Group Project 03 –

End-of-Project Report

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1. INTRODUCTION

1.1 Purpose of this Document

The purpose of this document is intended to review to what extent the project has been accomplished.

1.2 Scope

This document contains the summary of the management and an outline of the difficulties encountered along the way during production. It will also detail each member's contribution and a critical evaluation of the project and the team.

1.3 Objectives

The aim of this document is to present the life cycle of the project and communication between the team and to highlight problems encountered along the way.

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2. A MANAGEMENT SUMMARY

2.1 Program

The current version allows a player to start a new game once all player information has been entered, view a help screen which describes the game, and continue previous games. The game can be played normally, the player is allowed to attack others, collect chance cards, crew cards and treasure. The player can also trade with other ports. Once a player gains 20 points worth of treasure and returns to their home port, the game presents everyone with the winner screen.

2.2 Documents

All released documents can be found in the respectively named folders. For each document there should be a corresponding PDF, which should enable the document to be viewed on any system. These documents include, User Interface Specification, User Interface Prototype (presentation), Test Specification, Design Specification, Maintenance Manual and this document.

2.3 Project struggles

Overall, the biggest aspect that dragged us down as a team was two members, one of them being our QA manager not participating as much as others. Before easter I decided to get everyone started on the design specification document a week early so we would not have to rush it, but a couple of our group members missed the deadline for producing work and we ended up having the document being updated during the formal review meeting just before release. We managed to overcome this by amending and merging all the changes during the meeting, although the document was still released for review ¾ finished. Later, we managed to finish off the document. Just before ITW we set up a plan for who was going to be what, because of Nicholas' lack of attendance and Nathan dropping out we had to reassign tasks to people that were not fully confident with the area of work but still managed to complete it by Friday.

Throughout coding we also encountered a few bugs, some simple, some severe. The most major issue I can recall is our GameLogic class being entirely static, this proved to be problematic down the line so Christian ended up having to rewrite most method signatures inside of GameLogic and change how other classes interact with it. Another quite severe bug was to do with the Battle class and more precisely the post combat move. I specifically remember Luke explaining the issue to me and how he couldn't solve it. Because of this I took it upon myself to try and fix it during after hours, it took about 6 hours to figure out but once we did, we could continue with development of the class and testing.

Other smaller bugs were mostly to do with JavaFX as it proved quite problematic with how nodes interacted with each other and the program.

3. A HISTORICAL ACCOUNT OF THE PROJECT

Week 1 [04/02/2022 – 10/02/2022]

From the very beginning we assigned similar tasks to the same members so they could become familiarised with that aspect of the project. Due to the size of our group in our first meeting some members were assigned research tasks while others started work on documents. After the meeting we set up a private discord server thanks to Nicholas [mnc6], where we shared ideas for the project and how to accomplish them. During the same week, we held a quick meeting to double check that everyone has access to the repository.

Week 2 [11/02/2022 – 17/02/2022]

Due to how we thought out tasks the week before there weren't clashes so assigned tasks were carried out without having to wait for anything to published by a different member. At this point Luke [lup35] already managed to develop a very basic proof of concept JavaFX menu that he showcased to all of us during the meeting. The tasks for the upcoming week were mostly continuations of the previous tasks.

Week 3 [18/02/2022 – 24/02/2022]

At this point the group held a meeting during the previous week to decide specific roles for the project. Now that everyone knew their role, we held a formal review for the User Specification document draft where we identified key elements that required amendments. During the meeting James C. [jac132] informed us that for saving the game we should either use an XML or JSON file format. During the meeting we decided on XML as at the time it seemed like a less time consuming approach.

Week 4 [25/02/2022 – 03/03/2022]

During this week we released the User Specification document alongside the presentation. We also started utilising GitLab Issues at this time and ported all to-do tasks from our internal Trello board (project management software) to GitLab Issues. We also held a separate meeting to think of any potential tasks that might come up soon so we can prepare ourselves.

Week 5 [04/03/2022 – 10/03/2022]

We once again held a formal review but this time for the Test Specification. Two of the group members began work on the Design Specification document so we would not have to rush later. During this week Luke [lup35] presented working board generation and James C. [jac132] implemented a first draft of his saving class. James F. [jaf43] began work on a player input screen made using SceneBuilder. While others began work on other back-end classes such as Treasure, Player, and Ship.

Week 6 [11/03/2022 – 17/03/2022]

During this week original authors of the User Specification documents were working on improving them based on feedback received. While others were tasked with continued code prototyping of the project. This is the week that I noticed some members beginning to struggle with coding tasks. At the same time the QA Manager was yet to go through the repository and make quality assurance changes.

Week 7 [18/03/2022 – 24/03/2022]

I and Christian [cjh26] began work on the trading system during this week, James C. [jac132] continued work on JUnit tests and most of the team met to work on the design specification to finish it before the formal review. At this point last week's issues were still ongoing with some group members not completing their coding tasks. Due to this, these tasks had to be reassigned and completed by other members.

Week 8 [25/03/2022 – 31/03/2022]

Because certain members failed to help with the design specification during the previous week, we were now a week behind where I wanted to be so new tasks had to be assigned in the minutes for them to complete. Although not all members were working at optimal capacity, we were still making good progress thanks to those that were still trying. Steffan [std36] and Tommy [tob31] continued to work on documents, while everyone else apart from Nathan [nar29] and Nicholas [mnc6] continued to make promising progress on the code. During this week we also held a formal review for the design specification. The 25th of March was also the last meeting that our QA manager turned up to.

Week 9 (Easter break) [01/03/2022 – 28/04/2022]

This period started with our last meeting before easter break which was held by our Deputy QA Manager. Alongside our project manager we discussed what work should be done but that the time should also be considered as a break from the project. Nevertheless, most people chose to pick up quite significant tasks which I was quite happy about. Towards the end of the easter break Christian [cjh26] managed to complete a huge amount of work which put us ahead of all the setbacks we have had. Once the easter break finished we held a pre integration week meeting to discuss what everyone's tasks will be. During this meeting me and Christian delegated tasks to all other group members, beforehand Christian and I agreed that we should give simple tasks to those who we don't think are good at coding as others. We also assigned members to specific groups like documentation, quality assurance or coding. James C. [jac132] also made us aware that XML wasn't the way to go with saving, so we agreed to switch to JSON.

Week 10 (ITW) [29/04/2022 – 06/05/2022]

During our first official meeting which was held by our Deputy QA Manager due to Nathan's [nar29] lack of attendance. I officially assigned the tasks previously discussed in the pre integration week meeting. We also found out that Nathan [nar29] failed to begin his task and later in the week we found out that Nicholas [mnc6] lied about the status of his task as it was incomplete. During the actual integration week, the group managed to make amazing progress. We managed to have a semi working game by the second day even though we were two team members down. I've split the group up into four sections, three people were working on back end code, two were doing front end development, one person was doing testing and helping with frontend and another person was doing testing and saving. Throughout the entire week, everyone who was at the coding camp stayed busy throughout, this alongside the fact that we were working on an integrated prototype from the beginning enabled us to finish the project by Friday.

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4. FINAL STATE OF THE PROEJCT

4.1 User Interface

In the main menu the player can either start a new game, continue a game, or exit the program. Both continue and exit are direct buttons and don't relay the user to a different screen whereas start a new game does. Inside the player selection screen, the player can view a help screen, select all colours and enter valid names for players.

The user interface has fully been implemented, we went for a very intuitive and minimalistic design by using as little buttons as possible. The current ship is highlighted with a red border, the possible moves of the active player are highlighted using the player's colour. A player can click on ports, islands, and bays to discover their names and what they hold on the right hand side of the screen. Currently the player is not able to click on an opposing ship to check what they currently are holding. All current player statistics are displayed on the left hand side. The player can open two further screens which would either show current crew cards or chance cards in their hand by click the two buttons on the left hand side. A player can also access a help screen from the game screen.

The help screen contains five pages which explain in detail how the game should be played and what to do in order to win the game.

The trade window can be activated by arriving at a port with a ship, inside the trade window a player can click on treasure or crew cards to select it and either increase or decrease the amount they want to trade. This can be done to both the player and port side.

The battle screen clearly displays who won the battle and what loot has been gained.

4.2 Input handling

The player can move around the board by clicking on any of the highlighted squares, same goes for rotating. In order to attack, a player has to click on another player, they can also click before or after and get given a choice to attack. The former is a bug. The choice is presented to both players, a check is run to see if any the player being attacked is anchored at Treasure Island. Once a player arrives at Treasure Island, they are handed out a random chance card which is presented to them as a pop up, once they click "ok" on the pop up, the chance card is acted out for them.

4.3 The Game

The game handles different moves and different possible actions using the states which are "Move", "Rotate", "MoveAnyDirection" and "AfterBattleMove". These states are all controlled within the GameLogic class which changes them and checks for which state is currently is active whenever a player performs any action on the board.

The game also uses the Card Manager class to create chance cards using the provided XML file and the crew cards. The class is also responsible for distributing the cards to different areas on the board. One last final function of the class is to handle cards transfers between different entities in the game. Shuffling cards happens on the respective entity.

The Treasure Manager class deals with all treasure handling, it first generates the correct amount, then it deals said treasure from the Flat Island and later distributes it to ports.

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4.4 Known bugs

1. A player is not able to trade their own treasure for a non-player controlled port's crew.
   - o This is due to this not being implemented.
2. A player can click to move to a highlighted tile that's before an opposing ship and still be presented with the option to attack.
   - o A check to see if the opposing ship is before the tile clicked is not implemented.
3. Continuing from bug number two. If a player whose turn it was chooses "yes" the battle happens, but active move tiles are not unhighlighted properly for the losing party.
   - o This could possibly be something to do with states.
4. If a player attacks another player who previously picked up chance card number 6 or 7 and said player loses a null pointer exception will trigger.
   - o This is due to the chance card code adding null treasure to the ship's "treasure" array.
5. A player can load a previous that game that has already been won by someone.
   - o Previous save file isn't deleted if the game has been won.

4.5 Features

1. Even if the game crashes unexpectedly the player can continue as the game is saved after each turn.
2. Four chance cards that involved trading have been replaced by chance cards that give treasure, see Design Specification for details.

4.6 Known problems with documents

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5. PERFORMANCE OF EACH TEAM MEMBER

5.1 Christian John Harper [cjh26]

Christian has been a great asset from the beginning, he was chosen as the deputy project leader and helped a tonne with managing the group. His technical knowledge helped us with getting the project completed by the deadline. Our group managed to fall behind on some of the work before easter but Christian managed to single-handedly put us ahead on the coding front during easter. He also suggested many good ideas during ITW.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/cjh26

5.2 James Croucher [jac132]

James oversaw JUnit tests and saving the game, I didn't always exactly know what he was working on as in the beginning it was mostly research, but he kept reassuring us that work was being done. He proved this and showed to be a great asset when during ITW he solely figured out saving and JUnit tests while also helping with any other minor tasks.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/jac132

5.3 James Falkner [jaf43]

James was a very reliable team member who always uploaded work to the repository each week. He always was keen to take up any task that nobody else wanted to do and wasn't afraid of asking for guidance from other team members when needed. He also served a great role as a deputy QA manager, often taking Nathan's lack of work.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/jaf43

5.4 Luke Purnell [lup35]

Luke was one of the main members of the coding team, early on he showed some inspiring proof of concept work and kept improving the prototype week by week. Once we got into ITW, Luke was always one of the first people to get to our coding camp and would often work from home after, in order to finish off any work that he was doing so he could get on the next problem the following day.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/lup35

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5.5 Nicholas Ciobanu [mnc6]

Nicholas contributed alright at the beginning when he was reading the different QA documents and relaying the key information to us. However later during the project his contribution began to lack, he didn't complete the work he was set (ChanceCard or CrewCard classes). During the Integration week he was only present for two of the days (Thursday and Friday) where he only contributed some images and changed code to American spelling as he wasn't up to date enough with the project to be able to contribute any technical value.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/mnc6

5.6 Nathan Roland [nar29]

From the very beginning I had to keep reminding Nathan to do QA tasks such as checking the state of the repository or going over people's blogs which he said he would do but no changes were ever published. Most of the tasks that Nathan assigned to himself he failed to complete. He lied most of the time about completing tasks, for example, he stated that he made changes to Design Specification and Test Specification based on feedback but as we found out later, no changes were made. Nathan also failed to assign tasks to the deputy QA throughout the entire lifecycle of the project. Just before easter Nathan stopped turning up to meetings and stopped replying to messages, as we started ITW Nathan told us that he "can't hack it" and that he is dropping out.

Unable to get an answer.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/nar29

5.7 Olek Sadkowski [ols21]

I volunteered myself as a project leader, throughout the project I tried to engage with others as much as I could to gain a better understanding of what were everyone's strengths. From the start I believed it would be wise to classify the group into smaller sections as document development or coding. As the project progressed, I found myself doing a lot of QA work and managing Nathan's tasks.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/ols21

5.8 Steffan Davies-John [std36]

Steffan was mainly helping with documents and artwork, he was very approachable and clearly described what he was doing at each meeting. Every now and then Steffan would pick up a coding task to help with the prototype. During ITW he mainly worked on front end JavaFX and overall quality assurance of the entire project. After Nathan dropped out Steffan assumed the role of QA manager and immediately got to work with correcting Nathan's errors and getting the repository sorted out.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/std36

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5.9 Tommy Boyle [tob31]

Tommy was very similar to Steffan, and by that, I mean they were tasked with similar if not the same tasks and worked efficiently together. Like many others Tommy never failed to do the work that was assigned to him. If Tommy was tasked with getting something completed, he would have it done by the deadline if not before.

Agreed with the statement.

https://gitlab.dcs.aber.ac.uk/ols21/gp3/-/tree/master/GroupProject-master/config/blogs/tob31

5.9 Tommy Boyle [tob31]

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6. CRITICAL EVALUATION OF THE TEAM AND THE PROJECT

6.1 Team performance

Overall, the team did an excellent job of overcoming the obstacles that the group project has thrown at us. Some members were hesitant to talk about the problems they were having at the start of the project. This scenario improved as members came to know one another throughout the course of the project. At first, I also had to remind the team multiple times to push whatever work they have to the repository to save future conflicts. This was especially a problem in our group when we originally had nine members so two or more people were working on the same document. Time management always seemed to be a problem in the group as members would often leave work until the day before the deadline, leaving little to no time for changes after formal reviews.

I personally think these issues could have been solved if the team could have had a chance to build some relationships before diving in into working together. Granted this was probably the first exposure of working in a team for most. So, people weren't ready to have to rely on others to do work before they can start or progress theirs further.

6.2 Project improvement

In my opinion the project could have been improved in a few ways.

Firstly, setting tasks such as component diagrams or sequence diagrams that needed to be done in the Design Specification felt quite harsh as no one in the team had prior exposure to those and therefore those tasks took up an extraordinary amount of time to complete. What also seemed unfair is having to write out descriptions for each method in both the Maintenance Manual and Design Specification when the Java Doc comments were already created and are easily accessible. A much simpler solution would be to just be able to reference that documentation.

Secondly, the release of the documents was not spaced out enough. The Test Specification release date was awfully close to the Design Specification release date, this didn't give us much time to work on the feedback received from the Test Specification before we had to start working on the Design Specification, further splitting the group, and taking members away from other important tasks.

As a group we experienced some members not participating and even managerial members not doing their work. A system where a team and a project manager can discuss what to do with a member that's not participating would be beneficiary. We thought about replacing Nathan, our QA manager early on but we just weren't told that we could that. Apart from asking politely that's all any team member, even a project leader can do to encourage someone to work.

Lastly, one of our group members had quite a lot of time tabling clashes during ITW which proved to be quite annoying as they kept having to leave which decreased their workload significantly and put more work on others.

6.3 Lessons learned

As a team we learned the developmental process of how a team comes together to develop a project of a significant magnitude. I hope that other members have realised the importance of communication in a team as it quite literally can decide between a successful project and a failure.

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REFERENES

[1] QA Document SE.QA.10 – Producing the Final Report.

[2] SEGP Design Specification SE.GP03.DESIGNSPEC – Design Specification

[3] SEGP Maintenance Manual SE.GP03.MAN – Maintenance Manual

[4] SEGP Test Specification SE.GP03.TESTSPEC – Test Specification

[5] SEGP User Interface Specification SE.GP03.UISPEC – User Interface Specification

DOCUMENT HISTORY

Version	Issue No.	Date	Changes made to document	Changed by
0.1	N/A	09/05/2022	Created the document	ols21
0.2	N/A	09/05/2022	Added a week by week description of the project	ols21
0.3	N/A	10/05/2022	Added individual performance descriptions	ols21
0.4	N/A	11/05/2022	Added majority of management summary	ols21
0.5	N/A	11/05/2022	Added final state of the project	ols21
0.6	N/A	11/05/2022	Completed critical evaluation	ols21
1.0	N/A	11/05/2022	Released document	ols21
1.1	N/A	11/05/2022	Updated individual performance section	ols21

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