Risk Assessment and Mitigation

Group 19, “Piazza Pitstop Crew”

By: Noah Forryan, Lewis Morgan, Naufal Tun Thamanian, Tom Owen, Dan Manby, José Fernandes

We divided the risk assessment process into identification, analysis, planning and maintenance.

Identification

For this step we felt it was important that any risk a team member thought of should be recorded, regardless of its severity or likelihood. So we came together and wrote any and all ideas down into a Google sheet. This process was very important as it created an open atmosphere where team members did not feel pressured to only write down “correct” ideas. Because of this, we were able to generate more ideas that could then be assessed and potentially mitigated, thus making our project better covered overall.

At the end of this stage we had a long list of risks, some of which would need to be mitigated and others that were minor enough in likelihood or severity that they did not need so much attention. However, at that time about the categories they belonged to.

Analysis

This was the step where we examined each risk to determine how much mitigation it would need. We understood that a key principle in risk management is that one cannot cover every possible risk. We knew that we would have to divide our time between the risks.

The first step for this was to come up with a system to accurately show a risk’s likelihood and severity and then combine them into a “risk score”. Originally, we assigned a risk a 1-5 score for likelihood and severity and then summed those two to get this. However, we felt that this overplayed the danger of risks that only scored highly in one of the two metrics. To fix this, we multiplied the two scores together. Therefore, a risk with low likelihood and high severity would score higher than a risk with moderate likelihood and severity.

Once we had worked as a group to assign scores to each risk we had a clear picture of which ones we needed to focus on. Anything with a risk score less than 6 was deemed safe enough to ignore, allowing us to focus on the more dangerous risks. This is because a score of less than 6 means that at least one of likelihood and risk are low, so it is not a significant concern. To further help with this, we assigned a colour to each score. We used the RAG system as it is an intuitive method to show levels of danger, at a glance.

Planning

Now that we knew which risks to focus on we began looking at how to mitigate them. The first step for this was to assign ownership to each risk. This was decided based on the specialism within the team. If a risk related to coding the game it was assigned to Tom and Dan, if it was risk or requirements based it was assigned to Noah and Lewis, if it was asset related it was assigned to Naufal and Jose. It was important that people took ownership of the risks to do with their specialism as they have greater knowledge in that area to be able to avert the risk. Each risk had two owners, in case one was unavailable. By building redundancy into the risk mitigation itself we further secured our project’s success. From here, the pairs of owners developed a way to mitigate the risks assigned to them.

Maintenance

We made another table to show how the risks have changed over the course of the project. During every group meeting, we discussed changing risks. These were changed in the updated risk assessment. We did this for optimal risk assessment accuracy.

Risk Assessment Format

The format of our risk assessment is: ID (the name of the risk, written in a way that is easily understandable), Type (the area the risk impacts), Likelihood, Severity and Risk Scores (as described above), Mitigation (the plan to deal with the risk) and Owners (who is in charge of that risk mitigation). The format of the updated risk register is: ID, reason for change, date of change, new mitigation and the new likelihood, severity and risk score.

ID	Type	Description	Likelihood (out of 5)	Severity (out of 5)	Risk Score (out of 25)	Mitigation	Owner
ILLNESS	Project	Team member gets ill.	3	2	6	Ensure bus factor is >1, by ensuring multiple people understand each area.	Noah + Lewis
PROJECT_TIME	Project	Run out of time to complete the project.	2	5	10	Plan to complete a couple of days before the deadline, allowing some extra time if things overrun.	Noah + Lewis
CHANGE_REQ	Tech	Difficulty adapting to changing requirements.	3	2	6	Make sure the software is designed in a modular way - using classes properly and making use of encapsulation to keep logic separate.	Tom + Dan
SCOPE_CREEP	Project	Scope creep; trying to add too many features.	3	2	6	Ensure we finish the most important features first.	Tom + Dan
UNUSABLE_LIBARY	Project	Library isn't usable for our project	1	5	5	Ensure people understand the strengths and weaknesses of libraries by researching the libraries prior to implementation.	Tom + Dan
TASK_TIME	Project	A task takes more time than scheduled	3	5	15	Frequently consult with the owner of tasks regarding progress, consider extending deadlines or assigning an extra team member.	Lewis + Noah
POOR_QUAL	Tech	Poor quality code	3	3	9	Implement regular code reviews and pair programming, define a coding style guide, test code regularly (perhaps automatically after every commit).	Tom + Dan
MIS_CUSTOMER	Product	Misunderstanding customer requirements	2	5	10	Record customer's requirements in good detail and book another meeting if needed	Lewis + Noah
MERGE_CON	Project	Errors in updates to code (merge conflicts)	2	3	6	Use a version control system like GitHub. Do small commits with meaningful commit messages. When work is done on different branches, merge the main branch to the development branches often so that merges aren't too big.	Tom + Dan
LOW_PERF	Tech	The performance of the game is very low and does not scale well as the game grows	2	3	6	Ensure that unused sprites and objects are garbage-collected appropriately. Breakup logic into manageable sections, making it easier to tweak and optimise	Tom + Dan
GENERIC	Product	Interactables in the game are too generic and not	4	3	12	Use playtesting to gain an understanding of how it feels to play our game. Using feedback from this we will have a good	Naufal + Jose

		fun.				idea of whether or not our game is enjoyable	
ART	Product	Art style is unappealing.	2	3	6	As above, we will use playtesting and the feedback generated from it. As well as this, when sourcing/creating our assets we will ensure that we aim for cohesion.	Naufal + Jose
WEB_LINKS	Product	Links on the website are temporary, shortened ones and cannot be accessed after a while.	2	5	10	Research whether or not this will be an issue and, where possible, use permanent links. If permanent links cannot be used then we should routinely check our links.	Noah + Naufal
MOBILE	Product	Website formatting doesn't work on mobile devices	3	3	9	Research how our website hosting service and chose website formatting display on different devices and how to optimise for each	Noah + Naufal

Updated Risk Assessment

ID	Why It Changed?	New Likelihood (out of 5)	New Severity (out of 5)	New Risk Score (out of 25)	Date of Change	New Mitigation
MOBILE	During our interview, the client confirmed that the game only needs to run the game on desktop, not mobile.	0	3	0	28th February	No further mitigation needed.
PROJECT_TIME	As we got nearer to the deadline, we realised we needed to work quicker, specifically on the write-up of different sections.	4	5	20	13th March	We have arranged more additional meetings before the deadline.