

Interim Reflective Report for Software Engineering Group Project

2021/2022 Semester 2

< Student Service App for XJTLU >

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

< 20 May, 2022 >

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< Group A15 >

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Introduction

Background

This project aims at providing various website services for students in the XJTLU. The main services are news browse, guide helper and resource access. The news is contributed and maintained by all the students which is classified into different categories, such as news, university, clubs, and academic. News can be searched through title or author, and record the visited or liked status for every student. 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. Academic page provides course resources from diverse schools and majors, such as course slides, past examination papers, or notes from student, which can be downloaded directly. Student page displays some individual information, and the posted, viewed or liked article lists. The avatar upload is also supported to customize the students personalized profile.

Overview of The Completed Works

This project was divided into five sprints to complete generally. Three of them are implemented among the Assignment 1. In Sprint 1, our group focuses on establishing login interface and designing the database structure and relative Java mappers to store the user account data. In Sprint 2, our group contributes on developing the main functionalities in the "Student", "Home", "Guide" and "Module", the four main pages. In Sprint 3, our group pays more attention to the sub-functionalities in each main page, such as developing "History" and "Favourite" posts list in "Student" page.

Up to Sprint 3, product backlog items (PBI) in each sprint have almost been completed on time. Most of the main functionalities are achieved which are mentioned in the introduction part. Therefore, this software satisfies most of 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 own perspective. Firstly, this project shows apparent weakness in robustness among detailed designs. For example, some authentication function is not realized in global, which may trigger some display problems after webpage 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 to each other concerned about the article for now. Consequently, this project can be seen as an acceptable web application that convinces stakeholders to apply. The existing drawbacks are required to be improved in the next few sprints to maintain stability and practicability.

Software Processes

Overview of Agile

Agile methodology contains user demands excavation and solutions improvement through the collaborative effort of developer teams with their customer. It emphasizes the time-boxed iterations and active communications between every stakeholder. The working software

outweighs the comprehensive documentations as well, according to its manifesto. The target goal is certain and specific to fit a small team.

In the recommended Scrum framework, the team members include one product owner and one scrum master to organize and schedule the general process. There are daily scrums with specific guidelines for developers to plan and discuss brief issues. They can help developers to notice others' work content and optimize their own ones. The sprint review and retrospective elicit stakeholder feedback and identify drawbacks and improvements for the next sprints. These events can isolate possible distraction of temporary requirements in sprint execution.

Application of Agile in The Project

Generally, our group follows the sprint work schedule developed at the beginning of the project. The master books the weekly online conference in Zhumu meeting between a reasonable period accepted by all the members. Considering that we do not work full-time, the sprint planning and grooming are integrated and implemented together to reduce fragmentation time. The daily scrum is also not delivered due to the same reason. The developers play a role of stakeholder and provide feedback and requirements to some extent, because of lack of potential users.

However, there are still some problems in the development process. The first problem is about the mastery level of the chosen tech stacks. For most members, we have not familiarized ourselves with Spring Boot and Vue, or even not learnt them at start. The final measure is to spend one sprint time learning these and plan less purposes in the first sprint. The second problem is about the negative outcome of cancellation of daily scrum. We cannot understand others' sprint progress effectively. Personally, I attempt add detailed comment in the commits which can be seen by every member in the repository. A screenshot is attached in the appendix to explain this. The third problem is about the responsibility of product owner. Due to lack of potential users, the product owner cannot acquire enough approaches to communicate with stakeholders. The solution is to raise requirements by all the developers. However, this has led to fewer contributions of the product owner in the project, which may influence his planned efforts.

Here give some personal suggestions towards these problems above. Firstly, there should remain a buffer period for development members to understand the required tech stakes 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. It should be product owner's responsibility to invite some external potential users to collect feedbacks and requirements.

Comparing Agile to Other Software Processes

Agile method is under the comparison with the traditional waterfall model in some situations. The latter one focuses on testing phase following a build phase to guarantee the code quality. However, agile method tends to separate the testing part into each iteration. In personal opinion, agile method is more suitable for application projects rather than library projects, because the libraries require more stability and robustness, and afford more time cost in testing. Another perspective is about the balance between code and documentation. Personally, the agile method is more suitable for application projects due to the same reason mentioned. However, it is irrefragable that the essential documentation is indispensable, such as the network interface standards between frontend and backend.

Individual Work

Sprint 1 Overview

Sprint 1 aims at developing the user authentication system for users to log in this application with their own account.

The product backlogs involved in Sprint 1 emphasize on Login page. Here lists the detailed PBIs.

Epic: Login page

- 1) As a logged-out user
I want to sign-in to a website
So that I can find my personal information.
- 2) As a website administrator
I want to restrict access for users who are not logged in
So that guests can only access "Guide" page
- 3) As a logged-in user
I want to remember my account to a website
So that I can sign in automatically
- 4) As a logged-in user
I want to reset password
So that I can change my password in settings

Here list the sprint backlogs for Sprint 1.

1. Develop the user interface of login page
2. Develop the Username box
3. Develop the Password box
4. Develop the Login button
5. Develop the Remember me button
6. Design database and JWT interface

Personal Contribution to Sprint 1

The whole personal contributions to Sprint 1 are summarized in the Figure 1 in the Appendix part. As mentioned above, the group has spent some time learning the basic framework and conceptions. Personally, I learn the basic framework of the Spring Boot, the user authentication filters of Shiro, and the basic conception of the JSON Web Token (JWT) interface. Then, my contributions center on the backend framework. Generally, I implement the functions of the login and register part and design the JPA based database. To be specific, MD5 and relative salts are utilized to store the hashed password to ensure security.

The reflection of my contributions in Sprint 1 is that I concern myself overly with the detailed code styles and premature optimization, at the negligence of the major framework. This results in the abandonment of JPA as the MySQL connector and redesign of a MyBatis one, due to the incompatible corroborative teamwork. Moreover, the essential interface documentation is not established at the beginning which causes the mess of the current and future interfaces.

Sprint 2 Overview

Sprint 2 aims at developing the basic user interface for each main pages and providing relative functionalities for them, which needs the internet interfaces and the database mappers.

The product backlogs involved in Sprint 2 emphasize on each page. Here lists the detailed PBIs.

Epic: Home page

- 1) As a user
I want to visit article in homepage
So that I can read article in homepage (Include news, academic, clubs and university)
- 2) As a user
I want to know article's web link
So that I can share it in another platform

Epic: Guide page

- 1) As a user
I want to browse college guides in "GenieBunny"
So that I can find campus information
- 2) As a user
I want to access other important website resources of university
So that I can save time to find it

Epic: Student page

- 1) As a user
I want to view my private information
So that I can know personal information in the website
- 2) As a user
I want to change my profile photo
So that I can upload a new image instead of previous

Here list the sprint backlogs for Sprint 2.

1. Design and develop the basic layout of the web app
2. Develop the user interface for Home page
3. Develop the categorization bar for different type of news
4. Develop the news list for different sections
5. Develop the interfaces of news articles
6. Develop the user interface for Guide page
7. Develop boxes for different themes of guides.
8. Develop the guide lists for each box.
9. Link every guide block of a list to a corresponding website
10. Develop the user interface for Module page
11. Develop the user interface for Student page
12. Develop the upload profile button

Personal Contribution to Sprint 2

The whole personal contributions to Sprint 2 can be summarized in the Figure 2 in the Appendix part. In this Sprint, I am responsible for the connection between frontend and backend. Thus, I spend some time learning Vue and relative packages. Then, I handle the connection interfaces in the frontend with Axios, and the encountered cross origin problem in the backend with basic Cross-Origin Resource Sharing (CORS). Finally, I design the article, module and student pages with Element Plus which could simplify the design work and normalize the UI style.

The reflection of my contributions in Sprint 2 is that I or the whole group do not achieve much substantial progress, and slow down the project process, which can be proved from the number of effective commitments. Frankly speaking, I do suffer a lot from this, and pay for more work in Sprint 3. The lesson is that it is most reasonable way to follow the PBIs, when the sprints are under refined schedules.

Sprint 3 Overview

Sprint 2 aims at developing some detailed functionalities for each page, which needs reuse of some components and provide more elaborate data structure in the backend.

The product backlogs involved in Sprint 3 emphasize on each page. Here lists the detailed PBIs.

Epic: Home page

- 1) As a user
I want to mark article that I prefer
So that I can find it in my favorite list.
- 2) As a user
I want to find some specific article
So that I can search article based on some keywords

Epic: Module page

- 1) As a user
I want to find study resources in my major
So that I can download them

Epic: Student page

- 1) As a user
I want to know my browsing history
So that I can find it in my list.
- 2) As a user
I want to find article that I prefer
So that I can find it in my favorite list.
- 3) As a user
I want to find article that I published
So that I can find it in the Mine list.

Here list the sprint backlogs for Sprint 3.

1. Develop the link share function

2. Develop the history function
3. Develop the favourite function
4. Develop module boxes for different sections
5. Develop the search function
6. Import student information from the group Excel tables as student account data into the database

Personal Contribution to Sprint 3

The whole personal contributions to Sprint 3 can be summarized in the Figure 3 and Figure 4 in the Appendix part. Some processes in Sprint 2 are completed in Sprint 3 actually, when it comes to the time schedule in the strict sense. Thus, the report tends to list 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 mime, history, and favourite in the "Student" page. I develop the carousel image displayer, infinite scrolled post list in the "Home" page. I develop the guide card list, guide items page, and the reference list in the "Guide" page. I develop the type selection list, and the module card list in 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 normalize 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 which includes 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 redesign to support dynamic types for articles and modules. The static guide lists are integrated into the database as well. Finally, it is about the 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 common registration function. My contribution in Sprint 3 is, in a word, almost everything.

The reflection of my contributions in Sprint 3 is that it is my responsibility to urge other members to finish their work in time, instead of finishing the work for them, even at the position of normal developer. This unreasonable reaction towards unfinished work influences the whole group morale to some extent definitely.

Conclusion

In summary, our group has completed almost PBIs in each sprint, presenting a relatively acceptable web application after approximately six weeks' effort. Most functionalities mentioned above have been achieved, but there remain some unfinished functionalities, such as comment function in 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 in 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 members is essential to get feedback in the development process, especially in pandemic. Thus, it is necessary to guarantee the meeting schedule and development process for our group in the future, according to the agile methodology.



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

Appendix

Commits on Mar 20, 2022


Basic framework (optimize the structure)



 Zirui-Zhou committed on 20 Mar

 01b95dc 


Commits on Mar 18, 2022



Merge remote-tracking branch 'xjtuapp/master'

 Zirui-Zhou committed on 18 Mar

 df5f9c7 


Basic framework (handle the uncaught exceptions in filter)



 Zirui-Zhou committed on 18 Mar

 b875d12 


Commits on Mar 17, 2022



Added studentlogin.html to /

 凡歌 committed on 17 Mar

 f57333d 


Basic framework (simplify shiro structure)



 Zirui-Zhou committed on 17 Mar

 5ae94af 


Commits on Mar 16, 2022



Merge remote-tracking branch 'xjtuapp/master'

 Zirui-Zhou committed on 16 Mar


 9fe6b45 



Basic framework (fix auto-session, shiro-annotation)

 Zirui-Zhou committed on 16 Mar

 759d6c2 


Deleted idea



 Zirui-Zhou committed on 16 Mar

 8ead77f 

Commits on Mar 15, 2022


Basic framework with shiro



 Zirui-Zhou committed on 15 Mar

 f5bd069 


Commits on Mar 15, 2022

Basic framework without shiro

 Zirui-Zhou committed on 15 Mar

 767974d 

Initial commit

 Zirui-Zhou committed on 15 Mar






 f6fadd5 

Figure 1: The commit records of Sprint 1.


Commits on Apr 1, 2022



Basic Vue framework (finish the structure of article, module and stud...)

 Zirui-Zhou committed on 1 Apr

 b98399b 


Basic Java framework (enable global cors filter)



 Zirui-Zhou committed on 1 Apr

 dc05b5e 


Commits on Mar 31, 2022



Basic Vue framework (rewrite the whole structure)

 Zirui-Zhou committed on 31 Mar


 a1359b3 



Merge remote-tracking branch 'origin/master'

 Zirui-Zhou committed on 31 Mar

 2e964ed 

Basic framework (handle the cors problem simply)



 Zirui-Zhou committed on 31 Mar

 4684d5f 

Commits on Mar 25, 2022

login interaction



FELHONG committed on 25 Mar

 b1b1a18 

Commits on Mar 23, 2022



Merge branch 'FELHONG'

FELHONG committed on 23 Mar

 33fa237 



basic structure1

FELHONG committed on 23 Mar

 1d232cb 

basic structure



FELHONG committed on 23 Mar

 348f994 

Commits on Mar 22, 2022


Initial commit

FELHONG committed on 22 Mar

 a04681d 

Commits on Mar 21, 2022

Basic framework (enable re-route part)

 Zirui-Zhou committed on 21 Mar



 2181daf 


Figure 2: The commit records of Sprint 2.

Commits on Apr 9, 2022		
Merge remote-tracking branch 'origin/master'	enosources0 committed on 9 Apr	2067a11
add secondary page by component for New Student,IT...	enosources0 committed on 9 Apr	15fb7ad
add secondary page by component for New Student,IT...	enosources0 committed on 9 Apr	fffb4d0
add secondary page by component for New Student,IT...	enosources0 committed on 9 Apr	be6d6d5
Java article part (add user interface, handle header expose problem)	Zirui-Zhou committed on 9 Apr	676994a
Vue article part (add basic user function)	Zirui-Zhou committed on 9 Apr	83cf61c
Commits on Apr 8, 2022		
Java article part (add type list part)	Zirui-Zhou committed on 8 Apr	906cff3
Vue article part (handle bigint problem, add type list connection)	Zirui-Zhou committed on 8 Apr	4cf80af
Vue article part (adapt new interfaces)	Zirui-Zhou committed on 8 Apr	041941b
Commits on Apr 8, 2022		
Vue article part (fix MultipleColumnCardList import)	Zirui-Zhou committed on 8 Apr	9f01e45
Merge remote-tracking branch 'origin/master'	Zirui-Zhou committed on 8 Apr	4048107
Mybatis-plus Integration (add user entity)	Zirui-Zhou committed on 8 Apr	b9363dd
Mybatis-plus Integration (complete basic framework)	Zirui-Zhou committed on 8 Apr	b5c4b12
add link	enosources0 committed on 8 Apr	7813ab5
shadow of picture card and card url	enosources0 committed on 8 Apr	6230045
Mybatis-plus Integration (basic framework with errors)	Zirui-Zhou committed on 8 Apr	261d65e
Commits on Apr 7, 2022		
qi	xq830 committed on 7 Apr	307b9db
qi	xq830 committed on 7 Apr	3fa20eb
1	xq830 committed on 7 Apr	b6e34fe
Vue article part (improve animation part)	Zirui-Zhou committed on 7 Apr	1fb728b
Commits on Apr 6, 2022		
Java article part (complete basic upload interface)	Zirui-Zhou committed on 6 Apr	e4d5910
Vue article part (rewrite reused scripts into compositions, add basic...	Zirui-Zhou committed on 6 Apr	ca0cf02
Java article part (write basic article database)	Zirui-Zhou committed on 6 Apr	c890715
Vue article part (build connection)	Zirui-Zhou committed on 6 Apr	974f4b0

Figure 3: The commit records of Sprint 3 (Partially from the first week)

Commits on Apr 16, 2022		
Java article part (add basic module part) Zirui-Zhou committed on 16 Apr		f9d8bb4 <>
Vue article part (add basic module part) Zirui-Zhou committed on 16 Apr		09247d4 <>
Java article part (add search function, optimize the avatar upload) Zirui-Zhou committed on 16 Apr		0bcac30 <>
Vue article part (delete carousel test image, add search function) Zirui-Zhou committed on 16 Apr		ca5c284 <>
Java article part (add basic article part, optimize the mapper struct... Zirui-Zhou committed on 16 Apr		8fa9601 <>
Vue article part (add basic article type) Zirui-Zhou committed on 16 Apr		baada38 <>
Commits on Apr 15, 2022		
Python Part (add student excel) Zirui-Zhou committed on 15 Apr		66c1ac8 <>
Python Part (fix a misspelling) Zirui-Zhou committed on 15 Apr		88b0d5c <>
Python Part (write a script to insert student information) Zirui-Zhou committed on 15 Apr		4a257fe <>
Java article part (add basic history function, optimize mapper struct... Zirui-Zhou committed on 15 Apr		971d9e4 <>
Vue article part (add basic history function, optimize cardList struc... Zirui-Zhou committed on 15 Apr		9ab8a27 <>
Commits on Apr 13, 2022		
Java article part (add basic favourite function) Zirui-Zhou committed on 13 Apr		4cf3bd1 <>
Vue article part (add basic favourite function) Zirui-Zhou committed on 13 Apr		aa2eb6b <>
Java article part (remain the connection problem of the database) Zirui-Zhou committed on 13 Apr		6b43afc <>
Vue article part (optimize the structure, rewrite axios part) Zirui-Zhou committed on 13 Apr		7ce7789 <>
Commits on Apr 12, 2022		
Vue article part (add backtop) Zirui-Zhou committed on 12 Apr		870cc89 <>
Vue article part (fix z-index of avatar card and carousel arrow) Zirui-Zhou committed on 12 Apr		d5d4889 <>
Vue article part (hotfix: fatal problem with null-value userinfo) Zirui-Zhou committed on 12 Apr		8fc142f <>
Java article part (add user info) Zirui-Zhou committed on 12 Apr		acb7bb6 <>
Vue article part (add user info) Zirui-Zhou committed on 12 Apr		8da6230 <>
Commits on Apr 10, 2022		
Merge remote-tracking branch 'origin/master' Zirui-Zhou committed on 10 Apr		4cf8af1 <>
Java article part (handle cors problem) Zirui-Zhou committed on 10 Apr		5797bb3 <>
Vue article part (complete user authorization, optimize user card) Zirui-Zhou committed on 10 Apr		02c7178 <>
add different page turns for 5 section enosoues9 committed on 10 Apr		137cab0 <>
Java article part (add faster token parser, add interface for my arti... Zirui-Zhou committed on 10 Apr		c8bd64b <>
Vue article part (add basic avatar upload, add timeline list (reuse s... Zirui-Zhou committed on 10 Apr		f3c20e7 <>

Figure 4: The commit records of Sprint 3 (Partially from the second week)



Student App

☐ Remember Me?

Login

Have no account?

< Previous

Figure 5: The user login page

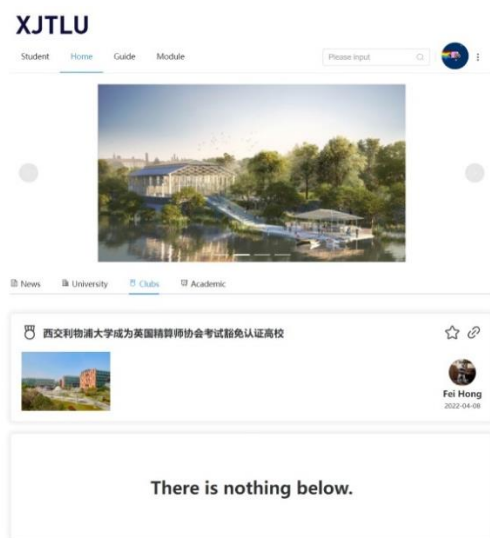


Figure 6: The "Home" page

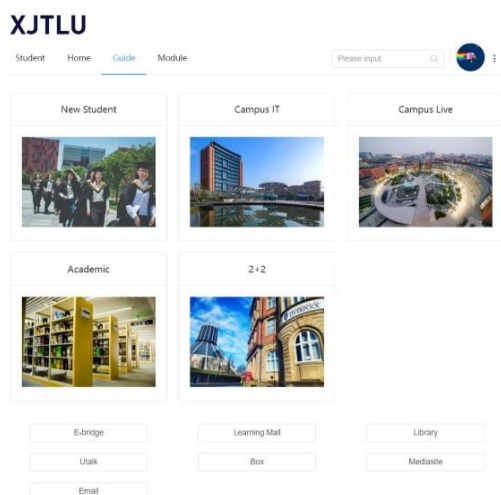


Figure 7: The "Guide" page

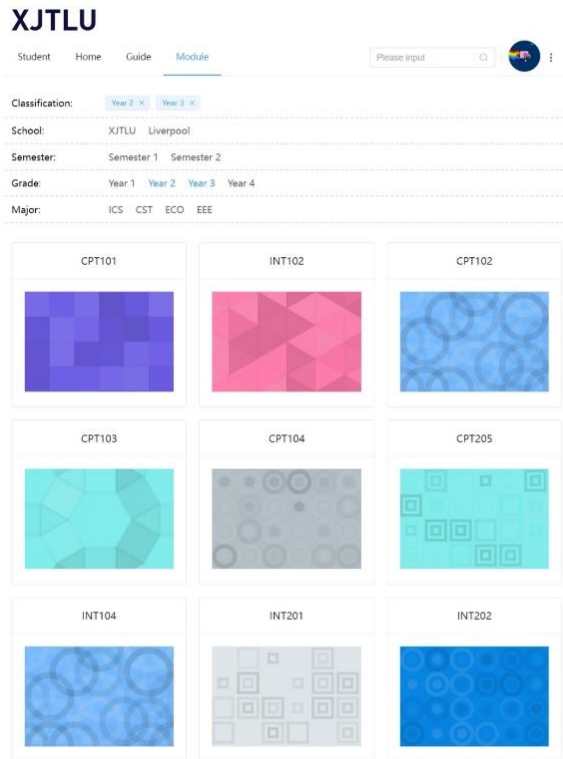


Figure 8: The "Module" page

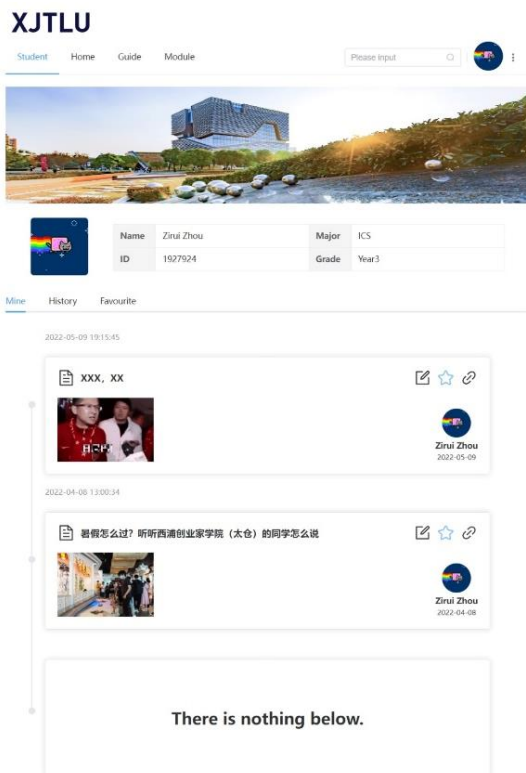


Figure 9: The "Student" page



XXX, XX

2022-05-09 19:15:45



Zirui Zhou

zirui.zhou19@student.xjtlu.edu.cn

我喜欢，足球



Comment



Please input

Confirm

0 / 256

Figure 10: The article page for one article