City University of Hong Kong

Department of Computer Science

CS3343 (A) Software Engineering Practice

2014/15

Self Assessment Report

Student Names	Student ID
HO, Wai Kit	53144248
WONG, Chung Man	53145233
YIU, Yiu Yeung	53144144
Kong , Tsz Kit	53143798
Lau, Kam Yu	53144170
So, Chun Hei	53144525

Team Summary

Our project is to develop a system for purchasing airline tickets. It only has a main function – purchase airline tickets. In this function, we have implemented lots of sub functions to meet the requirements for a high quality airline tickets purchasing system. Also, we have reached the objectives that listed in the project plan for the initial phase. Since all of our teammates are studying in the final year and are also working for the placement at the same time. We only have the tight time for developing the system. Although it is too toilsome for keeping working in the project after coming off work, we understand that we did not waste the time and have gained lots of valuable thing.

Through the project, we have achieved these things:

- Project management related:
  - Good communication between teammates
  - Well distribution of works
  - Qualified time management
- Project development related:
  - Ways for creating test cases
    - Necessity of test stubs
  - Types of test organizations
    - Ordering of different testing
  - Significance of testing coverage
    - Observation of unused codes
  - Importance of bug report
    - Relationship between debugging and bug report
  - Importance of code refactoring
    - Impact of process speed

For the relative contribution stated in the project effort tracking excel worksheet, the contribution just like an encouragement, a motivation and a reminder. It makes us understand that the responsibilities in the project. The contribution can show to everyone how the teammates bear their responsibilities directly. This is the best evidence to proof teammates' responsibilities.

Ho Wai Kit (53144248)

In this project, I am the scrum master and the programmer of the development team. As a scrum master, I am responsible to ensure the development process and performance to be smooth. Beside, I need to hold the sprint planning and retrospective meeting to confirm all product backlogs can meet the target.

In the sprint-planning meeting, we will confirm the sprint goal and select few functions to develop. We need to make sure all the functions can be completed in one sprint. On the other hand, sprint retrospective meeting will be held for reviewing all works of last sprint and conclude any action items that we need to take to break down the blockers. All of us will discuss and share about any test cases can help to cover all the codes.

Test-driven approach is one new style programming methodology. Through this assignment, I find out the advantages of using TDD for the development. It can start the test at the early stage and the test will cut into small parts to coverage more line of code as soon as possible. Beside that, starting to code in the test case can limit us over engineering. We just care about the function to be provided in the application and should not imagine and develop some functions that we don't need them in this moment.

Since the limitation of time, but we also try to do the pair programming thru the team viewer. The benefits of pair programming is sharing the programming experience with each others and interact with each other by different opinion. Therefore, more different kind of test cases was coming thru the pair programming.

For the agile development methodology, it's much better approach to prevent the risk of large project. And it's one of the hottest approaches in the market. I'm really impressed I can learn this good stuff in the university.

Kong Tsz Kit (53143798)

In this project, I am a programmer of the development team. My responsibility is to develop how to calculate discount of airline ticket fee by using different types of credit card.

During the development, I have applied some Object-Oriented Principles such as SRP, OCP and ISP. The objective is more easily reached by using these principles. However, there are some bugs found in the development. Some of them are observed difficultly. Finally, I have debugged them. Since my part is linked with other calculation parts, I need to communicate with my teammates and have a pair programming at some time. Through the communications, I can adjust my programming codes easily which are able to be used by other teammates without meeting the error.

After finish the programming part, I also need to make some parts of documentations such as analysis and design report and bug report. To make the documentation more concisely and precisely, I have read the parts of the documentation that are done by my teammates. When I observed some typos or some places that are inappropriate, I told my teammates to amend them.

Through this project, I concluded that how to develop a software effectively. There are three main factors:

1. Professional programming skills
2. Good communications between myself and my teammates
3. Well prepared documentations.

These three elements are important factors for developing a good software. I have remembered them and will apply them when I would be doing projects in the future.

Yiu Yiu Yeung (53144144)

In this project, I act as configuration manager and programmer of the development team. As a configuration manager, I am responsible for setting up the coding environment for all the developers. I have to set up GIT, maven and the entire development tool for them. It is very important for providing a good coding environment to our developers as it really helps them to deliver the work quicker and better. In addition, I have to teach developers who don't know how to use Maven and Mockito. Since I have rich experience for using those tool during my placement job.

As a developer, I am responsible for development the view, query layer and part of the controller for the direct flight part.

During the development, I have applied Test-driven development methodology. It let me consider what I really want from the code. Also, there is a rule in our team, all the developers should make sure all the test case could pass before commit and push any thing to Git. We can make such our modification will not broke others function by applying those methodology. But TDD will cost more time for us.

In addition, some time I will pair up programming with other developer to development the difficult path of our system. During pair up programming, one programmer act as a drivers and another one act as an observer. It is a very good way to reduce the errors and bugs in codes. Instead of pair up programming face to face, we were using software, which call Teamviewer that allows more than one user to control one computer. It is because it is very hard for me to pair up with other programmers face to face.

On the other hand, I need to finish a part of the documents such as analysis and design report and bug report.

In conclusion, I learnt so many development methodologies in this project. Also, I know how important for a good design for a project. If the project comes with a good design, we can divide the job, combine each component and maintain the system easily.
But the most important part is how to work as a team. We need good communications between each teammate.

Wong Chung Man (53145233)

In this project, the objective is to apply software engineering principles and techniques to develop a high quality system. We have developed an ***Air-Ticket Selling System*** for passengers self-purchasing. It provides a complete flow to purchase air-ticket including flight selection, discount calculation, baggage fee calculation, payment and so on. The system structure is based on ***Model-View-Control, design principles and some design patterns***.

As an ***assistant manager***, I must make sure that our project can be developed ***on time*** in each phase and every member can follow our ***project plan*** in the development process. The plan has been defined with a high possibility. Therefore, everyone is able to take their responsibilities in this project. As a ***development team member***, my responsibility is to develop ***baggage fee components***. Based on real baggage fee rules, the components can support piece, kg and size of multiple baggage. By applying ***test-driven development***, the function can fulfill our user requirements. In the development process, I have applied ***program management, testing, debugging and code refactoring*** concepts and technologies.

For more details, I used ***GitHub*** with my members to maintain our repository. It is an efficiency system that helped us to manage our source code and assist in version control. In addition, ***JUnit*** is another tools for testing our system. I applied unit test and ***white box testing*** to test my components. Thus, I can make sure that every parts of the components can work fine and possible to integrate with other modules. When I found bugs in the components, I applied ***Scientific Approach*** for debugging. At the same time, the ***bug reports*** was keep updating such that we can track and understand the current existing bugs and their latest status to ensure that every bug is handled by at least one member. Apart from the above, in the ***refactoring***, I refactored my components to apply Dependency Inversion Principle and reduce duplication codes. Thus, we will not violate Open Close Principle when we need to develop more calculators and the code can keep high reusability. In conclusion, this experience can let us to understand more about software engineering that how to develop a software from nothing to success. It is a good chance for me to contribute my efforts and understandings of this course in the project. It is also a successful experience for me because I have applied most of concepts and technologies learnt in the course and developed a successful system.

Lau Kam Yu (53144170)

In this project, my role is a programmer in development team. I was responsible for the flyer miles part. I need to create some methods to handle the flyer miles calculation. For example, calculate the base points and bonus rate for different credit card, flight class and flight company.

During the development, I was applied some object-oriented programming concept into coding and make It more easy to modify and extends. Also, I try to refactor the code make it easier to understand. Due to this is a team project, we need to work with others' developed function. Code refactoring can make the code ease of maintenance and evolution and others can easily understand how to use the function.

Also, I need to test the function and find out the existing bugs. I learnt how to use JUnit to test different cases and view the coverage of the method. Make the test case more effective and reduce repeated test case. Moreover, I have written the bug report when I appear a bug in the program.

After finish this project, I learnt some programing design concept and know more about system testing, debugging and code refactoring. I experienced the whole system development life cycle in this project. From getting requirements, design the solutions, development and testing. It is a great experience for develops a whole system. Also, I learnt how to communicate with other team members. Because each function were related, so we need to unify the format of the stored data and how to pass those data between different methods.

It is a well chance to learn system design and improve my teamwork skills. Also, it also improves my time management, programming skills and communication skills with others.

SO Chun Hei (53144525)

In this project, I am the project manager and programmer in the development team. At the beginning of the project, I focused on scheduling and discuss what project topic we should work on, and we chose airline ticket system to implement. Also, I should depend on their personal skill and assign a suitable role for each of them.

Since we want to produce a high quality Airline Ticket System with OO design principle, we will need to design a good project structure and input sequence for our system. After that, our teammate Kit had started to design the base structure of our system, since he is very professional on it. He worked very well on the base structure design.

We used a methodology that calls Test-Driven development (TDD). With this methodology, we have to design the test case and then write code instead of writing code and then test it first. But, we had encountered some serious problem by using this methodology. This is very hard to design the test case without writing any code. Our project schedule was greatly delayed during to this problem. (And we designed too many function to implement.)

And later on, I have also started to implement the Path Finding for the system and preparing the job division of final document. We need to divide the job again, who will draw diagram, who will handle the bug report? As a project manager I have to make sure every teammate have their own task to work on and do not have any idle time. So we have a short meeting every week to report what we have done this week and what we should do next week.

By conclusion, I think a good/bad time management and good/bad project plan can make a project success or failure. In this project, we made the project scope too big at begin. We just want to implement as many functions as possible. But later on we found that we didn't have enough time to handle such a lot of function, and we reduce the project scope later on. Some implemented classes were deleted, that mean we wasted time on it. We should implement some basic feature and extend it slowly instead of setting up a very big scope and function pool to work with.