Risk Assessment and Mitigation

ENG1 Team 2

Trace Chinelle
Vidhi Chohan
Apollo Cowan
Siyuan Liu
Aryaman Marathe
Charlie Mason

Risk Management Process - Greenfield Development

The first thing our team did in the risk management process was to identify all the possible risks that could affect the development of the game. We did this by firstly coming up with some sections of the project (for example the requirements) and then as a team brainstorming as many risks as we could think of and noting them down under the current section. We then eliminated the risks we felt were extremely unlikely or inconsequential for a project of this scope. With the remaining risks we came up with a simple but clear description of what the risk was, so when we came back to assess the risks we would easily be able to understand what each risk meant. Splitting the risks into different types/sections helps us easily identify what each risk corresponds to and reference them when we are working on that part of the project.

After identifying all our initial risks we analysed each risk as a team and discussed their severity and likelihood. We decided that the likelihood would span from Low to Medium to High as we felt this was enough detail as we needed for the likelihood of each risk. We also decided that the severity should range from Low to Medium to High as we felt that this was also enough detail for the severity of each risk.

Now that we had analysed each risk we then created a plan on how to deal with each one. This plan had to include at least one way to avoid or mitigate each risk and if possible both. We felt that having both an avoidance and mitigation strategy for a risk was useful as we had a way to reduce the chance of the risk occurring and the impact it would have if it did occur. For some risks we also have a contingency plan which is the best course of action if the risk isn't avoided or mitigated and often entails falling back to earlier proven solutions.

Finally we assigned an owner to every risk, the owner's job was to assess the likelihood and severity of that risk at a frequency of at least once a week. Then the owners were to report any changes to the team during our weekly meeting so that we could agree as a team that these values needed to be changed and if any of our strategies to deal with the risk needed to change or be enforced. Who owned what risk was decided by what their main role was in the team and which type of risk this role was closely linked with (for example the project lead was assigned "project" type risks). This ensured that the owner of the risk was familiar with what the risk meant and its effects, meaning that they will be better able to monitor that risk over the course of the project.
All this above information about each risk was finally input into our risk register which is a table containing every risk along with their: ID, Type, Description, Likelihood, Severity, Avoidance/Mitigation/Contingency Plan, and Owner. This register allows our team to easily lookup any risk and have all the information about that risk clearly displayed to them. The Likelihood and Severity columns are even colour coded from green (for the lower values) to red (for the higher values) which made sure the information was even clearer to our team.

Risk Management Process - Brownfield Development

Once our team took over the chosen team project, we primarily focused on the work delegation for each group member once we had read the brief of assessment 2. At the early stage of the project, we brainstormed the new risks that may be relevant in the second phase, then recorded and sorted them into a risk table. We excluded risks considered highly improbable or unnecessary for a project of this scope. Regarding the remaining risks, we made clear and concise descriptions to ensure that we could easily understand their meaning during the future assessments. Categorizing these risks into distinct types, which allowed us to quickly identify their relevance and reference them while working on specific parts of this project.

In keeping with the existing risk table from the previous assessment, we assessed likelihood and severity via a risk scale by low, medium and high. We estimated our new risks on this scale and reviewed the existing risks' likelihood and severity in the ew phase as some changed. It was in this process that we removed risks if they were no longer likely at all in the second phase.

After analyzing each new risk, we developed a plan to address them. To be more specific, this plan included at least one method to either avoid or mitigate each risk, or both if possible. We believed that combining avoidance and mitigation strategies was beneficial, as it allowed us to reduce both the likelihood of risk occurring and its potential impact. With respect to the risks of previous assessments, we remained the same plan if they fit to the current project. Otherwise, we followed the same strategy of redesigning avoidance and mitigation methods. Furthermore, if we felt some risks were no longer reasonable or relevant, then we will edit the existing risk plan.

Eventually we assigned each risk to a new owner for estimating its likelihood and informing the team if there were any changes, allowing us to decide whether to implement the mitigation plan. The owners were chosen based on the work delegation that was established earlier in the project. Additionally, it was agreed that if responsibility for any section of the project was changed at any point, so would the relevant risk owner.

The final risk table we created followed the same format as the original one we inherited. We input all the relevant information about each risk into our updated risk register, which is a comprehensive table containing every risk along with its ID, Type, Description, Likelihood, Severity, Avoidance/Mitigation/Contingency Plan, and Owner. The register provides a clear and accessible overview, enabling the team to easily look up any risk and find all associated details. Additionally, the Likelihood and Severity columns are color-coded from green (lower values) to red (higher values), enhancing clarity and ensuring that key information is immediately visible to the entire team.

ID	Type	Description	Likelihood	Severity	Avoidance/Mitigation/Contingency Plan(s)	Owner
R1	Project	One or more members of our team are unable to participate.	Medium	High	**Mitigation**: Make sure our bus factor remains stays at least 2 by having at least 2 people with complete knowledge of any part of the code, documentation and the write up.	Charlie
R2	Product	Code structure and readability reduce as the project progresses.	Low	High	**Avoidance**: Ensure project architecture is well planned and code is reviewed before the final version is committed. **Mitigation**: Comply with relevant style guides and ensure code is well documented.	Apollo
R3	Product	Product is unable to be built/run on the required hardware or Operating Systems	Medium	High	**Avoidance**: Check with our customer if they have specific requirements for device specification or operating systems the project must be compatible with. **Avoidance**: Periodically review the performance of the project using benchmarking and ensure CI systems attempt to build the project for multiple OS targets.	Apollo
R4	Requirements	Requirements that are written don't correspond to what the customer wants	Low	High	**Avoidance**: Meet regularly with the customer and specifically discuss the user level requirements with them. Then carefully create the system requirements as a team based on the user requirements that have been gathered.	Apollo
R5	Project	Misalignment between member's strength and role	Low	Medium	**Avoidance**: Early on in the project we should try to determine our team members strengths and assign roles to them that best fit those strengths. **Mitigation**: Assigning more than one member to the same role to leverage different skills.	Vidhi
R6	Requirements	Unclear or ambiguous requirements	Low	High	**Avoidance**: Make sure requirements are carefully written from the start. Mitigation: If a team member feels they are ambiguous or unclear, make sure to clarify this with the rest of the team and the customer if necessary.	Apollo
R7	Product + Project	Use of tools that are overcomplicated or only one team member understands	Medium	High	**Avoidance**: Have discussions between the team about which tools we've used before when choosing one. **Mitigation**: If a new tool is chosen and it is complex or some team members are unfamiliar with it, hold a meeting to show all team members the basics.	Aryaman

R8	Project	Poor time management and missing the deadline	Medium	High	**Avoidance**: Prioritise working on the fundamental requirements of the project before spending time on extra features. **Mitigation**: Using a gantt chart from the start, allows time buffers between tasks to accommodate sudden events.	Charlie
R9	Project	Lack of communication within team causes issues.	Medium	High	**Avoidance**: Set up a quick and easy communication system for the team to use. **Mitigation**: Team members should clarify if they have any questions or misunderstandings.	Vidhi
R10	Project	Project schedule is not defined or understood.	Medium	High	**Avoidance**: Create a clear project schedule and assign tasks to each team member. **Mitigation**: Hold regular meetings with the team to check on task progress and ensure new tasks are set.	Apollo
R11	Project	Scope of project increases and results in some requirements not being met in time.	Low	Medium	**Avoidance**: Clearly follow the project schedule and ensure that all requirements are first met before extra features are discussed or worked on.	Apollo
R12	Write Up	Parts of the writeup are poorly formatted or hard to understand.	Low	Medium	**Avoidance**: Keep the format of the writeup segments fairly consistent throughout and make sure the format is easy to understand, e.g. paragraphs should contain sentences of information that links together. **Mitigation**: Ensure that all parts of the writeup are proofread by the writer and at least one other member of the team.	Charlie
R13	Project	Testing work of specific code is not running as intended.	Medium	High	**Avoidance**: Collaborate promptly with team members involved in the implementation to identify and address the bugs effectively. **Mitigation**: Simplify the requirements for the specific function, focusing on achieving basic functionality and ensuring it operates correctly before expanding further.	Tracey
R14	Project	Tests are irrelevant to the requirements.	Low	Medium	**Avoidance**: Follow to the implementation schedule and complete each step accurately before conducting the corresponding tests.	Aryaman
R15	Project	Insufficient amount of users to evaluate the game.	Medium	Medium	**Avoidance**: Ensure each group member recruits participants, aiming for a minimum of six in total. **Mitigation**: If fewer than six participants are recruited, conduct a more in-depth evaluation to gather high-quality insights.	Siyuan

R16	Project	Participants may not receive sufficiently clear and detailed information about the process and objectives related to the game.	Medium	High	**Avoidance**: Provide participants with a clear information sheet outlining the evaluation's purpose, process, and objectives, and allow time for questions before starting.	Siyuan