Risk assessment and mitigation

Risk Assessment and Mitigation documentation from Assessment 1:
https://engteam14.github.io/website2/pdfs/Risk1.pdf

This section will outline the risks that we have established will be possible to occur in this project along with some more detail about them.

To create thes risks we will follow the process that Ian Somemrville details in his book *Software Engineering* [1]. Sommerville sums up the process of creating a risk assesment in 4 steps.

- The first step is to discuss the risks, listing them and tabulating them. To do this he suggests going through easch stage of the project you have planned and and identifying possible risks.
- The second stage is to analyse the risks you have identified. This involves creating a measurement of how likely the risk is to happen. In this project we chose to use the characters 'H' 'M' and 'L' to stand for High risk, Medium Risk and Low risk. This seems descriptive enough given the small scale of the project and the fact that the product has no safety issues in terms of damage to people or property if something goes wrong.
- Sommerville describes the next step as the mitigation step, where we created a plan and decided on how these risks will be prevented or alternatively how we will act if they do arrise.
- Step four is to monitor the risks and creating revisions to the risk assesment if the need arises. To do this we have assigned owners to each risk to ensure someone is monitoring it as we do not have a specifically assigned risk assessor.

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 and monitoring the likelihood

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. If a risk is owned by someone this means that it is their responsibility to log any occurences of this and decide if the mitigiation or likelihood needs changing. This may be done in the form of a message to the person editing this document or editing the document directly. These updates will be date stamped.

ID	Type	Description	Consequences	Monitoring	Likelihood	Severity
R1	Technology	AI interaction proves infeasible to implement	Opposing ships will behave differently	not currently happening	H	H
R2	Product	NPC targeting of player ship not enough or too challenging	Game may not be enjoyable	unknown - ship combat not implemented until assignment 2	M	M
R3	Technology	AI decision making too slow to be convincing	Game may not be enjoyable	not currently happening	L	M
R4	Technology	Physics engine being unstable	Player and projectiles may not interact with the other elements in the program correctly.	not currently happening	M	M
R5	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	not currently happening	L	L
R6	Technology	Large maps and complex algorithms cause low fps	Game is harder to run on low specification computers	not currently happening	M	H
R7	Technology	Rendering during movement may stutter/lag/flicker	Graphics look slightly worse than they would if you pay close attention	not currently happening	L	L
R8	Technology	Tile map rounding error causing visual artifacts	The game runs without any errors, but a lot of visual artifacts	not currently happening	H	M

ID	Type	Description	Consequences	Monitoring	Likelihood	Severity
R9	Estimation	The team misjudges how long different tasks will take	The deadline is missed or the work is of a lower quality	not currently happening	M	H
R10	People	Bad team communication	Elements of the project may not be done and others duplicated	not currently happening	M	H
R11	People	Katie has to look after her child	She may not be able to commit to every meeting	Consistent risk	H	L
R12	Technology	GitHub has been known to go down	Work cannot be completed and unsaved work will be lost	~~not currently happening~~ **Update** see note 1	H	H
R13	People	Saud is in Dubai	Due to time difference, Saud is running on a different time schedule	For the next few weeks	n/a	L

ID	Type	Description	Consequences	Monitoring	Likelihood	Severity
R14	People	Merging issues causing delays	If people make mistakes causing major bugs in the product, the project may be delayed	Consistent risk	M	M
R15	People	Conflicting opinions	Team members having conflicting opinions could cause discorse and delay the project	Consistent risk	M	M
R16	People	Misunderstanding of requirements	If the team misreads or misunderstands the requirements given, the final product could be not to the customers standard.	Consistent risk	M	M
R17	People	Struggling to understand previous teams code	Spending a long time learning how their code works can delay the implementation of new requirements	Consistent risk	M	M

Note 1: GitHub has been having frequent 404 errors. Team members are ensuring they work on a local editor rather than through the github website. 23/02/22 [2] 16/03/22 down for atleast 3 hours. 23/3/22 down for atleast 2 hours [3]

Bibliography

[1]I. Sommerville and M. Paul, Software engineering--ESEC ’93 : 4th European Software Engineering Conference, Garmisch-Partenkirchen, Germany, September 13-17, 1993 : proceedings. Berlin ; New York: Springer-Verlag, 1993.

[2]“Slack and Github are down [Updated],” iMore, Feb. 22, 2022. https://www.imore.com/going-down-aws-struggling-and-yes-slack-and-github-are-down

[3]“An update on recent service disruptions,” The GitHub Blog, Mar. 23, 2022. https://github.blog/2022-03-23-an-update-on-recent-service-disruptions/ (accessed Apr. 24, 2022).