Risk Assessment and Mitigation

Team 27 - BlackCat Studios
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Identification Process & Risk Register

The team conducted a rigorous identification process of risks that could pose threats to our project. We held a group meeting and discussed the problems we could anticipate, or have already experienced, and listed them in a risk register to analyse them. These were assigned unique IDs to help easily identify and discuss them in the future. We categorised them according to their characteristics and whether they affected our project, our product, our group or if they were related to the technology that we were using.

Risk, likelihood and severity categories

Type of Risk		Likelihood Categories		Severity Categories	
Project	Affects the project schedule and the completion of work	Low	Unlikely to occur/ something that we do not expect to occur	Low	Does not affect the project too much
Product	Affects the quality, robustness, and completion of the game and its code	Medium	Moderately likely/something that could occur	Medium	Affects the problem but does not need immediate reaction
Technology	Affects the technology and devices we use during development and run the game on once it is complete	High	Very likely to occur/something we expect to happen	High	Affects the problem severely and needs immediate reaction.
Business	Affects our team and the popularity of our game	N/A		N/A	

The categories allow us to easily track what aspects of the project could go wrong and additional risks can be added to them if needed.

To assess the danger posed to our project, we further analysed these risks and collectively assessed and assigned how likely they are to occur and their severity (as seen above).

Mitigations and Contingencies

These risks will be avoided through our avoidance/mitigation strategies such as high “bus factors”, completing lectures in adequate time before tasks are started, good communication, good teamwork and good planning and scheduling. We actively avoid redundancy in our work, whether that be in ensuring no single point of failure for critical tasks, as well ensuring files and our data/work is secure and recoverable through using version control technologies such as Git/GitHub. We also peer review work regularly to check its quality and support each other to ensure good wellbeing. Along with this, each risk has its own specific mitigation/avoidance strategy, along with an active contingency plan. This plan includes rolling back files/code to previous working versions, in the worst case, through our GitHub collaborative workspace. Otherwise, we encourage increased collaboration, communication and effort to ensure critical, time-sensitive tasks are completed.

Risk-Member Assignment

We assigned ownerships to team members to carry the responsibility of each risk if they were to occur. The assignments are mostly based on members’ designated tasks, or if they have the capacity to be the first person to act. Responsibility over risks was allocated equally. We agreed on a review process of the risks so their severity and likelihood can be constantly updated if needed. The risk owner must always be aware of the risk that they are responsible for and record any events that may occur and share them with the team as well as update the risk register. We believe that we are capable of handling these risks if they were to occur and can quickly respond to events that could damage our project.

Risk Register

Risk ID	Type	Description	Likelihood	Severity	Mitigation	Owner
R1	Project	Any member of the team missing during meetings or periods of time during development	M	M	Minimum bus factor of 2 on each project section; good communication encouraged; minutes taken at every meeting so that members are up to date	Hubert Solecki
R2	Project	Weekly updates for the website unable to be made due to vickers being ill	L	L	Minutes that can be referred to, potentially someone else can take over	Jack Vickers
R3	Project	Team-set deadlines missed for project sections	L	H	Detailed project planning; regular group meetings and good communication encouraged; collaboration encouraged and increased collaboration when deadlines are close; consistent peer reviews and checking encouraged throughout project to ensure quality and deadlines are met	Project Sector Leads
R4	Project	Group leader falls ill or is unable to manage	L	M	Both Felix and Hubert are taking leadership over the group, and the dev team generally knows what they're doing	Felix Seanor, Hubert Solecki
R5	Project	Someone loses internet	L	H	Work is split over large groups of people, regular pushes to git	Jack Hinton
R6	Project	Difficult to meet with team members over Christmas break due to different time zones	M	M	Agree on meeting time that can be attended by everyone including member in a different timezone	Azzam Bahri
R7	Project	Deadlines from other modules are close	M	H	Collaboration to reduce workload encouraged, project planning and project sector planning encouraged; time management encouraged; good communication encouraged	Sam Toner
R8	Project	Code being deleted, losing progress	L	H	Make sure regular backups are made	Dev team
R9	Project	Internal teams merging to work on the development, and those that have been working on other things not understanding how the code currently works or the structure of specific classes	M	H	Make sure that all code is commented, with javadoc for each class and method and that UML diagrams have been created for classes. All team members need to have watched the lecturers required for starting specific tasks.	Project Sector Leads
R10	Project	Unable to meet in person	M	L	Use communication tools such as Discord to hold meetings or allow members unable to be there to still be apart; book meeting rooms; collectively decide on times/dates that suit everyone	Everyone
R11	Project	Physics engine takes too long or is discovered to beyond the scope	M	H	Regular dev meetings to see how it's progressing, with help from the rest of the team. If needs be a swap for the in built one can be done	Sam Toner
R12	Project	Issues with merging work in documentation and development teams	M	L	Collaboration within teams encouraged; refer to project section leads and to planning document for project sector leaders and discuss how to merge work and delegate tasks	Project Sector Leads

R13	Project	Plan dynamically changes based on member requirements, deadlines and any other factors potentially affecting decided plan	M	M	Dynamic and malleable plan enforced so that it can be fit around members' commitments and any potential events occurring during already set plan; good communication encouraged; collaboration and adaptability encouraged	Everyone
R14	Project	Group conflicts	L	H	Group ensured to create healthy relationships before project started; leadership structure was discussed and implemented; project plan and group conduct discussed and implemented	Hubert Solecki
R15	Project	Game is not completed in time, some features missing	L	H	Estimates of how much development is remaining can be made each week and if needed, additional effort and time can be put in at the start of the Spring term so that the game is complete by the hand in date	Felix Seanor
R16	Project	Lack of knowledge in any areas to be able to complete sections	M	M	Members encouraged to watch lectures and seek other resources for education before they begin a project section; communication for this is encouraged to ensure everyone is up to date on their education; collaboration encouraged; refer to plan for when certain sections will be started	Everyone
R17	Project	Quality of work lower than expected	L	H	Quality assurance checks encouraged; regular peer reviews encouraged; good communication encouraged; checking project plan document encouraged	Everyone
R18	Project and product	PID controller for character controller not functioning correctly or not compatible with physics engine.	M	M	Can be swapped out later for a direct movement	Felix Seanor
R19	Project and product	Integration of pathfinding, characters, physics, interaction systems, workstations and items may not go as expected. E.g. bugs redesigns	H	H	Owners of the systems will do as much bug testing as possible. Collaboration encouraged between Dev members. Regular meetings and also communication outside of it	Felix Seanor
R20	Project and product	Missing system and user requirements in the requirements documentation	M	L	Missing requirements can be easily added to the requirements document	Jack Vickers
R21	Product and project	Requirements changing during development process	L	H	Scrum Agile method and spiral lifecycle chosen to mitigate effect on project if requirements change dynamically; good communication encouraged; adaptability encouraged; dev team create an engine to easily adapt code if requirements change and items need to be modified, removed or added	Jack Vickers
R22	Product	Bugs within the workstation and recipe systems	H	H	Regular testing through the development of the code; weekly meetings with the dev team to update and get second opinions on what could be improved; ask for help or research areas that the owner might not be knowledgeable in.	Jack Hinton
R23	Product	The scoreboard will be introduced into the game by members unfamiliar with the code base. Leading to delays or incorrect code styles	H	H	Some time will be needed to learn and teach how to use it. Potentially before they need to start.	Felix Seanor

R24	Product	Progress of development does not meet the initial requirement of the initial product brief eg: wrong language, not enough characters, etc.	L	H	Go over the product brief and initial requirements and cross check with the requirements prepared by team members to ensure the development of project does not fall back and a mistake is not dragged too far	Jack Vickers
R25	Tech	Developed game does not run efficiently on certain OSs and hardware	L	M	Game will be tested on at least windows and linux systems to ensure efficiency in running; from interview, game will be ran on department computers on open days for visiting families and future students, we know that the department machines are good quality and have 2 OSs so it is unlikely they will suffer any performance issues during the game, but this will be tested	Sam Toner
R26	Tech	Doesn't scale to high resolution and scale devices	L	M	Test on different sized screens and resolutions	Sam Toner
R27	Tech	Lack of knowledge and experience in Git and GitHub	M	L	Members watched lectures and practice using Git and Github as shown in the lectures and other resources online; group discussed conduct of using Git and GitHub collaboratively; group practised as a team to ensure all members understood how to use this software; this was done early in the project to ensure no issues in development	Jack Hinton
R28	Tech	Lack of knowledge for creating a website and hosting it on GitPages	L	M	We researched how to use markup and HTML. Learned how to use mkdocs which assists with website customisation and deployment and makes editing it much easier	Jack Vickers
R29	Tech	Unfamiliar with LibGDX	H	L	Followed the tutorial and then implemented a custom engine over the top	Dev team
R30	Tech	Libgdx not containing the correct tools for a goal	H	H	Research other ways to achieve the goal, with the best and most efficient way	Felix Seanor
R31	Tech + project	crucial technology gets broken	L	H	As a team work quickly to replace the broken tech with temporary tech, in order to finish the project	Everyone
R32	Tech	Unable to have the vertical axis rendered correctly	L	H	Research and enough time	Felix Seanor
R33	Business	In competition with other groups over marks and votes in the assessment 2 project selection process	H	M	Provide high quality of work and code; detailed and precise documentation; easy to understand and modify code; easily readable code; commented code; website developed GitHub Pages which makes it easier to edit and make copies of it from the point of hand-over	Jack Vickers