Risk assessment and mitigation

Team 10: Hard G For GIFs

Dragos Stoican

Rhys Milling

Samuel Plane

Quentin Rothman

Bowen Lyu

Jack Gerhard

Updated by The 8-Team:

Charlie Hayes

David Kayode

Matilda Garcia

Joshua Stafford

Ionut Manasia

Matthew Tomlinson

Changes are highlighted as such

a) Risk format and level of detail

We have identified risks that we believe are relevant to this project by going through a number of sources.

1. Researching general software development risks
2. Discussing with other people who have had previous experience.
3. Discussing hypotheticals amongst ourselves and evaluating them.

We have chosen to deliver this in a tabular format. There are 6 defined columns for each risk. The first column being each risk's unique ID.

The second column is the type of risk:

- Project - Affects project schedule or resources
- Product - Affects product completeness/quality
- Business - Affects the organisation procuring/developing the software

The third column is a brief description of the risk. The fourth column is the likelihood of that risk occurring on the following scale:

- Low - Very unlikely to happen, with a minuscule chance of occurring.
- Medium - It could happen, but likely would not.
- High - Very large chance of occurring, and common.

The fifth column is the severity of the risk, so how much damage it could cause. This is on a scale of:

- Low - Not much damage, a couple of hours work at most. Not worth reporting.
- Medium - A week of work, this could affect internal deadlines. Group members would be informed to recover swiftly.
- High - A large sum of work or all of it is affected. Project deadline is affected. Group members and teaching staff informed to resolve.

The sixth column identifies how the risk could be mitigated in the event it occurs. Further research was taken to adapt the original risk register to better reflect what form mitigation should take [1].

The seventh and final column is the ownership of the risk. They will be held responsible for managing and mitigating that risk. Our risk ownership is determined by who is most likely to experience that risk and who could help mitigate the risk.

Our risk assessment has been updated continuously since we have started this project. With it being reviewed every fortnight. Ensuring that the risks were still relevant even with a change in scope or if new risks have been identified.

Additionally, the table of register of risks has been split into 4 categories:

- Technology/Tools - Risks which are a result of software or hardware (tools)
- People - Risks that are a result of a person's actions
- Requirements - Risks which are a result of requirements or changing requirements
- Estimation - Risks as a result of estimating the resources required
- Brownfield - New risks as a result of the brownfield development stage

b) Risk Register

Note: Multiple risks pertaining to poor code quality have been merged. Irrelevant risks have been removed. Presentation of risks has been changed to consist of 4 categorised tables. Additional risks have been identified and highlighted. New owners for each risk have been assigned.

Technology/Tools

ID	Type	Description	Likelihood	Severity	Mitigation	Owner
T1	Project	Loss of work due to corruption or human error.	Low	Medium	Frequent creation of backups both internally and externally.	Matt
T2	Product	Poor performance on customer hardware.	Medium	Medium	Focus on simple mechanics that meet the requirements. Make a 2D game, ensuring code is efficient as possible to reduce the effects of performance limitations.	Charlie
T3	Project	Github servers become unavailable, preventing access to working versions of code.	Low	High	Store files across a variety of platforms, including google drive and local copies.	Josh
5	Product	Reduced development efficiency due to little experience with java game frameworks.	Medium	Low	Avoid unnecessary libraries and use a popular framework with lots of tutorials and thorough documentation.	All

People

ID	Type	Description	Likelihood	Severity	Mitigation	Owner
P1	Project	Loss of a team member.	Low	High	Have a backup for everybody's role (high bus factor).	Matilda
P2	Business, Project	A team member is temporarily unavailable due to illness.	Medium	Medium	Assign multiple people to each project task.	Matilda
P3	Business	Meeting chair is	Medium	Medium	Have a second	Matilda

		unavailable.			meeting chair that can run meetings in the absence of the other.	
P4	Project, Business	A major risk is not identified by the team.	Medium	High	Frequently reassess risks to the project so missed ones can be identified and added to the risk register.	Matilda
P5	Project, Business	Team members are unavailable to attend all synchronous meetings due to time-zone differences or personal responsibilities.	High	Medium	Use timetabled meetings effectively and note down assignments of work and key points for missing members.	Matilda

Requirements

ID	Type	Description	Likelihood	Severity	Mitigation	Owner
R1	Product	Misunderstood/ambiguous requirements/incorrect implementation of features.	Medium	High	Frequently communicate with the customer to rectify any incorrect assumptions or ambiguity.	Charlie
R2	Product and Project	Requirements change or new requirements are added.	High	Medium	Have modular code and flexible team organisation that can facilitate changes.	Josh

Estimation

ID	Type	Description	Likelihood	Severity	Mitigation	Owner
E1	Product	Difficulty implementing the proposed project architecture.	Low	High	Build a clear architecture and help team members to implement the project in a simple and straightforward manner through code reviews.	Charlie

E2	Product	Poor code quality or missing features due to tight time constraints.	High	High	Ensure core code and functionality are adequate and working so a final product can be shown at the least.	Ionut
E3	Product	Difficulty in creating graphic assets.	Medium	Low	Reduce priority on asset quality and make use of royalty free premade assets if needed.	Matt
E4	Project	Incorrectly assigning deadlines.	High	High	Begin with optimistic deadlines so if they are overrun there is still time before the essential deadline.	Ionut

Brownfield

ID	Type	Description	Likelihood	Severity	Mitigation	Owner
B1	Project	Significant changes to documentation are required.	High	Medium	Organise a cohesive system to assign, track and manage changes.	Matt
B2	Product	Testing is not entirely thorough or extensive due to time constraints.	High	High	Focus on extensive testing on critical aspects of the product with reduced focus on other aspects.	Ionut
B3	Product	All new requirements outlined cannot be implemented fully to the expectations of the customer.	High	High	Initially implement a basic interpretation of the requirement and flesh them out according to available resources.	Charlie
B4	Product, Project	Sections of code from the initial implementation are inadequately documented making further development difficult.	Medium	Medium	Where possible, add further documentation if it is lacking so other team members can benefit from the initial work to comprehend the section of code.	Matt

Appendix

Removed risks:

ID	Type	Description	Likelihood	Severity	Mitigation	Owner
7	Product	Difficulty in finding a fitting soundtrack	Low	Low	Settle for non-copyrighted music from online sources	All
10	Product	Player controls don't work as expected	Medium	Medium	Properly test the implemented features	Dragos
11	Product	UI becomes pixelated when scaled up	Medium	Low	Implement the UI using a different format	Sam
12	Product	AI doesn't behave as expected	Medium	Low	Consider every possible scenario and do lots of testing, also getting reviews from other team members	Dragos
13	Product	The game map does not properly fit the game screen	Medium	Low	Properly study and understand the different scales we need to use, based on aspect ratio and resolution	Dragos, Quentin
14	Product	UI fails to react to the events in the game in a timely manner	Low	Low	Collaborate with team members to ensure code is optimized, and use a different format if necessary	Sam
15	Product	Collisions do not work as expected	Medium	Medium	Make sure the physics properties of each body are correct, so the interactions between them don't affect other features	Dragos

16	Product	Transitions between game stages don't work	Medium	Medium	Keep the UI classes and the game classes separate so each feature is independent and merging is easy	Dragos, Sam
17	Product	Boats don't recognise they are outside of the lanes so they don't get penalised	Low	Medium	Implement an easy way of checking if the boat is still within the lane boundaries	Dragos
18	Business	Difficulty acquiring the right software to develop the game	Low	Medium	Search around different valid combinations of software that could be used to develop the game	All

Justification:
ID 7 was removed as music/soundtrack was not a requirement for the game, therefore an inability to obtain a fitting soundtrack does not pose any risk.
ID 10-17 all take the same form of <Problem due to code quality>. Therefore, all of these do not constitute risks and can all come under one estimation risk.
ID 18 was removed as in effect the only software required is a text editor, java and a game framework - all of which are popular and easily accessible, therefore this risk is too insignificant to include.

References

[1] MITRE. *RISK MITIGATION PLANNING, IMPLEMENTATION, AND PROGRESS MONITORING,* mitre.org. [Online]. Available: https://www.mitre.org/publications/systems-engineering-guide/acquisition-systems-engineering/risk-management/risk-mitigation-planning-implementation-and-progress-monitoring