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Assignment 5 Final Report

Introduction

In this project, students are expected to implement a Morse Code Decoder by applying the chosen toolchain and the Scrum framework in Agile Development. This report summarizes all the aspects of Morse Code Decoder Project.

Topic 1: Agile practice

Software development, unlike other industries, is unpredictable as the project scales up. The traditional approach such as waterfall might be inappropriate for both the development team and customers. Hence, Agile Development came forward and was proven to be highly efficient for the software industry. In this assignment, we have a great chance to practice Agile Development and gain precious experience.

We applied Scrum as the development approach to the Morse Code Decoder Project. The iterative and incremental characteristics of Scrum helped us dealing with unpredictable challenges in the development process and successfully create the application.

Roles in Scrum were not clearly assigned to our team members because our team size is only consisted of 2 people. Therefore, we handled multiple roles such as programmer, designer or tester. It gave us not only an opportunity to enhance technical skills but also experience with multiple positions in a scrum environment. However, the key role, Scrum Master, was not played in this project.

At the beginning of the first sprint, our team identified all the tasks and goals of the project. We listed up all the required functionalities of the application and set up a work breakdown agreement between team members accordingly. All the user stories in Iteration 1 documents were split up between two team members and expected to be done within 1 week. We were not able to work on this project daily (as expected in Scrum Primer) due to personal matters, therefore there were limited daily meetings and sprint review and retrospectives.

All the user stories were recorded on Trello as well as a piece of paper (sprint backlog) on team meeting. On Trello, the user stories are classified as TO DO, DOING or

FINISHED so that team members know the overall progress. The user stories are also given priority rank according to its impact on the Morse Decoder application. This work tracking tool was immensely helpful for us to develop the application.

We used GitHub for version controlling. Git allows us to work in continuous integration and keep up with the work of the other partner. We commit changes to our repository every time we modify or create new code, thus we could avoid conflicts in our individual code bases and potential errors.

Quality Assurance is another essential aspect in software development. In Morse Decoder Project, we implement a few unit tests to ensure the reliability of our application because Unit Testing reduces the complexity of overall test activities. In principle, every module should be tested, however it is not possible for us due to time constraint. Our team focus on the two main components of this project, which are the Morse Decoder and Motion Translator. The two tests were conducted individually and met our expectation.

On the other hand, we did not fully follow the Scrum standards. The Scrum items were not well documented, and Sprint Plan was not made carefully. This problem caused us some troubles in defining goals for each iteration. Another challenge is our team could not meet the time constraint of the project. Indeed, the Morse Decoder Project was done in the same manner as other university assignments. Both of our team members need more training in Scrum in order to be well adapted to Agile Methodology.

Topic 2: Working in a team

I feel very lucky to work with Brian, whom is a brilliant programmer. We regularly keep in touch with each other so that it was very convenient to keep track with the progress of the assignment. For this project, we made an agreement beforehand on work allocation and expected deadline. We could not make daily Scrum meetings, but we always informed each other on any updated work.

Brian is the better programmer, so he would design the program structure. I feel very comfortable to ask Brian for help any time I found a challenge. We tried to divide the workload into 50-50 and set up a deadline for each person. After the deadline, we had revision on each other result to test the program and decide if refactoring was needed. From my point of view, our team work arrangement is excellent.

In this project, a team is only consisted of 2 students, so I think there is no obstacles to reach an agreement between team members. However, working in an industry environment is a different story. A team might be up to 10 members, so a true leader is mandatory to ensure team success. Without a leader, it is very difficult for every member to be satisfied with the work breakdown as well as other’s performance. Another challenge for a bigger team is work integration. In this project, sometimes I had

difficulties in using Git to control my code. I can imagine in a bigger team, a lot of effort is needed for code integration between multiple developers.

Having mentioned a few challenges regarding to team work, I think I need to improve both technical and interpersonal skills to be an efficient team member in real world workplace.

Topic 3: Design

Nowadays, Object Oriented Programming is the most popular paradigm in practice. It offers flexibility and independency for programmers to work on a common project. We tried to use this method in Morse Decoder Project, but the result did not fully satisfied OOP requirements. However, every component of the application is divided into classes or modules, it is relatively convenient to scale up our application. For example, if we wish to implement another signal interpreting method alongside with Morse, we can extend the Decoder algorithm to recognize other interpreting methods without making any changes to Morse Decoder.

As mentioned above, we applied some unit tests for Morse Decoder Projects. Unit Testing maintains the correctness of the tested objects, can be run independently and saves development time. By creating modules and classes for our application, implementing a unit test is not difficult. We also use Mocha test framework, which makes unit testing very simple. Thus, I believe that our application is completely maintainable.

The Morse Decoder application is a web application. At this stage, we tried to polish the user interface as good as we could. I think the app user will find our design is clean and attractive enough for using. Besides, if we need to improve the usability for our application, it could be done quickly as there are many supported front end techniques (CSS, bootstrap, etc) to help with the improvement. Typography is the only issue of our webpage at the moment because we are using the default font style. This problem can be tackled, as any other websites, in the future iterations.

Conclusion

Morse Code Decoder Project was a great opportunity for students to practice Agile Development, team work and programming. Students had a taste with IoT ideas, and more importantly, had learnt about the most successful approach in software development.