Introduction

In this report, it covers a comprehensive reflection of the website's development. Our team's official name is Team 17, and our given name is LeWebsite James. Our team consist of two scrum masters, two product owners and two risk managers. Containing, a reflection on the agile and scrum processes which have been implemented and adjusted to the team's preferences. Also, how these processes have impacted our team. Moreover, the communication methods that the team have selected and the conflicts that arise. Also, the pros and cons of the communication if it went up to industry standards. The technological choices selected and the adaptations that I made based on the team's preferences. Finally, examined two ethical issues that will occur if this project has taken industry standards and a mitigation strategy for the issue. This report aims to reflect on the progress which we made and analysing future solutions in approaching similar issues faced during the development of the website.

Topic 1: Agile Software development practises

Our team followed many scrum processes such as the team size being 6 members and have broken down a traditionally large project into 3 sprints which were 3 weeks each. Through each sprint, our team was able to set smaller and achievable tasks to be completed which allowed us to incrementally finish the large project. Our team has a scrum master, who follows a similar role to a mentor, who assists each team member.

For our agile methodology, our team process regularly changed to our design based on the additional requirements provided through the customer collaboration. Once a new sprint starts, the client will provide new tasks additionally from the earlier consultations. Highlighting the priority given to the client's additional requirements. Through the project, we ensured that the integrated design works together to ensure that a function is working in the simplest way possible. It was aimed not to add unnecessary features or functions in the design that will not complicate the website for the clients and the developers.

Some scrum practices that we practised in our project were the product backlog, sprint planning, sprint retrospective, sprint burndown chart, scrum stand-ups, and sprint review. The product backlog and sprint backlog together have improved our estimation of tasks. This has allowed our team to distribute tasks effectively, as it ensured that all team members performed to equal level. The stand-ups have allowed each member to quickly know the progress of the other member. The sprint retrospective has allowed us to appropriately reflect upon our positives and future improvements. This allowed us to repeat our positives and correct our errors for the next sprints.

Customer collaboration was completed during the earlier weeks before the sprint, detailing all the requirements of the project and every task to be completed. As the sprints began, there were no consultation sessions with the customer, and this prevented us from directly gaining access to the current preferences of the customer. However, we made more productive use of the workshops to ask any urgent questions to clarify any details about the tasks. We have decided to also send emails to the client clarifying details, we were uncertain about. Moreover, we utilised the sprint retrospective to further clarify any questions to aid the project for the next sprints.

Through the development of our software development project, we have made many adaptations to various practices from Scrum and Agile. The first practice that was modified was the daily scrum, increasing the duration of the scrum to 1 hour reducing the frequency to twice a week and making it online on Zoom. This was due to the scheduling conflicts of the members, having other classes and personal commitments which prevented them from attending. Some members live far from the campus leading to counter-productive sessions making online meetings more viable. The length of the scrum meeting was increased to 1 hour to discuss our progress and set deadlines. The 2 stand-up meetings are a factor for the longer scrum sessions. Another practice, we adapted was sprint planning, rather than allocating a separate time, we utilised the stand-up sessions to cover this process. The

reason why we have opted for this decision was since the stand-ups are now longer it has allowed our team to spend more time. In the initial stand-ups for the sprints, there are no tasks that are reported, making the sprint planning a temporary substitute.

The scrum practice that was not used by the team was the Product Backlog refinement. Our team has decided not to use this practice as once a new sprint begins, we tend to undervalue the previous sprint tasks as it has already been completed in the product backlog. This results in our team moreover to overvaluing a new task on the product backlog causing continuous unnecessary changes to the product backlog. As a result of the overvaluation, the team would initially drastically reduce the number of tasks in the sprint and push them to the next sprint leading to inefficiencies.

The features of the academic environment that had the greatest impact were the timetable of the developers in the team. As each member of the team had a different schedule, it became difficult to allocate the daily scrum consistently. Moreover, other projects from different classes have caused the team members to have divided attention in the project. Also, this divided attention has led to burnout within the team. Through the other projects, it breaks the scrum core values as it is intended for the developers to work on one project per sprint.

One of the principles in the agile manifesto that our project followed was working software is the primary measure of progress, which was whenever a functionality is working and is integrated with the other components it would be classified in the finished category. Another principle was simplicity, as the project intended to not have extra features as it would end up overcomplicating the design for both the user and the developer.
In the future, I intend to spend more time in sprint planning, as it would have allowed our team to further work on unpacking the given tasks in more depth and understanding what needs to be done for the required task. As a result, the task is easily understood by the developers as they know clearly what is being built, rather than spending extra time consulting with the team causing many delays in the progress. Moreover, for the future, more clarification on pivotal details in the project with the client in the earlier consultation sessions. As this would have prevent the team from sending emails and waiting for a response from the client.

Topic 2: Working in teams

Our team has coordinated with one another either through our two weekly stand-up sessions where we discuss any updates of the project or ask for feedback or assistance. Moreover, for more urgent level issues, the issues are notified through our Facebook Messenger group. One challenge that our team faced was delays in communication, as sometimes messages take almost a day to be responded to, especially during the mid-semester break. Moreover, another challenge was the delays in the meeting during the midsemester break as due to other commitments by team members, the meeting was consistently postponed during this period.

I generally managed my communication with my teammates through in-class workshops. Messenger was used for urgent messages and Zoom stand-ups to discuss my progress. Furthermore, I had a WhatsApp chat with the scrum master to ensure that my understanding of a certain topic was satisfactory and to clarify my code errors.
Initially, our team has prompted a numeric-based approach to determine the level of effort and time on a certain task. However, this process has tended to lead many tasks to be valued relatively higher from 8-10 regularly.

This was due to the tasks were not ranked relatively to one another which did not allow our team to compare tasks based on their comparative difficulty to another task. Due to these issues, our team modified our approach to allocating tasks to the t-shirt size model, which

ranks the tasks as Small, Medium, Large and Extra Large which aided our team in determining more relative comparison between tasks. Furthermore, each member had the opportunity to select which tasks they were interested in working on, however, all members would need to complete an equal scale of work in the t-shirt scale.

The arrangement was satisfactory to all members of our team, however, did have minor flaws in the implementation. Some tasks had details that were not delved into appropriately during the sprint planning process. As a result, it has caused some members to have slightly more work than others.

These practices would be able to hold up in a small company but would need some more adjustments. As a team we have communicated twice a week, however for industrial standards, more frequent stand-ups and communications would be required. This is primarily due to the increase in the workload scalability factor, as the amount of time in for communication would not be enough.

Our team followed the norming stage in Bruce Tuckman Model once the project inception was completed. As during this stage, we began realising that our individual ideas alone would not effectively work, and we began listening and understanding the view of the other members. As the first sprint felt overwhelming for all members within the group and it can be done if each team member shares their ideas and accepts the other members' thoughts.

For the future, clear communication on the tasks we have and the changes we made needs to be discussed with the team. Our team faced a couple of merge conflicts and code loss once a merge occurred causing another team member's work to be lost. Through clear communication, the team could easily understand if there might be any issues before merging or some clarification before beginning a task.

 Moreover, another change would be to more proactive in completing tasks, as our team spent until the end to finish all the tasks. In the future, I believe in setting some earlier deadlines for the team members based on the appropriate task. Through this, it would allow our team to performing testing and presentation finishes.

 The final change would be more communication through Messenger to mention our progress in a certain task. Despite our team communication consistently through Messenger, we have not sent too many messages highlighting our progress. Even though this issue is mitigated with the stand-up, having this communication in Messenger would allow other team members to immediately work off the developer who finished their tasks. This process would further improve our organisation and our speed.

Topic 3: Making decisions

My initial choice for language was Python using AWS to host the website and use Tkinter. Despite having potential, due to the difficulty in learning the concept makes it unsuitable. My initial decision had to be changed, as most team members within the team were preferred HTML/CSS and JavaScript, as it was easier to learn. Initially, I had doubts once my team as I had no experience in the language. However, while learning the language, I understood my team's reasoning. As it was easy to learn, and the code was understandable I was able to spend much less time in using the language. Through this process, I have learnt to listen to the information provided by other team members, as they provide different ideas which can be beneficial.

There were no overlooking ideas from our team, as the team have listened to my decisions and as a team, we have discussed the implications of each decision. Through our communication in the team meeting (scrum stand-ups), I would let my opinions be raised

clearly to the team and my team was consider the idea and as team determine whether the idea is feasible to proceed towards development.

I am confident that the requirements that we acquired from the client are correct, as we have spent time clarifying details with the client whenever we were unsure. For clarification, we send emails to our client after setting up questions to ask a team. Also, we clarify immediate details at the beginning of the sprint during the workshop about the requirements and their specific criteria. For the future adding a checklist of completed features within task to verify its completeness of a given task would further improve our progress.

The product serves the client's needs well, as all the user functionality has been tested to verify if it performs to its expected standard. We have documented all the client's requests and needs which has allowed us to determine what tasks we need to prioritise in our sprints. This process has allowed us to include all the relevant tasks in our sprint and allows our team to address all the needs of the client.

For future projects, I will prioritise the presentation of the project, as looking back on the website, there was room for improvement in this area. This would be through allocating a separate time prioritising in the layout of final product. Presentation is an important usability feature and potentially a priority for the customer who is investing in the product. Whenever we are completing a task with a new language, I will learn the language first and most of its crucial functions first. The first sprint caused me lots of nervousness in beginning the sprint as I did not understand the crucial functions. This process led to our team being slightly behind for the second sprint. Moreover, I would allocate more time for testing the functionality, as this would ensure this would assert clearly that the functionality is providing the expected output for all given test cases.

Topic 4: Ethical Aspects

One ethical issue that could arise if this project was in an industry setting would be privacy breaches. One mitigation strategy would be to ensure more multi-factor authentication for accessing the website. As a result, this would ensure that a user with privilege can only have access to data within the website. This follows the primacy of the public interest and professionalism by ensuring that the website cannot be exploited by hackers.

Another ethical issue would be using open-source code to create the code within the project. A mitigation strategy would be to reference the code with the source website documented, this step highlights which section of code has been sourced from the internet source. Ensuring the managers know if this code is licensed for open-source usage. This demonstrates the integrity and honesty of the developer if they are outsourcing code.

Through this I learnt whenever a project is taken to industry standard, there is certain set of ethical expectation which are expected for a developer to maintain. As once the project becomes into industry standard, there is more expectations which need to be adhered to.

Appendix

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