Change Report

Group 12

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Approaches to Change

Throughout this project, the project plan has been regularly revised through meetings, both in person and over our communication method, Discord . We first discussed what the debrief and assessment paper was asking us to do and planned out who would lead what. It was important that we delegated tasks to members of the team, but also had members helping with that task too, which is important for mitigating risk 013 and 004.

Software change and maintenance was important in response to the further added requirements from assessment 1. This therefore invoked some changes made in the software architecture. The first major change in our management was the coding. We had to revise over the previous groups' coding style and understand how the code worked. In addition to this, in parts where there hasn't been any new functionality added to the project, we have modified the code and added some javadoc and comments to make it easier to understand and change.

Following on from the previous groups' deliverables, we added the new requirements into their deliverables and then looked at what we felt we needed to change to improve the efficiency of the document. We have noted them in the sections further in this document.

Requirements

The team before us was perfect in decomposing the product brief into different requirements that our project would need to meet. We think that their requirements gathering was excellent. The team was good at avoiding amalgamation as each requirement was a single requirement and not multiple requirements grouped together. Apart from the extensions we have made to the requirements, here is a list of what we have changed [2] and why:

- The first change was adding a column into the functional requirements table that elicited the equivalent user requirement. This makes it easier to track the root requirement in the decomposition.
- Another change was that they did not use the usual practice to define mandatory and desirable requirements, by stating ‘shall’ and ‘should’[1]. This change will allow us to prioritise key requirements and then aim to complete the desirable requirements. Therefore, we have changed the meanings that the previous group described as High/Medium/Low to Shall/Should/May. We changed the document to include this.
- We added in another user requirement, which is UR.COLLISION. This was needed because within customer meetings, we talked about the need to have a collision scheme in place so that the user cannot sail across land or obstacles. We also added this because within the functional requirements table, it talked about the software having an object collision system, but did not explicitly state the user requirement behind this.
- In addition, we added another constraint requirement that explicitly states that the game needs to work on all major operating systems, as this was a requirement within our customer meeting. This was vital because within Computer Science open days, the game could potentially be running on the lab machines which have Linux and Windows.
- We removed the ‘difficulty’ column in the user requirements table, as we felt that this did not impact anything.
- In some of the user requirements, we added further explanations to some of the requirements to make it more clear, like UR.TUTORIAL and FR.TUTORIAL.
- We have referred to associating risk IDs from the Risk Assessment and Mitigation document.
- We have removed some user requirements that we felt were not necessary because we were going over the page limit, like UR.SCRN_NAME and FR.START_NAME as this was not explicitly stated in the project brief.

[1] I. Sommerville, *Software Engineering, Sixth Edition*. Harlow, England: Pearson Studium, 2001.

[2] https://docs.google.com/document/d/1U32vQWgaPXttrebdofw7Gr2_Vjy8PC9FQyPILvRkhfg/edit?usp=sharing

Abstract and Concrete Architecture

The previous group has done a very good job at displaying their architecture for both abstract and concrete models. In their concrete architecture, they have clearly shown inheritance from imported modules to their game. They have also explained their diagrams in detail which improves the readability of this architecture within the UML diagrams. We appreciated their explanations of each class, so we continued with this layout and added to it with our own additions [3].

- Apart from adding new requirements and changes that we have made within the code, in the abstract UML diagram, the class ‘boat’ should be ‘Boat’ as all class names should be a noun and start with a capital letter. We have changed this and put this into the architecture.

- For abstract architecture, the game now should have a way to spend gold and powerups the ship. Enemy boats can also move and shoot too. Furthermore, the game should be able to save now rather than just close. Some obstacles and bad weather are added, too.

- We have also added more classes such as Weather, ShopScreen, Powerups and Enemy into the state and concrete diagram (with their relationships). For example, the ShopScreen can be accessed by the PauseScreen.

We thought that the previous team had implemented well thought architectures and did not leave us with much to change. Instead, we have added classes and methods to their previous architectures that fully meet the requirements in assessment 2.

[3]
https://docs.google.com/document/d/16eiyZktg_zVBDlaH-orq-R1kQpcP0YBq7loDAX_8e2g/edit?usp=sharing

Methods and Plans

The team before us was very good at discussing their organisation and planning for their project. We feel that nothing needs to be changed, other than adding in our own ways of planning and communicating etc [4]. Instead, below is a list of what we have added into their documentation because we feel that what we have written is how we have planned. However, what we haven't used is the Trello software, as we organise ourselves verbally.

- The first change was to add another way that we (as Team 12) communicate. We effectively used the scheduled meetings on a Friday in the Computer Science department to further discuss issues. Sometimes, we also booked rooms at the university to extend these meetings, so that we could work together. This gave us an opportunity to collaborate ideas and build the foundations of our project.

- We discussed a key feature on GitHub which is Issues. This allowed us to self assign an issue in the project to focus on.

- Another change was to add more evidence to support the choice of our development environment. Part of assessment 2 is to write tests in order to prove that our code works correctly. Intellij was the perfect environment to allow us to do this.

- We would also have put part c of the previous teams' document in the form of a gantt chart. We feel that this would have made it more easy to read. As we were conscious of space within the document, we have chosen to delete this section of theirs, and link in their gantt charts instead from the website. We have put our own gantt charts on the document and on the website.

[4]
https://docs.google.com/document/d/1jkyl2TwQewOl9ZMQSb800WdmLhNnw8YndAKwml6VKmA/edit?usp=sharing

Risk Assessment and Mitigation

The team before us was excellent at identifying and finding solutions to risks. We didn't find any more risks than the ones that the team identified before. However, here is a list of what has been changed [5]:

- We added another column into the Risk Catalogue for Risk Ownership. We agreed that this was important to include as by assigning roles and responsibilities to members of our project, we made sure that these risks are monitored and thus being avoided.
- We also added some colour coding into the catalogue as well to make it easier to read. We colour coded with:
    - Probability:
        - Green = Low
        - Orange = Medium
        - Red = High
    - Consequences:
        - Green = Tolerable
        - Orange= Serious
        - Red = Catastrophic
- We have also supplied more evidence in risk 008 that supported the demotivation of the probability from medium to low, stating that all COVID restrictions have been lifted which decreases the probability of there being another national or local lockdown.

[5] https://docs.google.com/document/d/1IY9zUe-3LsdFkemnKGmzb4QPmbtBb94ghOtmsk-__04/edit?usp=sharing