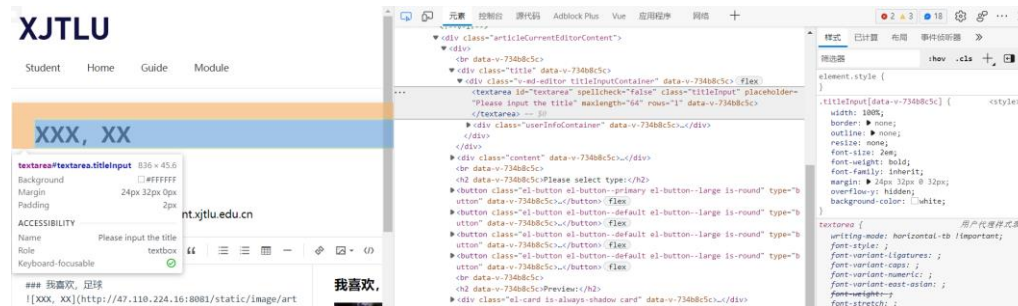


Figure 10: The built-in developer tools interface for the edit page when selecting the title input box.

## Acceptance Test

In the acceptance test, our group applies some criteria, including functional correctness and completeness, usability, data integrity, etc. Firstly, the functional correctness and completeness are tested by the inner developers. The volunteers will browse all the pages, upload the avatar and add a new article. They will experience all the provided functions to test whether all the functions work. Secondly, usability means intuitive operations without enough guides. I visit my friends who contribute to the internationalisation to use this website for the first time. Generally, users can find the functions naturally due to essential icons and texts. Some functions which have redundant entries are discovered easily, such as setting. Finally, data integrity means the reliability of the download and upload information. The test is implemented under different kinds of Internet status, which function provided by the built-in developer tools. The result indicates that the information is trustworthy under complicated Internet status.

Personally, although the acceptance test is implemented in some aspects, the test cannot cover every possible situation of daily operations, considering the shortage of developers and volunteers. For example, there is no test to identify the maximum load current under considerable users. In the procedure, smoke tests or other tests in different hierarchies are not carried on during the whole development, which may cause distraction on the core problems. These drawbacks can be handled in future development.

## Change Management

At the beginning of the sprint meeting, we tried to develop a student software with timetabling and course resources as the main features. The software can store the schedules of the different lessons and the activities of some school clubs. Once the user has selected a major

and a club to join, the club's activities and daily schedule are displayed in the timetable for easy viewing. At the same time, users can add events and reminders to the timetable according to their needs. However, the schedule UI and algorithms to store and update the schedule information are challenging to the team. The most significant limitations are the vague development requirements and the poor development capabilities. As a result, we changed our initial requirements from developing a timetable to displaying campus-related news. Clubs, official schools and academic-related articles can all be accessed by users on the website. The new requirements were more helpful to the users than the initial requirements.

Meanwhile, we had some incremental development of the original requirements. In the last two sprints, developers have added the ability to change passwords for the user login function. Language settings and night mode have also been added to the personal settings. The developers further developed the original requirements and enhanced the user experience. These attempts are how we control changes to the requirements by incrementally developing or changing them according to the actual development situation.

Change management requires the project owner to have a good understanding of the project requirements and development schedule. New requirements may not be developed incrementally within the original framework during the development process. It can result in the team slowing down or even redeveloping the corresponding section. In our case, we had to change the main functionalities of our project, which caused the developers to abandon the completed UI design and related functionality. It has undoubtedly slowed down our development schedule. Another problem is that the developers need to learn the design principles and code implementation of the functionality, and the change in requirements nullified the learning process and required the developers to relearn the knowledge. Overall, good change management can reduce wasted development time while refining requirements and developers do not have to spend time on discarded features, which boosts the development schedule.

## Teamwork

From my perspective, our team followed the regulations of the "Agile" methodology, appointing one product owner (PO), who is responsible for the product directly, one scrum master (SM), representing and managing the developing team, and many of developers whose responsibility are developing the software. It is an official method to organise our team's work, and we also hold a weekly meeting scheduled by SM. However, in an informal process, SM was not just only in charge of managing the team but also participated in developing the software directly. Furthermore, our team also contacted each other by phone calls, which was unofficial but effective. Generally, our team completed this mission through formal and informal organisations.

During the whole developing process, our team collaborated by communicating on time and following the management of the scrum master (SM), who led us to work together. Moreover, the scrum master also scheduled the weekly meeting lasting two hours. In the meeting, we



evaluated our process and discussed what we would do in the next sprint. As a team, everything was collaborated to improve efficiency and effectiveness. In code management and development, our team created a private repository on GitHub to temporarily store our source codes. Our team members could develop the software cooperatively by uploading personal codes and downloading or checking others' codes in this repository, which demonstrated the process of teamwork.

It is not just one member's responsibility to maintain a jelled team, but I contribute little to the development's communications. My contribution emphasises coding and deployment more than team construction. However, I communicate with others and receive feedback from the scrum master on time.

### Challenges of The Teamwork

However, there are still some challenges in the development process. The first problem is about the mastery level of the chosen tech stacks. We have not familiarised ourselves with Spring Boot and Vue for most members and cannot have effective collaborations with the teammates. The final measure is to spend one sprint time learning these and plan fewer purposes in the first sprint. The second problem is the negative outcome of the cancellation of the daily scrum. We cannot understand others' sprint progress effectively. I attempt to add detailed comments in the commits, which every member can see in the repository. A screenshot is attached in the Appendix to explain this. The third problem is about the responsibility of the product owner. Due to a lack of potential users, the product owner cannot acquire enough approaches to communicate with stakeholders. The solution is to raise requirements from all the developers. However, this has led to fewer contributions from the product owner in the project, which may influence his planned efforts.

Here are some personal suggestions for these problems above. Firstly, development members should remain a buffer period to understand the required tech stacks and familiarise ourselves with the partner's code style instead of time occupation in sprint progress. Secondly, the daily scrum cannot be neglected directly, which serves as one essential Scrum component. If the onsite or online meetings are not convenient under pandemic, the daily scrum can be simplified to sending messages in the IM chatting group, which still follows the basic regulations such as limited time. Thirdly, the stakeholders are necessary participators in the Scrum framework. The product owner's responsibility is to invite some potential external users to collect feedback and requirements.

### Legal, Social, Ethical, and Professional Issues

It is essential that users' information is confidential and is never disclosed to anyone. Developers should generally respect the confidentiality of their employers or clients irrespective of whether or not a formal confidentiality agreement has been signed. In this case, we would take appropriate measures to protect users' personal information and database safety. For example, the password stored in the database is through iterated hash with a secret



key. However, due to many impacts, our group cannot promise that information leakage of users on this web app is entirely impossible.

This web application resists illegal behaviours, such as publishing, transmitting, disseminating, commenting, and storing content prohibited by national laws and regulations. Thus, the following behaviours should be forbidden strictly in this web application. This regulation should be obeyed by all the users compulsorily.

- 1) Opposing the basic principles established in the Constitution;
- 2) Endangering national security, divulging state secrets, subverting state power, or undermining national unity;
- 3) Damaging the honour and interests of the State;
- 4) Inciting ethnic hatred or discrimination or undermining ethnic unity;
- 5) Sabotaging state religious policies and propagating heresies and superstitions;
- 6) Spreading rumours, disturbing social order and undermining social stability;
- 7) Spreading obscenity, pornography, gambling, violence, murder, terror or abetting a crime;
- 8) Insulting or slandering others or infringing upon the lawful rights and interests of others;
- 9) Inciting illegal assembly, association, procession, demonstration or gathering of people to disturb public order;
- 10) Activities in the name of illegal non-governmental organisations;
- 11) Other contents prohibited by laws and administrative regulations.

For users who violate the above terms, web app information will be subject to management measures such as refusal to publish, deletion of comments, short-term prohibition of speaking, permanent accounts closure, etc. Any suspected illegal and criminal content will be kept on record and truthfully reported when being investigated by relevant government departments.

The source code is under the protection of the MIT license and hosted on GitHub. Authorised permissions include commercial use, modification, distribution, and private use. However, liability and warranty are not guaranteed by the developers and contributors.

## Conclusion

Our group has completed almost PBIs in each sprint, presenting a relatively acceptable web application after approximately one-semester effort. Most functionalities mentioned above have been achieved, but some unfinished functionalities remain, such as the comment function on the article page. Generally, it provides students with a convenient platform to acquire campus news and learning materials.

## Lesson Learnt and Future Work

There are some unfinished functionalities in the current version of the project. For example, the comment function on the article page has not been achieved. Therefore, it is suggested to

consider developing and improving these parts in the future sprints. Moreover, enhancing communication among each group member is essential to get feedback in the development process, especially during the pandemic. Thus, according to the agile methodology, it is necessary to guarantee the meeting schedule and development process for our group in the future.

The lessons I have learnt can be separated into two parts, emphasising the programme and project. I have learned the primary Spring Boot and Vue in the programme and applied these into a real project, which satisfies my confidence. Moreover, I have a new insight into the motto, "Premature optimisation is the root of all evil", which can be seen as one experience in the project under empiricism. In the project part, the reliance and communication on the members and partners are also essential, which serves as one kind of ability beyond the programming expertise.

## Appendix





























































Commits on Apr 21, 2022
<div><div><div><div></div><div><b>Vue and Java part (hotfix: misspell in data transfer and outdated var...</b></div></div><div><div>Zirui-Zhou committed on 21 Apr</div><div><div></div><div>0a3a2f1</div><div></div></div></div></div></div>
Commits on Apr 20, 2022
<div><div><div><div></div><div><b>Java part (add i18n)</b></div></div><div><div>Zirui-Zhou committed on 20 Apr</div><div><div></div><div>63a003b</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Vue part (add i18n)</b></div></div><div><div>Zirui-Zhou committed on 20 Apr</div><div><div></div><div>325d887</div><div></div></div></div></div></div>
Commits on Apr 18, 2022
<div><div><div><div></div><div><b>Final commit (by Zirui)</b></div></div><div><div>Zirui-Zhou committed on 18 Apr</div><div><div></div><div>c721bf7</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (fix maximum upload file size)</b></div></div><div><div>Zirui-Zhou committed on 18 Apr</div><div><div></div><div>88c1a9e</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Vue article part (add change password function)</b></div></div><div><div>Zirui-Zhou committed on 18 Apr</div><div><div></div><div>6212970</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (add change password function)</b></div></div><div><div>Zirui-Zhou committed on 18 Apr</div><div><div></div><div>154f2e1</div><div></div></div></div></div></div>
Commits on Apr 17, 2022
<div><div><div><div></div><div><b>Vue article part (delete temp files)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>9693683</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (rewrite the guide part)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>f74dfdd</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Vue article part (rewrite the guide part)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>98465a8</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (optimize the userinfo structure)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>a91e339</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Vue article part (modify the article page)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>804d8a8</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Merge branch 'Zirui.Zhou'</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>03a2074</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (add some module resources)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>de3ce83</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Vue article part (add module page function)</b></div></div><div><div>Zirui-Zhou committed on 17 Apr</div><div><div></div><div>f2d0a2d</div><div></div></div></div></div></div>
Commits on Apr 16, 2022
<div><div><div><div></div><div><b>Merge remote-tracking branch 'origin/master'</b></div></div><div><div>FEI.HONG committed on 16 Apr</div><div><div></div><div>3c7d50b</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Header and bottom</b></div></div><div><div>FEI.HONG committed on 16 Apr</div><div><div></div><div>bb46394</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Vue article part (add basic resource tag function (attention: with no...</b></div></div><div><div>Zirui-Zhou committed on 16 Apr</div><div><div></div><div>b90a306</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (add basic resource tag function)</b></div></div><div><div>Zirui-Zhou committed on 16 Apr</div><div><div></div><div>f8f77fa</div><div></div></div></div></div></div>
<div><div><div><div></div><div><b>Java article part (fix database rename)</b></div></div><div><div>Zirui-Zhou committed on 16 Apr</div><div><div></div><div>8819977</div><div></div></div></div></div></div>

Figure 11: The commit records of Sprint 4.

Commits on May 12, 2022		
Add original prototypes created by Master Zirui-Zhou committed 10 days ago	3cca5ca	<>
Create LICENSE Zirui-Zhou committed 10 days ago	Verified 8869fd2	<>
Vue part (fix the preview dialog in editor) Zirui-Zhou committed 10 days ago	1ae65bc	<>
Java part (add create time for history and favourite) Zirui-Zhou committed 10 days ago	426b9ab	<>
Vue part (normalize .vue files code style) Zirui-Zhou committed 11 days ago	72f9324	<>
Commits on May 9, 2022		
Java part (add database sql file) Zirui-Zhou committed 13 days ago	06992c3	<>
Java part (optimize database i18n structure, add some function to edi... Zirui-Zhou committed 13 days ago	395fed9	<>
Vue part (add more i18n text, finish article add and edit, add about ... Zirui-Zhou committed 13 days ago	43587be	<>
Java part (finish image upload, add article remove and edit functions) Zirui-Zhou committed 14 days ago	87679e5	<>
Vue part (fix a fatal bug of ArticleTypeIcon temporarily, finish basi... Zirui-Zhou committed 14 days ago	2a481c3	<>
Commits on May 8, 2022		
Delete some redundant and sensitive files Zirui-Zhou committed 15 days ago	c804cfb	<>
Java part (Warning: Not finished! Optimize the structure of file upload) Zirui-Zhou committed 15 days ago	5af0f1f	<>
Vue part (Optimize the global information reload, add upload for arti... Zirui-Zhou committed 15 days ago	19e6aea	<>
Commits on May 7, 2022		
Vue part (Basic interface to edit new article) Zirui-Zhou committed 16 days ago	41aeb0	<>
Commits on May 6, 2022		
Vue part (Optimize the structure of store and router, fix the bug in ... Zirui-Zhou committed 16 days ago	81cae1b	<>

Figure 12: The commit records of Sprint 5.

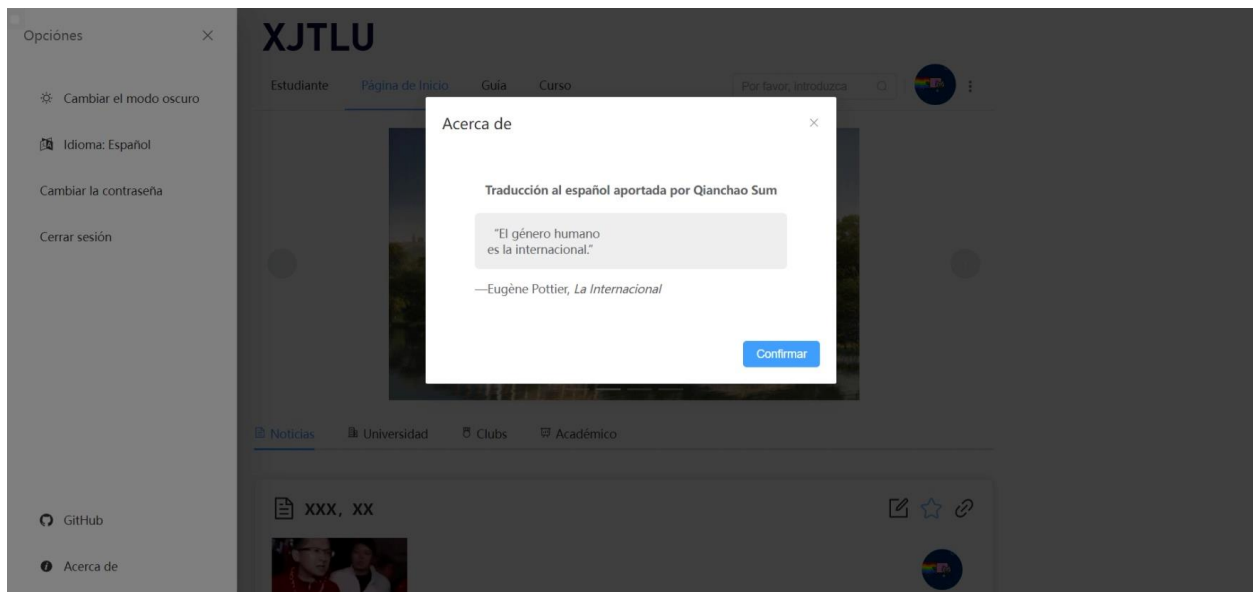


Figure 13: The "About" dialogue in Spanish, which localisation is provided by Qianchao Sum.

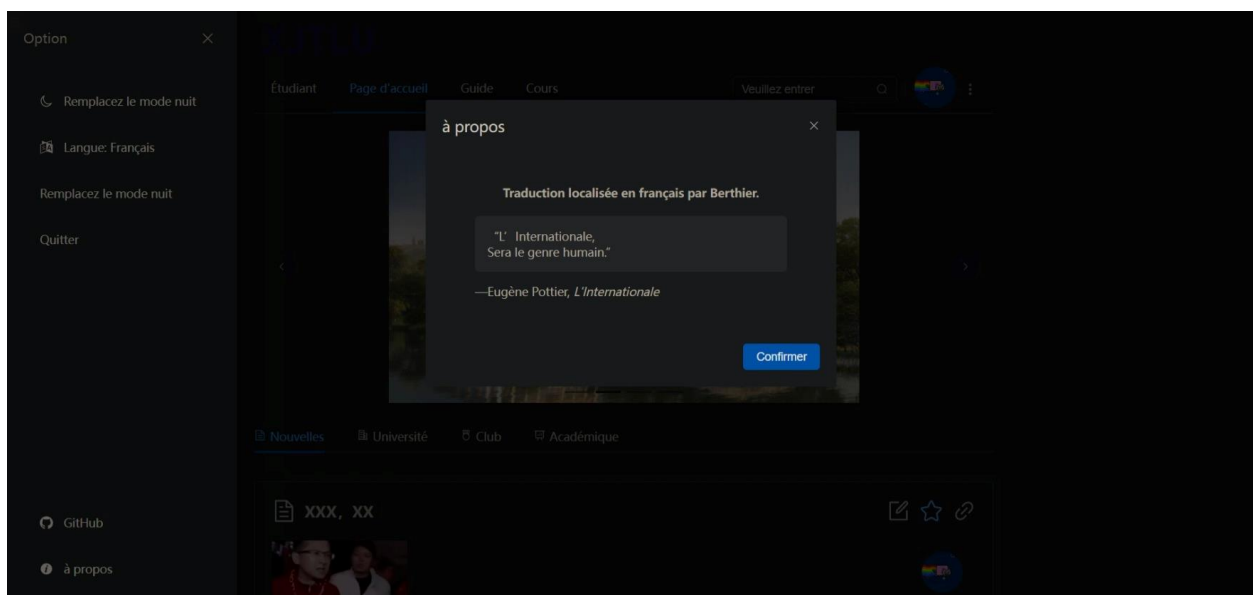


Figure 14: The "About" dialogue in French under the dark mode, which localisation is provided by Berthier.

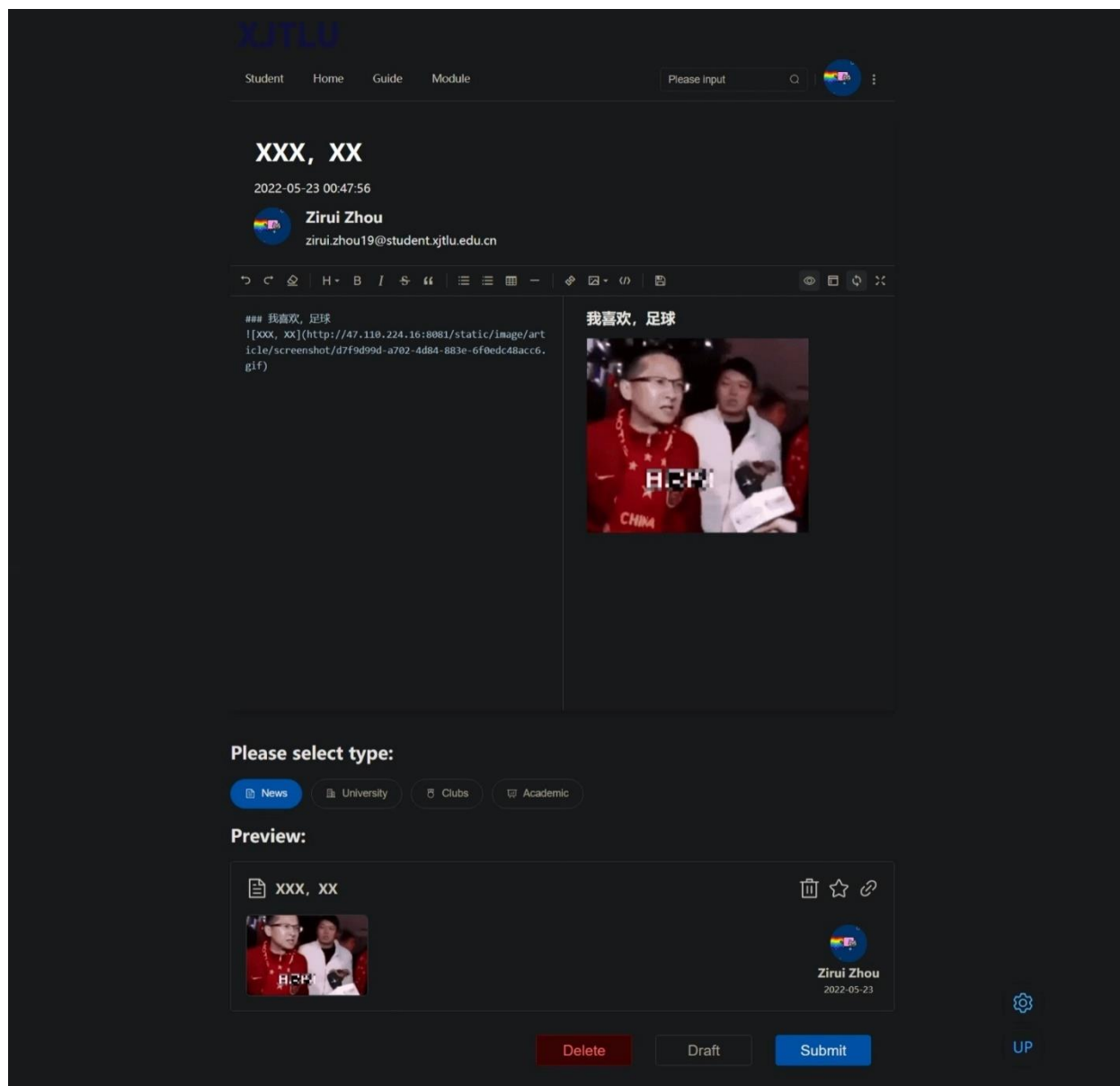



Figure 15: The "Edit" page under dark mode to edit one article of mine.



 **Student App**

☐ Remember Me?

Login

Have no account?


< Previous

Figure 16: The user login page

**XJTLU**

StudentHomeGuideModule

Please input



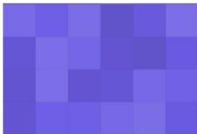
School: XJTLULiverpool

Semester: Semester 1Semester 2


Grade: Year 1Year 2Year 3Year 4

Major: ICS CST ECO EEE


CPT101




INT102




CPT102




CPT103




CPT104




CPT205




INT104



INT201



INT202





UP

Figure 17: The "Module" page



XXX, XX



Zirui Zhou
   
2022-05-09

改造升级旧建筑 西浦学生获国际设计竞赛奖项



Puyang Zhao
   
2022-04-12

借不确定世界锻造追梦翅膀——执行校长致西浦全体学生的一封信



Chongxi Yu
   
2022-04-08

西浦物理系“科学家培养项目”：带领本科生做科研



Qiuchi Que
   
2022-04-08

西浦读研三千问，学长学姐回答你



Yifan Geng
   
2022-04-08

There is nothing below.



UP

Figure 18: The "Home" page



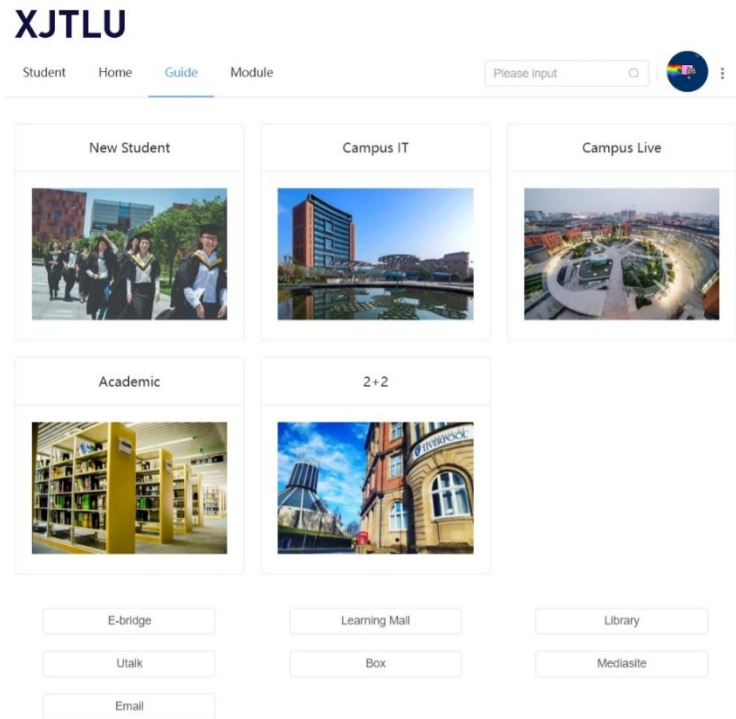


Figure 19: The "Guide" page

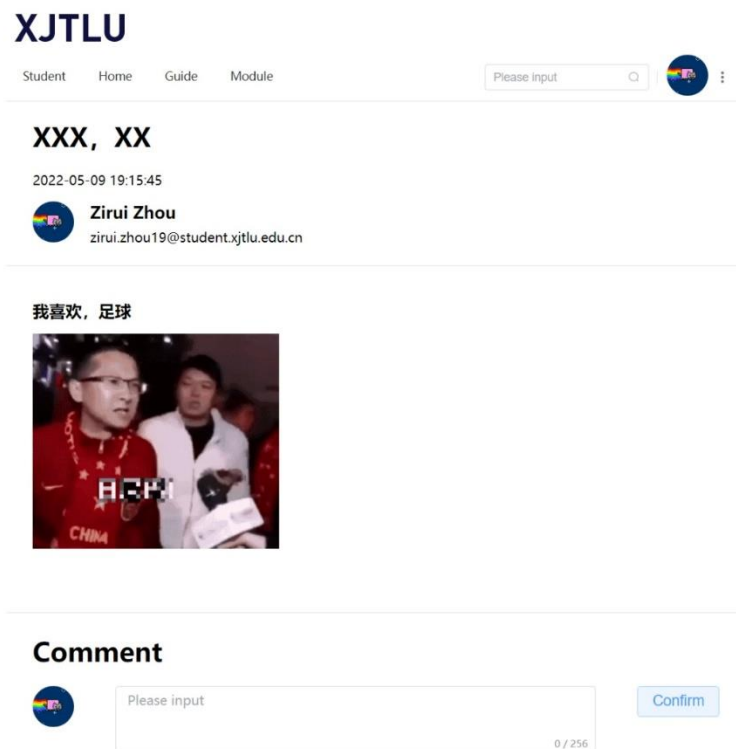


Figure 20: The "Article" page for one article



Name	Zirui Zhou	Major	ICS
ID	1927924	Grade	Year3

Mine

History

Favourite

Favourite at 2022-05-13 18:18:37

信不确定世界锻造追梦翅膀——执行校长致西浦全体学生的一封信



Chongxi Yu  
2022-05-13

Favourite at 2022-05-12 12:28:10

XXX, XX



Zirui Zhou  
2022-05-12

Favourite at 2022-05-12 12:27:46

暑假怎么过？听听西浦创业家学院（太仓）的同学怎么说



Zirui Zhou  
2022-05-12

There is nothing below.



UP

Figure 21: The "Student" page