Change Report

Group 9 - Campus Tycoon

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Summary

Overall, changes to assessment 1 deliverables were planned and made with respect to the user requirements and assessment brief, while changes were tracked and reviewed using various software and team meetings.

A software called Trello was used to assign, organise and plan task distribution in relation to the changes to the assessment 1 deliverables. To make changes to the code, the task was decomposed into sections and assigned to the group members who were responsible for working on the code development. In terms of keeping track, the software allowed for progress tracking, which made organisation of these tasks much simpler, preventing confusion/duplication.

Website

The original website was duplicated, and changes were made according to the new website requirements for assessment 2, most noticeably creating new pages for the old and new project links.

Documentation

Two copies of version 1 documentation (namely requirements, architecture, method selection and planning, risk assessment and mitigation) were created in a shared google drive - one copy an unchangeable pdf file to refer back to, and the other a google document to change where deemed necessary by the team, for example to reflect new user requirements.
Changes can be tracked on google drive via edit history, which shows the date and owner of all past edits. On the following pages is an explanation for each document listed above justifying the reasoning behind any changes made, or an explanation to why changes were not felt necessary. Where possible, the summary will point exactly to the changes made: for example if a new risk has been added, or an old one deleted in the risk assessment and mitigation document, then the respective ID would be noted. If a paragraph's wording had been edited, its original page number and position would be outlined as clearly as possible. It is worth noting that for all four of the below documents, the title page details were changed to display our group number, name and team members to replace the prior.

Codebase

The original codebase was replicated into a private GitHub repository, and obviously required huge changes to fulfil the new requirements and brief. These changes were planned and made by the development team, assigned at the beginning of the project, and could be tracked and reviewed using GitHub's repository history, which shows all data such as who changed what, when and why (using commit messages).

Justification

Requirements

Links:

- Original
- Updated

The following changes were made from the first page of the requirements document, page 2 (pre-tables).

- SSON
    - The Single Statement of Need was updated to one we felt better fit the requirements of the client.
    - A typographical error on the previous line of the original requirements document was also rectified.

The following changes were made from the latter pages of the requirements document, pages 3-5 (the tables).

These **user requirements** were modified, added or deleted:

- UR_DEVICE_ACCESSIBLITY
    - **Modified** - we felt the wording was slightly ambiguous in terms of the types of devices which the game must be accessible on, so the description has been updated to rectify this, as different Operating Systems are not required but different windows machines are.
- UR_FLEXIBLE_UI
    - **Modified** - the wording of the description needed editing. Although efforts were made to make the game accessible with both keyboard and mouse, we decided that the game could not reasonably be fully played with just one.
- UR_SHORTCUTS
    - **Modified** - again, to pin down the precise meaning of this requirement for our game, we added an example of what a shortcut might look like.
- UR_LEADERBOARD
    - **Added** - to reflect the new product brief from the client, a new user requirement was necessary for a leaderboard to be accessible to the user
- UR_ACHIEVEMENTS
    - **Added** - also to reflect new game requirements, this requires that the user will be able to earn achievements within the game that will impact their final student satisfaction score for that run.

These functional requirements were modified, added or deleted:

- FR_OPERATING_SYSTEMS

    - **Deleted** - consistent with the modification of UR_DEVICE_ACCESSIBILITY, this requirement was no longer necessary as the end client does not require the game to be playable on Mac and Linux machines.
- FR-TEXTUAL_DESCRIPTIONS
    - **Deleted** - we decided that textual descriptions during gameplay were unnecessary as the game was already self explanatory. However, we did add a “controls menu” to the main screen, which explains the different keybinds built into the game.
- FR_BUILDING_COUNTER
    - **Added** - a requirement for a real-time counter of the number of buildings was necessary
- FR_SSC_DISPLAY
    - **Added** - the student satisfaction score must be displayed
- FR_STORE_SCORES
    - **Added** - it is a requirement that the game must store at least the top 5 scores and names to be displayed on the leaderboard.

These non-functional requirements were modified, added or deleted:

- NFR_FAST_LOAD
    - **Delete** - unnecessary and time consuming to implement - even without the assets loading beforehand, there is no significant wait for the game to load so this functionality would be redundant.
- NFR_GAME_END
    - **Added** - we felt a non-functional requirement for the game ending, the final score being calculated, and stored was necessary.

Architecture

Links:

- Original
- Updated

The original code that we have built upon has not been changed, only expanded upon, therefore there are no changes to the original architecture. This implies that the diagrams and justifications of such would be unchanged, meaning no changes are needed to the document. There were no changes due to the group's general ideas being in line with ours for how the project is to be done.

In the one case where the base code for the student satisfaction calculations were changed, the flow charts present in the original document only included generic descriptions of the overall process of the game with the student satisfaction calculations being mentioned, rather than explained. Therefore no changes to the flow charts needed to be made as the generic implementation of the student satisfaction score in the game remained the same, only the specific calculations were edited.

Method Selection and Planning

Links:

- Original
- Updated

The Development/collaboration tools we used for our project which were modified, deleted, added:

- IntelliJ IDE
  - Deleted - this software was not used by our group.
- VsCode
  - Added - as this was the IDE our group chose to use for the project.

- Notion
  - Deleted - this software was not used by our group.
- Trello
  - Added - as this was the software used by our group to plan and organise task management and distribution. In addition this software also provided progress tracking which set it above the other available options.

- JMonkey
  - Deleted - as this was not used by our group, instead the library we used for the graphical user interface aspect of the game was LibGDX.

In Section 4b, the prior group talked about, discussing their different roles and different individual strengths and weaknesses to eventually come to a conclusion on who should work on what parts of the project.

We changed this to what is below, as it originally related to our part of the project as it was to do with their individual group members.

In the first week of working on this project, we discussed together, which roles each of us should take in the project. Once we had decided on roles, we created a Trello board so that we could organise what needed to get done, who was responsible for getting it done and what was the importance of each thing, to be done.

In Section 4c, the prior group set out what they had worked on each week, We changed this as our group was now working on the project so wouldn't make sense to keep it and we needed to show what we had done each week

Risk Assessment and Mitigation

Links:

- Original
- Updated

The following changes were made from the first page of the Risk Assessment and Mitigation document, page 2 (pre Risk Register).

Limited changes were required to this page of the Risk document, as we felt almost everything was already correct, although very minor changes were made to point 1 on risk Identification and the Risk Register Format bullet points, relating to the addition of the "Project and Product Risk" category. In addition, one sentence was removed from point 4 on risk monitoring which we deemed irrelevant.

The following changes were made from the first page of the Risk Assessment and Mitigation document, pages 3 onwards (the Risk Register).

Firstly, full colour coding was introduced to increase clarity of likely/severe risks - although colour coding was present before it was less obvious to see at a glance. The entire Risk Register table was also enlarged slightly so that more data could fit concisely within the width of the page.
The following risks, identified by their original risk ID were deleted or modified from the risk register:

- R1
    - **Deleted** - this related to team members' computers breaking, which we decided was not only very unlikely, but could be combatted so easily by using university machines that it was not worth keeping.
- R4
    - **Deleted** - this risk related to bugs in the code, which although a significant risk, we decided deserved to be split into two entries for minor and major risks, and these were added and are in the below list.
- R7
    - **Modified** - we felt this risk should be of the Project Type, rather than Business.

The following risks were added if we felt that the original risk register did not cover all possible risks the project or product could encounter, in order to make the table more complete and comprehensive::

- "Major rework of third party software rendering it incompatible."
- "Team Turnover (any team member leaving mid-project)."
- "Loss of some functionality of the system on smaller screens."
- "The game has extremely low resolution on larger screens (for showcasing)."
- "Unexpected (minor) bugs in the codebase."
- " Unexpected (major) bugs in the codebase."

- “A lack of a united clear vision of the end product by all team members.”
- “Team members lack experience with some technologies or software”
- “3rd party libraries/ game engines are faulty, or otherwise not fit for purpose.”
- “Unexpected bugs in the codebase (discovered after project completion).”
- “Intellectual Property Infringement - used a third party asset in a way that the licence does not allow for.”
- “Requirement Changes”
- “Late completion of dependencies which core features are reliant upon.”
- “Inadequate time for polishing appearance.”

Please note that in the updated Risk Register, risks are no longer ordered categorically by type: the original risks are listed first, followed by the new risks. Within these subsets, they are categorised by type.