Project Review Report

Team Management and Structure

At the outset of the project, our team was not rigidly structured and members did not have defined roles. This was because our initial knowledge of each team member's specialities and traits was very limited, as we had never worked together before. We aimed to reach a consensus when making decisions and to distribute tasks according to each member's preference at the time. Whilst this was functional, it quickly became clear that this approach would cause problems further into the project, as there was no rigid way of assigning responsibility for anything. In order to solve this, we defined group roles after the hand-in of the first assessment; these were largely chosen by the roles that members had naturally begun to assume. This meant that we then had a team leader, who could take ultimate responsibility for the allocation of tasks and resolution of any disputes within the team, reducing the scope for any deadlocks that could result in a lack of productivity. The assignment of the rest of the roles helped us to choose which parts of the project each team member would take on, as well as guide the allocation of risk ownership. We found that this structure worked very well, and as such it did not change significantly for the rest of the project.

Whilst we did not deviate from the allocated roles and team structure after this initial change, the performance of our team did continue to improve. Initially, we were operating somewhere between levels 1 and 2 of the CMM [1], as not many procedures were in place but we were a functional team. We quickly ascended to level 3 and by the end of the project we were operating at level 4. Although elements of it were evident, level 5 was never truly achieved, as aspects of the team still were not optimised. However, this is to be expected in a relatively inexperienced team who have never worked together before, and it is likely that our team would further improve given more time.

A version of Scrum was used, but this had to be adapted to our team, as we were not working full time on the project due to a commitment to the rest of the course. The motivation behind this choice was principally the concept of short sprints and regular meetings [2], with the idea that this would minimise wasted time and ensure that the whole team was always working together as efficiently as possible. Rather than having a daily scrum, we had at least 2 meetings per week. Importantly, we kept up 1-2 weekly meetings as a team throughout holidays when we were geographically distributed, although these were done as a group call rather than a physical meeting. In addition to this, more regular meetings were held as required between pairs of team members who were working closely at the time. Some of these pairs employed pair programming [3] while others worked together from different locations, depending upon the preferences of each team member.

Development Methods and Tools

At the outset of the project, RUP [4] was considered, but this was quickly rejected in favour of the more flexible Scrum, as plan-driven methods such as RUP would present much more of a problem in the event of a change in requirements, which we would knew would occur during the project. We also judged that we were more likely to encounter Scrum when working in industry, and so its use during the project would stand us in better stead for future employment.

As mentioned above, pair programming [3] was employed by different pairs throughout the project, particularly during the latter assessments. This was to ensure the quality of the code that was produced and to avoid situations where a single team member is entirely stuck on a problem. This also allowed us to best utilise our team members as we often found it easiest to have only one computer working on the code at any given time to avoid merging issues, especially when much of the work to be done was on the same scripts. This method was more difficult when team members were unable to be physically together, but this was overcome using voice calls and screen sharing where team members felt it was beneficial.

GitHub [5] was used for version control, as most of the team was familiar with it at the outset of the project and it allowed each team member to use whichever client they preferred. We also hoped that many other teams would be familiar with it, and as such it would make transfer easier as and when other teams chose to continue our project. In fact, this turned out to be the case during the handover following the first assessment, so we continued to use Git for the duration of the project. For documentation, we used Google Drive [6], as it allowed for very easy collaboration and, once again, team members were already familiar with it.

To facilitate quick and consistent communication, we used Facebook Messenger [7] to stay in touch and Discord [8] for calls. Messenger allowed queries from any team member to be answered almost instantly. Discord is designed for gamers, but it suited our needs excellently as we could make group and individual calls, allowing us to stay in touch and hold meetings during periods where we could not physically meet. Trello [9] was used to show the allocation of tasks and monitor what needed to be done, as well as deadlines. This tied in with our use of Scrum.

None of these development tools were changed during the project, as we found all of them to be effective and no significant issues arose with, or as a result of, their use.

Bibliography

[1] M. Paulk, C. Weber, S. Garcia, M. Chrissis and M. Bush, "Key Practices of the Capability Maturity Model Version 1.1", Software Engineering Institute, Carnegie Mellon University, Pittsburgh, 1993.

[2] K. Schwaber and J. Sutherland, The Scrum Guide. 2016. [Online]. Available: http://www.scrumguides.org/docs/scrumguide/v2016/2016-Scrum-Guide-US.pdf

[3] D. Wells, "Pair Programming", Extreme Programming, 1999. [Online]. Available: http://www.extremeprogramming.org/rules/pair.html. [Accessed: 26- Mar- 2018].

[4] Rational Software, "Rational Unified Process," 1998. [Online]. Available: https://www.ibm.com/developerworks/rational/library/content/03July/1000/1251/1251_bestpractices_TP026B.pdf. [Accessed 26- Mar- 2018].

[5] GitHub, 2018. [Online]. Available: https://github.com/. [Accessed: 26- Mar- 2018].

[6] Google Drive, 2018. [Online]. Available: https://www.google.com/drive/. [Accessed: 26- Mar- 2018].

[7] Facebook Messenger, 2018. [Online]. Available: https://www.messenger.com/. [Accessed: 26- Mar- 2018].

[8] Discord, 2018. [Online]. Available: https://discordapp.com/. [Accessed: 26- Mar- 2018].

[9] Trello, 2018. [Online]. Available: https://trello.com/. [Accessed: 26- Mar- 2018].