5. Risk assessment and mitigation

The risks to the project are presented in the table below, with the following information about each one:

- An ID- to identify individual risks
- Category type- helps to read the table quickly and find the specific risks
- Description- details what the risk is
- Potential consequence- explains what could go wrong and why this risk needs solving
- Monitoring- shows whether the risk is happening, indicating if it is of immediate concern
- Likelihood and severity- allows the team to make a judgement about how much of a priority this risk is in solving or preventing
- Mitigation - details the steps that need to be, or are being taken to prevent the risk from happening.
- Owner- shows who is responsible for either solving the problem or arranging for it to be solved

There is significant detail about the risks to the programming and game itself because each item can affect the overall game, and are distinct issues. The likelihood and severity of the risks are also included because this tells us which risk to prioritise in mitigating, and each item has an ‘owner’- without one, the responsibility can be unclear, causing the issue to not be solved.

Risk Register

ID	Type	Description	Consequences	Monitoring	Likelihood	Severity	Mitigation	Owner
R1	Technology	AI interaction proves infeasible to implement	Opposing ships will behave differently	Test after combat is implemented and once the game is complete	H	H	Fake AI via scripted interaction	Harry
R2	Product	NPC targeting of player ship not enough or too challenging	Game may not be enjoyable	Test after combat is implemented and once the game is complete	M	M	Player test gameplay and adjust parameters	Harry
R3	Technology	AI decision making too slow to be convincing	Game may not be enjoyable	Test after combat is implemented and once the game is complete	L	M	Fake AI via scripted interaction	Harry
R4	Technology	Physics engine being unstable	Player and projectiles may not interact with the other elements in the program correctly.	Ongoing testing and review	M	M	Make it difficult to get into an unstable situation	Harry
R6	Technology	Cost of high res textures cause high loading time	Game may have a large loading time, which may cause the user to think the program is broken	Test and see if the time taken is unreasonable during and at the end of the project	L	L	Minimal resources are loaded (possibly on another thread) or compression used	Ben
R7	Technology	Large maps and complex algorithms cause low fps	Game is harder to run on low specification computers	Test on lower spec computer once game is complete	M	H	Optimisation Frustrum culling more simple AIs	Harry
R8	Technology	Rendering during movement may stutter/lag/flicker	Graphics look slightly worse than they would if you pay close attention	Check after new parts are added	L	L		Ben
R11	Technology	Tile map rounding error causing visual artifacts	The game runs without any errors, but a lot of visual artifacts	Test once map complete and check this is not visible	H	M	pad texture atlas that is used for the tile map	Ben
R12	Product	AI not being as advanced as it could be	The AI is either too good or bad. Making the gameplay worse for the user.	Test after combat is implemented and once the game is complete	M	L	Fake AI via scripted interaction	Harry
R14	Estimation	The team misjudges how long different tasks will take	The deadline is missed or the work is of a lower quality	Meet regularly to discuss progress and continually update plan to forsee any issues	M	H	The team will work together closely to make sure everyone is working at a good speed and encourage others to keep working.	Dom
R15	People	Bad team communication	Elements of the project may not be done and others duplicated	Meet regularly and review requirements and who has met them weekly to ensure no duplication	M	H	The team will ensure that they update the Jira and communicate their progress regularly	Dom
R16	Project	Team members ill/unavailable	Project may get behind schedule and people may be help up by someone else's work not being completed	Check work status weekly	M	M	All parts of the project have a second person assigned who can take on the work if necessary, there will also be a small amound of buffer time added to each task to minimise disruption if something is not completed by the deadline	All
R17	Technology	Loss of data	Work may be lost which takes time to recover from	Ensure we continue to backup appropriately	L	H	All documentation is held centrally on University Approved Systems such as Google Drive with local backups. Code is on a reputable platform - GitHub and team members have copies of thir own work locally.	All
R18	Product	Bugs and faults may be present	The game may not function as intended.	Ongoing testing and review	M	M	Thourough testing will be carried out and any bugs reported as early as possible	Logan
R19	Project	Consistency when multiple team memebrs are working on the different sections	Sections of a document may not fit well together if they were written by different people	Check documents and style regularly and refer to assessment style guide	M	M	All docs have an overall lead to put together the final piece and are checked by another person before submission	Firas
R20	Technology	Difficulty understanding the other teams work or problems found when building on it	Large amount of time spent working out their code and structure delaying our work	Check regularly for issues and discuss at meetings	M	M	Ensure all team members are familiar with the game we are choosing and refer to their documentation.	Harry