

# CPT202

## Assignment 2

### Individual Report

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# 1. Personal Project Summary

## 1.1 Aims of the project

This project aims to provide a platform for XJTLU's students and teachers to share their ideas such as academic, internship information sharing. Students as well as teachers can register their own accounts with their own school's email. Since there is no forum in our school and students are eager to get latest information in the school, our project can compensate this lack.

## 1.2 Benefits the project might offer

If it were carried out successfully, students will gain information from various categories' posts. For example, students who want to study abroad but without opinions can refer to the experiences of those students who have graduated overseas. Meanwhile, they can access the trends of the school easily by viewing hottest topics classification. Not only benefits students, teachers can get to know the problems that students have so that they can adopt according proper solutions.

As for the benefits offered to the team members, we have learned new knowledges from development, which is useful for our future work. Furthermore, we can gain some incomes by displaying advertisements on our website.

# 2. Personal Reflections on Projects

## 2.1 Critical evaluation from choices of technology stack aspect

This project uses Spring Boot as the back-end framework and Vue as the front-end framework. As for the choice of Spring Boot, we all agree with that since it is quite popular nowadays. The result also proves that such choice is right since Spring Boot can definitely reduce the workload for programmers. For instance, we don't have to add a lot of dependencies and maintain their versions by ourselves, which can be done by Spring Boot web container. Meanwhile, developers don't have to configure too many XML files and Beans because there are many annotations such as `@Resource` can help us to

create them. In summary, Spring Boot is user-friendly for beginners who want to learn Java's framework.

Our group members held the opinions that we should use the popular technique, which was Vue instead of using Thymeleaf because Vue could be used in the future. However, while starting the development, there were many issues such as how to connect front-end with the back-end and it took us a lot of time to solve this issue. Therefore, after this coursework, I think it is good to follow what the teacher requires us to use, which is the static framework—Thymeleaf for beginners.

For improvements on this part, we can introduce into the Redis so that it will be faster to deal with a large amount of query operations. Besides, NoSQL database such as MongoDB can be applied so that data can be stored more quickly. Moreover, our layout is not beautiful enough, which can be improved by professional art designers.

## **2.2 Critical evaluation from testing aspect**

As for testing part, after each interface was implemented, I tested the interface using Postman by passing in some data. Debug the function until there was no error. It is more efficient compared with printing the output in the IDE. However, we did not choose various kinds of testing cases so that it might lead to some bugs a few days later when one student input specific values. The results can be improved if we tested functions more carefully, thinking all of corner cases.

Although our project was not deployed on the real website server, I still tested it under the pressure that I tested it using JMeter to create 1000 threads to simulate 1000 users sending HTTP request to our back-end's functions. The result is satisfactory to deal with high concurrency situations.

## **2.2 Critical evaluation from requirement gathering aspect**

As for how we gather the requirements, our group members referenced some famous websites and chose functions with higher priorities as our requirement such as register, login and post. It is quite simple and efficient to gain requirements by following what others

have done successfully while sometimes it may restrict our imaginations. In addition, the original plan such as payment function is dropped because of the lack of time.

### **2.3 Critical evaluation from management aspect**

As for management, each of our Sprint started on the first day of the week, we would have the Sprint planning during the class, including capacity planning, choosing each PBI and then estimate their efforts. After that, we would groom each PBI to revise specific functions in detail. We also had the daily scrum using Wechat that each member shows what they have done each day so that the group members can know the progress of the work and goals. After each Sprint completed, we would show the outcome to product owner and got suggestions from him. Then Sprint retrospective was done by thinking of the progress of development, which part we did well and which part we did bad.

## **3. Contributions to the Project**

### **3.1 Personal contribution**

I am the developer for the backend so I mainly focused on the constructions of various interfaces that would be provided for the frontend and according implementation functions of the services. It was a little changeable since I had no experience in Java's framework, which was Spring Boot. Therefore, in order to approach this problem, I have done some self-study online. Fortunately, I have mastered Java's basic grammar so I could follow the tutorial and applied that into our application quickly. Meanwhile, I was responsible for the construction of the databases, including the datatype of attributes, specific contents (such as the post's content). I have learned the database knowledge in another course before so it was relatively easy for me to design the database, according datatypes and SQL commands.

### **3.2 Interaction with other members**

Every Monday we will have a meeting in class and discuss this week's tasks. After tasks are determined, we will think about how to realize them. For example, I will discuss with other back-end developers. We will have other meetings for coding together in a week

because it will be more efficient. If someone has troubles or bugs, we can help him to fix them.

### **3.3 Existing skills and new skills**

In terms of technical knowledge, the foremost one is the Spring Boot, one of the Java's framework that can reduce the workload for developers. I learned the structure of its project as well as a lot of annotations about that and the basic developing process such as entities design, controllers, services, implementation of services, mappers with MySQL commands. Meanwhile, by learning how to use Lombok, we do not have to write setter and getter functions for the class. Finally, some software make our development easier such as Navicat, which has a graphic user interface so that we don't have to write command lines to do some manipulations. Another software called Postman helps me while testing the interfaces since our front-end and back-end are separated. My coding and debugging ability also reinforced through this project. I applied what I learned in the previous such as database, Java, JUnit into the project

For non-technique knowledge, I have a clear understanding of the Scrum development, which is suitable for small scale software. Meanwhile, I have a good relationship with all of my team members by proper communication skills.

## **4. Summary of Lessons Learnt**

### **4.1 Lessons and advices about discipline**

It is quite significant for a group to own a strict discipline so that group members can follow up the rules. Sometimes group member may hide themselves by ignoring the messages in Wechat, which stuck the development progress. Furthermore, a strict time concept is also important. For instance, some group members might be late for the group discussions, which means that all of others have to wait for that student. Furthermore, different developers have their own coding styles and it is difficult to look the code written by a developer whose coding style is different from me.

I suggest that all of people in the group should respect others. In addition, if one breaks the rule of the group, others should point it out instead of condoning that behaviour to happen again. In addition, all developer should follow the same code standard such as how to name variables such as camel case.

#### **4.2 Lessons and advices about project management**

In this coursework, I have learned how to develop a software in a group. A good project management is quite sufficient for group design, especially for the separation of front-end and back-end's project that have many developers. If a developer doesn't know how to use Git, he can't get the newest version of the software so that he might do something wrong. Even worse, if a developer doesn't know how to use Git rightly, he might cover what others have done so that the whole project is broken.

It is strongly suggested that all of team members should study how to use Git to manage the project including how to update, commit and push correctly.

#### **4.3 Lessons and advices about team work**

It is true that this coursework is grouped by choosing group members by ourselves, which means that we prefer to find our friends to form a group. It is a double-edged sword because we have no barriers in communication while sometimes it could be troublesome if one group member does not want to do anything. Since we are friends, so it is hard to argue with him. If there is an argument in the group, the atmosphere will become embarrassing and the process will be stuck.

All of group members should play roles in discussion so that more ideas can be gathered, then we can analyse each of opinions and decide which is the best. Sometimes no one want to speak his opinion because of shyness, so everyone just keeps silence, which is a waste of time. Having different opinions is better than having no opinion.