CSC3600 Final Report

By
USQ Learning Emporium
Richard Dobson, Jesse Hare, James McKeown, Vincent
Roberts, Ryan Sharp

Examiner
Dr. Xiaohui Tao
*Senior Lecturer (Computing) – School of Sciences - PhD
QUT*

Project Supervisor
Assoc. Prof. Stijn Dekeyser
*Associate Professor (Computing) - School of Sciences -
PhD Antwerp*

School of Management and Enterprise

Due: Friday 18th of October 2019

Contents

1. Executive Summary

This report provides an analysis and evaluation of the development stages completed for the harvest metadata.

2. Methodology

2.1 Methodology Statement

The team used the scrum implementation of the agile methodology to complete the project. The scrum process allowed the team to incrementally build the program over the entire project duration. As there was constant input from the the project supervisor and the client, the scrum process permitted the team to make quick changes.

2.2 Justifications

The following sub sections will describe why scrum was chosen, the benefits of scrum and the disadvantages of scrum.

2.2.1 Why Scrum Was Used

As stated in the previous section, scrum was ideal for this project as it allowed the team to make quick changes during the development process. Another reason why scrum was chosen was because there was no team leader. This provided an environment where all team members could be equal and address issues as a whole group.

2.2.2 Benefits of Scrum

Scrum provided a framework that allowed the team to build in sprints, which suited this type of project. After each sprint, a meeting with the project supervisor was organised so that feedback could be given in preparation for the next sprint. In addition to this, scrum forced the team to prioritise requirements which allowed for faster development. Without this, lower-priority requirements may have been implemented at the cost of the higher-priority requirements.

2.2.3 Disadvantages of Scrum

As time constraints were a major factor in the development of the project, it was difficult for the team to have as many daily meetings as scrum required. Scrum requires the implementation of daily meetings, which wasn't feasible with this project. Another disadvantage with scrum in the team's case, was that each member of the team wasn't experienced with the process and the roles involved. This meant that the roles outlined in the scrum process weren't followed 100% correctly.

2.3 Discussions

The following sub sections will discuss how the scrum process was utilised and how it will be used for future projects.

2.3.1 How Scrum Was Followed

All team members simulated the *Product Owner* and *Scrum Master* roles. Due to the inexperience with scrum, it was decided that this was the best option to follow. Daily meetings were reduced to at least 1 meeting a week, with 2 meetings a week the average throughout the duration of the project. Sprints were carried out every 1 to 3 weeks, depending on the size of the individual tasks. Once a sprint was complete a whole team meeting was organised to discuss the next sprint. Meetings were then held with the project supervisor to demonstrate what had been completed and to gain new requirements for the project.

2.3.2 How Scrum Will Be Used In The Future

The obvious improvement to the scrum process in future projects would be to have a dedicated product owner and scrum master. These two roles play a key part in the scrum process, and when included, make the development of the project a lot easier. In addition, having more time to have daily meetings would help tremendously in both planning and developing the project.

Due to this being the first time each member had used the scrum process, it can be presumed that it wasn't as efficient as it could have been. As with all projects of this nature, the more experience you have, the faster and more efficient you get. It is the goal of all members, that with each time they use the scrum process they get more proficient with using it.

3. Project Process

3.1 Team Organisation

There were a total of 5 members in the USQ Learning Emporium team. As this project was initially designed for teams of 3, the team needed to strategise ways in which to divide the work evenly between members. The first

solution was to divide the main project task into 2 sub teams; a back-end team (3 members) and a front-end team (2 members). Within these teams each member had different roles.

From these sub teams, each had their own Facebook Messenger group and their own Slack channel for discussing specific project tasks. This stopped unnecessary information from being communicated between the sub teams, i.e. the back-end team didn't need to know the specifics of the front-end and vice versa. Within these messenger platforms, jobs were distributed and agreed upon between members.

3.2 Team Structure and Roles

As stated above, the group was divided into 2 main groups; a back-end team (3 members) and a front-end team (2 members). The back-end team consisted of: James McKeown (Team Leader), Richard Dobson (Programmer) and Vincent Roberts (Programmer). The front-end team consisted of: Jesse Hare (Team Leader), Ryan Sharp (Programmer).

James McKeown and Jesse Hare both lead their respective teams. This allowed for better and more effective team co-ordination. It helped all members stay on task and stopped individual team members from deviating from the plan and doing their own work. Both of these members (James and Jesse) took on the most technical aspects of the project, especially in regards to the planning the project (in terms of coding). Other members then utilised this research to program their respective tasks within the project.

3.3 Communication and Meetings

The following sub sections will discuss how well the team communicated throughout the project duration.

3.3.1 Effectiveness of Communication

Communication between members was very quick and effective. The team decided to use a private Facebook Messenger chat as the primary point of contact as each member regularly used this application. This made it easier to notify team members of urgent matters. In addition to Facebook, the team decided to use a Slack channel for more technical and project specific subjects. Slack was new to all members and

was therefore not utilised to it's full potential.

The main problem faced with the Facebook Messenger chat, was that the information couldn't be organised. It would have been better to use Slack as the primary messenger application as it was more suited to this type of project; especially because we had 5 team members and 2 sub teams. In future projects organisation of information needs to be a higher priority.

3.3.2 Team Meetings

Team meetings were run through the Zoom video conferencing application. At least once a week the whole team would meet to discuss the progress of the project. Meetings for the back end and front end team were often held more than once a week to discuss new ideas for their respective tasks. These meetings were highly effective as each member could screen share what they were working on and clearly communicate that with the team.

These meetings could be improved by having a set agenda before each meeting. Occasionally the meetings started slow as we all had to organise what we were going to discuss. It would also be ideal to have one member as the designated scribe to take notes for each meeting and relay this back to the team.

3.4 Documentation

The activity log sheets, task summary sheets and meeting minute documents all assisted in tracking how the project was developing. The activity log sheets provided a good point of reference each week in deciding what tasks needed to be worked on next. It also helped ensure that each task was completed. Without the activity log sheets and task summaries it would have been difficult to keep track of the progress of the project. However, it was often the case that some weeks would be forgotten and team members would need to go back and fill in the information. This was obviously not ideal, but did not have a noticeable effect on the productivity of the team.

The meeting minutes documents were essential for the project. Without them, members of the team would forget what was discussed in each meeting. This would result in a massive amount of lost time as information would

need to be repeated. After each meeting with the project supervisor (Stijn Dekeyser), the team would stay back and document what had been discussed in these meetings. This helped tremendously when working on specific parts of the project. This is because we now had a reference to look at, to see if certain features needed to be implemented. These meeting minutes can be found attached to the bottom of this document.

3.5 Process

The following sub sections will discuss the process used to develop the project, the difficulties encountered with this process and beneficial strategies used throughout the project duration.

3.5.1 Overall Process

The team (and it's sub teams) decided on using the agile methodology for the project. Each week a meeting was held between members to discuss what tasks needed to be completed that week. Every 2 - 3 weeks a meeting was held with the project supervisor to discuss improvements that needed to be made. These improvements (as tasks) were added to the list of tasks to be completed.

3.5.2 Difficulties Encountered

Due to time constraints, university commitments and conflicting schedules, some weeks were more challenging than others. As a result some tasks did not get completed on schedule. This resulted in the rescheduling of tasks which hindered productivity. Any difficulty faced was getting team members schedules to align. Occasionally, tasks would get worked on individually and passed on to another team member. Ideally in the real world, each member would have this project as their number one priority with no external distractions (such as university commitments, work etc.).

3.5.3 Beneficial Strategies

Weekly video conference meetings were essential for the project completion. These meetings allowed each member to discuss, and show, exactly what they were working on. Especially as the group implemented the agile methodology, it was important to discuss any im-

provements to the project each week.

Using Trello boards also assisted in the development of the project. It allowed all of the tasks to be laid out for each member to see. Once a task was completed it was moved from the 'to-do' card into the 'completed' card. As there were 5 members of the team, it was extremely beneficial as the tasks could be marked as 'to-do', 'doing' and 'completed'. This helped in reducing and avoiding work that would otherwise be repeated.

4. Project Report

4.1 Project Outcome

Lorem Ipsum

4.2 Cost of the Project

The following sub sections will discuss the time and labor costs of the project.

4.2.1 Cost of Hardware

There are no deviations to the cost of hardware from the projection provided in the initial project plan. The costing table can be viewed below.

Hardware Used	# of Items Used	Cost ($AUD)	Total Cost ($AUD)
Microsoft Surface Pro 6	5	$1,349	$6,745
MacBook Air 13" (128GB)	1	$1,699	$1,699

As the project was worked on remotely, all team members required company issued equipment. There were a total of 5 Windows machines provided to each member, with an additional MacBook Air provided to the project leader, James McKeown. There were no unexpected circumstances that required the purchase of any other pieces of hardware.

4.2.2 Cost of Software

There were multiple software solutions that were incorporated for the development of the project. There were some software solutions that were

not foreseen in the initial project plan. All of the software solutions can be viewed below.

Software Used	# of Accounts Needed	Cost ($AUD)	Total Cost ($AUD)
Anaconda	2	$0	$0
Atom (IDE)	5	$0	$0
Facebook Messenger	5	$0	$0
Slack	5	$0	$0
Spyder (IDE)	2	$0	$0
Zoom Video Conferencing	5	$0	$0

In the planning stages it was decided the front-end team would use Spyder as the preferred IDE. It added more specific functionality compared to Atom in our case. Anaconda was also used for the development of the front-end GUI. Facebook Messenger and Slack were used for communication between team members. Zoom Video Conferencing was used for group meetings and screen sharing.

4.2.3 Time Cost

The project took 12 weeks to complete with each member contributing 20 hours a week. Each member therefore contributed 240 hours of work to the project with a combined team total of 1,200 hours.

4.2.4 Labor Cost

The team was split up into 2 sub teams, a front-end team and a back-end team. The front-end team consisted of Jesse Hare and Ryan Sharp. The front-end team consisted of James McKeown, Richard Dobson and Vincent Roberts.

Team Member	Role	Hourly Rate	Hours Per Week	Total Weeks Worked	Total Cost ($AUD)
James McKeown	Team Leader/Back-End Developer	$39.90	20	12	$9,576
Jesse Hare	Front-End Developer	$34.10	20	12	$8,184
Richard Dobson	Back-End Developer	$35.40	20	12	$8,496
Ryan Sharp	Front-End Developer	$34.10	20	12	$8,184
Vincent Roberts	Back-End Developer	$35.40	20	12	$8,496

The only difference between the projected labor cost and the actual labor cost was the error in how many weeks the project would take. It was initially predicated that the project would run over 10 weeks, when in fact the project ran for a total of 12 weeks.

4.2.5 Lessons Learnt About Project Cost Estimation

The major lesson learnt was that no prediction about the cost will be 100% accurate. Lots of things change in a 12 week period and there is no possible way that these can be accounted for. For example, majority of team members used Atom before this project, so it was assumed that we would use this again. However, once the front-end team researched more into what programs were out there, it was decided that Atom was not the idea choice and that the team should use Spyder instead.

5. Professionalism and Professional Ethics

5.1 Professionalism

Lorem Ipsum

5.2 Professional Ethics

Lorem Ipsum

6. Contribution Distribution

7. Conclusions

Reference List

Appendix