Examples of Reflections:

FINAL REFLECTION

The CE301 course begins as a seemingly impossible challenge and I found that a large portion of completing the course was more mental than skill-based. For example, I often doubted myself during the first half of the course and I felt like I would never be able to complete it. As the project progressed and I became more confident in my abilities, and subsequently felt more in control of the course as a whole.

The course is considerably more challenging than previous courses, mostly due to the fact that it is the equivalent of three courses combined, compared with previous single class-based assignments. I found time and course management was the key to completing this challenge. During the course I was working 20 hours a week at Trade Me, so striking a good work, course, and life balance was important, both for the outcome of the course and my own wellbeing.

After completing CE301, I feel more competent in my abilities, and this was particularly evident in my recent interview for a Functional Business Analyst at Ryman Healthcare. I was invited back for a second interview at Ryman, and this involved a BA related exercise. I was given a problem statement from an executive manager and asked to capture the problem at hand, identify benefits of solving the problem, and detail what success would look like for the manager. At first, I felt anxious and incompetent about completing this exercise. However, as I began to break down the task and recall the skills, I had been taught during CE301 and other courses, I felt more confident and was able to complete the task. The rest of the interview went very well, and the interviewer commented that he was impressed with the outcome. Due to CE301 and other courses at Ara, I feel competent in my abilities and skills to enter the I.T industry.

Since completing the project, I feel more enthusiastic about the ICT, in particular, the business analysis and information systems industry. I truly enjoyed my project and feel that I have produced a quality result for my client.

As mentioned before, I found time management to be a vital lesson of CE301. I also learnt the importance of creating a good project plan and ensuring consistent communication throughout the project. A strong project plan can drastically improve a project's course as it eases the project manger's workflow and can identify potential issues before they occur. Strong communication is also important as I found that a disruption of communication led to my project having to be restarted at a new industry.

Overview, this course was an invaluable experience as it gave me a true insight into what it is like to carry out a project in a real industry and I learnt many useful skills. The course often felt like a rollercoaster of emotions, with one day feeling very productive and ahead of schedule, while the next day feeling overwhelming and daunting. I found the key to cope with this was strong course and time management, and consistent communication with my academic supervisor.

SELF-EVALUATION

Course Management	**4/5**
The Project	**4/5**
200/300 Course Evaluation	**3/5**
Quality Assurance	**3/5**
Risk Management	**3/5**
Methodologies Essay	**4/5**
Report	**3/5**
Panel Presentation	**4/5**
Poster	**4/5**

Another Example

FINAL REFLECTION

LEARNING OBJECTIVES

Over the duration of the CE301 Co-operative project I have worked hard both academically and in industry. I have produced all my academic work to the best of my abilities, and I have produced work in industry to an equal, if not greater standard. During my time at Jade I worked 288 industry hours and outside of this I completed over 130 academic hours, as required by Ara. The project upon I worked required a lot of time and effort, and there were many tasks that I had to complete to ensure a successful project. Based on the feedback and approval from my clients, I am pleased to say that this success was achieved.

I have outlined and explained the steps and milestones achieved to ensure my projects success and I have outlined the stages in which I have had my work reviewed by my team, and my clients. I have also outlined the process by which I tested my project to verify that it met the intended goals.

During the project I implemented quality assurance in a variety of different ways, utilising my clients, my team, and my supervisors to ensure that my project was on track and of a high standard. I also performed user testing and administrative testing at the end of my project to verify it was fit for use and to gain client approval of completion. I implemented risk management plans to ensure that I was aware of problems that may occur and determine mitigation techniques and solutions to minimise the impact of these risks.

I have evaluated my level 200 and 300 courses in relation to how they have helped me complete this project. I have also made recommendations where possible to help improve these courses in the future.

I have identified the main areas of learning that I have achieved throughout my time in this course, outlining the situations that occurred and how I learned from them.

I have produced a substantive report, to the best of my abilities. This report outlines every aspect of the course and the progress I have made, showing the work I have performed and the accomplishments I have made to reach this point. I will also identify the grades I expect in the section below.

I will be presenting a verbal summary of my course to my supervisors and course coordinator.

REFLECTION ON GRADES

Course Management (5/5)

- ✓ I have maintained extensive management of my course, both in terms of academic work and industry work (pg. 29-30).
- ✓ I have displayed excellent control and initiated communication throughout this the execution of this course (pg. 30).

The Project (5/5)

- ✓ I have completed my project to both the satisfaction of my industry supervisor and my clients.
- ✓ I have selected a tool that is perfect for my needs, despite not being the intended purpose and I have curated and collected a wide variety of media showcasing the organisation's historical highlights. I have a very firm grasp on the content I dealt with and that have curated.

Content of the level 200 and 300 courses (4/5)

- ✓ I have correctly identified and evaluated relevant level 200 and 300 courses (pg. 31 -34).
- ✓ The analysis of my courses shows that the learning material has been applied in a relevant manner.
- ✓ I have made recommendations about content that could be changed or included.

Quality Assurance Programme (5/5)

- ✓ I have created, maintained and applied a comprehensive quality assurance programme for my course (pg. 35-36).
- ✓ I have shown an in-depth understanding of how I have applied quality assurance to my project.

Risk Management Programme (4/5)

- ✓ I have created, maintained, and applied a comprehensive risk management programme for my course (pg. 47-49).
- ✓ I have critically analysed the use of the risk management programme and drawn appropriate conclusions (pg. 37-39).

Methodologies Essay/Report (5/5)

- ✓ I have related extensively referenced accepted theory to the industrial practice observed while carrying out the project, to an exceptional standard (see methodologies report).

Report (5/5)

- ✓ My report presentation shows a polished and imaginative approach.
- ✓ My thoughts and ideas a clearly and fluently expressed, using an imaginative and insightful approach.
- ✓ Spelling and grammar are accurate.
- ✓ I have made a very full analysis of my performance to an exceptional standard.

Panel (4/5)

Not yet performed.

Poster (5/5)

- ✓ My poster is imaginative and aesthetically pleasing.
- ✓ My poster is professional and approved by the design team at Jade.
- ✓ My poster displayed project's outcomes and very clearly conveyed learning achieved.

Another Example

9.3 Conclusion of Quality Assurance

Different types of quality assurance work and processes were used to verify that the test development and refactoring work which was performed in this project was of a high standard. Code reviews by my industry supervisor and running the UI tests were the main forms of quality assurance. Both positive ('happy day') and negative ('unhappy day') UI tests were written to verify that the application under test was performing properly. Furthermore, tests of the tests were written for some of the detailed tests which involved manipulating combo boxes and checkboxes, in order to verify that the tests were behaving correctly. Also, when writing new UI tests, test cases were first written. However, the quality assurance programme for this project could have been improved by the inclusion of greater amounts of documentation regarding the results of the testing which was performed.

10 Main Areas of Learning

The learning gained from this project involved the following areas:

1. A reinforcement of the principles of object-oriented programming. Classes should be structured according to their responsibilities. See section 8.6, pages 48-49, for a discussion of a coding style I was asked to introduce.

2. Skill and experience in refactoring code in a framework efficiently and safely.

3. Greater knowledge of and skill programming in C#. The programming involved using lambdas, anonymous methods, delegates. Figure 42 shows an example of the use of a lambda in the project .

4. The knowledge and ability to use the UI testing framework Selenium, including the ability to create UI tests and suites. Figure 4 shows the code for one of the standardised test methods, TestAddItem, which was created in the FleetTestsBase class (which is a parent class for many of the test classes).

5. The value to be gained of doing wide research at the beginning of a project.

6. The advantages to be gained from running a project according to the Scrum software development methodology.

7. The importance of creating and maintaining a well-considered risk management plan.

8. The value to be gained from conducting a rigorous and thorough QA program.

Figure 42: a line of code in the EnterInvalidNoSignalData method in the AssetTypesPage class.

11 Summary of Key Findings

- The value of automation testing: Automation testing is an excellent complement to manual testing, as it reduces the burden on manual testers to perform repetitive testing procedures. However, automation testing will not fully replace manual testing. This is because it is necessary to check the overall end-to-end functionality and usability of an application through manual testing. Furthermore, manual ad hoc testing can be useful for finding bugs in areas which are known to be problematic.

- Automation testing could assist with the testing of the Ext6 branch: Many of the development teams, especially the Fleet and Map teams, are in the process of preparing for the rollout of the Ext6 branch as the default branch for the Telogis application. The timeline for achieving this is within the next 2 months. This Ext6 branch is being regularly updated and modified in the process of being prepared for this roll-out. Manual testers have recently found large numbers of bugs in this branch. The burden on manual testers to continue to monitor the Ext6 branch for defects could be eased through the establishment of a branch of the UI automation testing framework for testing the Ext6 branch of Platform. Additionally, this automation testing of the Ext6 branch could provide developers with regular information regarding the state of the branch, in terms of its functionality and usability.

- Exhaustive testing is impossible: Automated UI testing cannot reasonably be expected to check all of the many different permutations and combinations of inputs which could be entered into the system. Exhaustive testing is impossible and unrealistic given the number of tests which already exist, and the limited time that is available to run them. That is why both ad hoc testing, in areas which are considered to be risk-prone to having bugs, and end-to-end manual testing are important.

- Outstanding bugs: As I learned at a presentation about Epics and the Portfolio module of Jira by tester Eric Kim, developers are having to add new features to modules while known errors remain unsolved. However, it has been reported recently at a Fleet Town Hall Meeting on May 26 that the average length of time it takes to fix bugs has been decreasing on average. Nonetheless, it still puts the Platform QA team in a difficult situation. In this context, having a wide range of automated UI tests for testing different branches would be an important and valuable resource for both the Platform QA team and development teams.

- Early testing: Ideally, testing should be performed and run on development code, instead of production code which has been or is about to be released to customers. Automated UI testing would help to take the pressure off the manual end-to-end integration testers searching for bugs before a branch can be cleared as being ready to be released.

- Incomplete UI tests: Some of the pages of the Telogis application currently do not have UI tests. The creation of regression tests for all pages is important to ensure that branches can be released with as few bugs as possible.

- Browsers: Ideally, both UI automation testing and manual testing should be performed on all of the main browsers, such as Firefox, Chrome, Internet Explorer and Edge.

- User Accounts: Test cases should involve using both main accounts as well as accounts belonging to sub-users. Doing this will help to simulate the real-world use of the application when running tests. Furthermore, it will enable problems relating to the configuration of accounts to be identified.

- Scrum & Jira: Although the Platform QA team does not operate strictly according to Scrum principles, using elements of this development methodology helps to provide testers and members of the team with a flexible developmental paradigm. Using the JIRA management software tool enables staff to create, record, update and keep a track of the tasks which they work on during sprints.

- Metrics: The collection and gathering of data and metrics on the amount of bugs which are found through automation testing would help to provide documented evidence of the state of the Ext6 Platform codebase. Furthermore, this data could help to show over time the effectiveness and role of automation testing in reducing the number of bugs which make it into production code and thereby reach customers.

- The value of refactoring:

o Refactoring the framework has made the code for the ‘page’ classes and associated test classes both less coupled with each other and more readable and maintainable. This will have the benefit of making it easier for people unused to the framework to modify and fix defects in page classes or UI tests, as well as to write new UI tests.

o The presence of classes in the code with names which have prefixes such as ‘Ext3’ and ‘Ext4’, such as Ext4PanelsPageTemplate, suggests that these classes have been incrementally added to the system at times when the Ext JS framework for Platform has been upgraded. In this context, it makes sense for these classes to be removed through refactoring. Classes in the system should be organised according to functionality and purpose instead of a particular legacy version of Ext JS.

o However, the fact that some of the pages were developed when Platform used an older version of the Ext JS framework means that these pages may be structured differently than more

recently created pages. As a result of this, some of the Ext JS version specific classes need to be kept, such as Ext3PagingToolbar and Ext4PagingToolbar.

o It would be preferable and advantageous to continue to refactor the framework, especially if new and expanded UI tests are going to be added to the framework in the near future.

12 Evaluation and Recommendations of Level 200 & 300 Courses Completed for the BICT

13 Conclusion

The Test Automation Development project for the Telogis Platform QA team resulted in some significant achievements being made. Initially there were delays as a result of unforeseen obstacles. However, the last half of the project saw a rise in activity and the level of work which was performed. Nearly all of the objectives which were stated at the start of the project were either met or progress was made towards achieving them. The goal of improving the scalability of the framework was the only one not worked on. The project resulted in the learning and the practising of both manual and automated testing, including the fixing and writing of UI tests. The refactoring work which was completed may not have been as far-ranging as would have been hoped for at the beginning of the project. However, the removal of legacy code from the framework and the simplification of test code have enhanced the readability and maintainability of the framework. This refactoring has provided a solid foundation for further refactoring of the UI testing framework in the future. Deficiencies in the risk management, quality assurance, and project management programs used in the project have been identified, and various techniques to avoid or remedy these issues will be applied in future projects.

Reflection on Grades

COURSE MANAGEMENT (Mark: 5/5)

☐ established:

• the initial schedule for the project was established in the project proposal (see page 4).

• The screenshot below reveals the spreadsheets document containing the industry and coursework timelogs was created near the start of the course:

• The screenshot in Figure 15 shows the contents of the TimeLog_Telogis_Project file, and a snippet of the Telogis_Industry_TimeLog spreadsheet.

☐ actively maintained:

• reports were written each week (there is an examples on pages 30 & 32, Figures 9 and 11); timelogs were updated (see page 36, Figure 17); and Jira cases were created and maintained (see page 33, Figure 12; and page 34, Figure 14).

• Below is a screenshot which shows the contents of a directory of files containing weekly reports which were sent to my academic supervisor, and the dates they were created. The report for week 1 was never sent to my academic supervisor as it was still early in the course and the processes for reporting were still being established. However, information about week 1 was written about in the industry time log for week 1:

☐ extensive:

• See the information on project and course management (pages 23-38). I wrote many weekly reviews (see the overall picture of the reports on page 31, Figure 10).

☐ exceptionally effective:

• Despite problems in the first half of the project, I managed to get a lot of work done in the last three sprints. Table 2 on page 11-12 shows the tasks I achieved at Telogis in the course of the project. Figure 7 on page 26 shows some of the tasks I was able to undertake and complete in the UI Automation Refactoring Epic.

☐ displaying excellent control:

• I used Scrum to plan the work to be achieved in sprints (see Table 2 on page 11-12).

• Writing and using the information contained in the weekly reports enabled me to plan, assess the current state of the project, and thereby control the progress of the project effectively (see pages 29 - 32).

☐ initiating communication throughout its execution:

• Discussing the objectives and tasks to be completed in sprints with my supervisor was important (see page 20).

• I asked questions during the Daily Scrum meetings (see page 26-27); also I communicated with my team-members, including my supervisor and Platform QA team-leader at Scrum review and planning meetings (see page 27); communicated with my academic supervisor, Mike Lance, by sending the weekly reports and having meetings with him (pages 20 & 29).

THE PROJECT

☐ completed the project

☐ to the industry supervisor's satisfaction

☐ demonstrating an exceptional grasp of the subject.

CONTENT OF THE LEVEL 200 AND 300 COURSES (see pages 64-68) (Mark: 5/5)

☐ correctly identified

☐ evaluated content

☐ shows material has been applied in a relevant and innovative manner.

☐ perceptive content recommendations

QUALITY ASSURANCE PROGRAMME (see pages 52 - 59) (Mark: 4/5)

☐ created: QA is central to this project (page 52)

☐ maintained:

- Code reviews were documented in Kiln (pages 55-56) and Jira (page 33, Figure 12).

☐ applied:

- Whenever I performed refactoring, I ran the tests to make sure code had not been broken (page 57)
- I followed my supervisor's advice regarding how to improve the code (page 55-56)

☐ comprehensive:

- All of my code was regularly reviewed by my industry supervisor (page 56).
- I wrote both happy day and unhappy day tests for the Asset Types tests; as well as tests of the tests (page 53-54).

☐ in-depth understanding:

- I now realise that I should have documented whenever I ran tests after refactoring (page 57). However, I did document using PSP the creation of tests for Asset Types, and Mobile pages (page 57-58)

☐ critically analysed:

- I realise that my quality assurance efforts need to be better documented (page 58)

☐ insightful conclusions: see page 59.

RISK MANAGEMENT PROGRAMME (Mark: 4/5)

☐ created:

- The spreadsheets document containing the industry and course-work timelogs also contains the risk registers. The risk registers are all contained in one spreadsheet, one after the other. As was been shown above, this document was created:

☐ maintained: see page 39.

☐ applied: For an example, see pages 40-41, and see Figure 21

☐ comprehensive:

- risk registers were created each week (see page 39, Figure 19);

- Writing weekly reports enabled me to assess risks and the risk management program in the context of the current state and future of the project (see page 43).

☐ in-depth understanding:

- This is evident in the discussion of the deficiencies of my risk management programme (see pages 49-50)

☐ critically analysed:

- the issue of general risk versus specific risks (see pages 41-42);
- having too many risks in a risk register (see pages 43-44);
- the issue of calculating a risk's level of exposure (see page 46)

☐ insightful conclusions:

- Many conclusions, for example: regarding general versus specific risks (pages 41-42)
- The conclusion to risk management on pages 50-51.

METHODOLOGIES ESSAY/REPORT

☐ extensively referenced accepted theory

☐ industrial practice

☐ related

☐ exceptional standard.

REPORT (Mark: 5/5)

☐ polished

☐ imaginative

☐ clearly and fluent

☐ insightful

☐ accurate grammar and spelling.

☐ very full analysis of performance

PANEL

☐ confident

☐ skilled communicator

☐ presented clearly and logically

☐ responded clearly and logically

☐ perception in appropriately responding to supervisors' reports and questions.

POSTER (Mark: 3 or 4 / 5)

- ☐ Imaginatively
- ☐ professionally
- ☐ displays project’s outcomes
- ☐ conveys learning achieved.