**Risk Analysis**

A risk matrix is used to identify potential risks to this project. The project management institute defines risk analysis as examining how the project outcomes and objectives might change due to the impact of the risk event (Lavanya, N et al., 2008). The risks were identified, analysed to measure the size of the risk impact on the project. The risks were identified using Leveson’s literature: the likelihood of a risk occurring, that the risk will lead to a tragedy and the worst-case scenario of the risk occurring (Leveson, N., 1991). By identifying the risks of the project actions, were taken to mitigate the risks. The risks below were identified through a range of methods including past experience, common sense and use of checklists to ensure deliverables are met before the completion date.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **RISK** | **PROBABLITY** | **IMPACT** | **OWNER** | **MANAGEMENT** | **RISK VALUE** |
| **1** | **Project schedule is not clearly understood** | **1** | **8** | **Steven** | **Ensure missions are understood** | **8** |
| **2** | **Project Estimations are inaccurate** | **3** | **7** | **Steven** | **Communication to increase accurate predictions** | **21** |
| **3** | **Lack of Communication** | **4** | **8** | **Steven** | **Ensure meetings are utilised properly** | **32** |
| **4** | **Team conflict** | **2** | **7** | **Steven** | **Ensure code of conduct is followed** | **14** |
| **5** | **Unforeseen Circumstances** | **2** | **5** | **Steven** | **Allow time buffers when scheduling** | **10** |
| **6** | **Additional dataset mis-formatting** | **4** | **4** | **Steven** | **Pre-process data before the input** | **16** |
| **7** | **Code of conduct violation** | **3** | **5** | **Steven** | **Ensure participant agreement to code of conduct** | **15** |
| **8** | **Master schedule becomes inaccurate** | **2** | **6** | **Steven** | **Alter Gantt chart after every change of sprint** | **12** |
| **9** | **Code corruption** | **3** | **9** | **Steven** | **Source control – git/GitHub** | **27** |
| **10** | **Discord Connectivity** | **1** | **5** | **Steven** | **Microsoft teams as a backup** | **5** |
| **11** | **Libraries may not install correctly** | **3** | **9** | **Phil** | **Use of Jupiter notebooks** | **27** |
| **12** | **Code compilation errors** | **2** | **9** | **Phil** | **Ensure errors are fixed before submission** | **18** |
| **13** | **Document Alteration through changes** | **4** | **6** | **Phil** | **Ensure certainty of stages** | **24** |
| **14** | **Dataset Medium** | **3** | **7** | **Phil** | **Ensure the dataset is of one medium** | **21** |
| **15** | **Set algorithms could inhibit optimisation** | **8** | **9** | **Phil** | **Increase difficulty of the dataset** | **72** |
| **16** | **Dataset validity** | **2** | **8** | **Eve** | **Test image pre-processing** | **16** |
| **17** | **Tests miss a case** | **4** | **6** | **Eve** | **Double check tests** | **24** |
| **18** | **Test plan is inaccurate** | **3** | **3** | **Eve** | **Ensure test coverage** | **9** |
| **19** | **Literature Review dependant on statement** | **5** | **4** | **Eve** | **Communicate when changes have been made** | **20** |
| **20** | **Solution diagram is Inaccurate** | **2** | **5** | **Phil** | **Double check correctness** | **10** |
| **21** | **Change of Project direction** | **4** | **10** | **Team** | **Communication of estimations of labour** | **40** |
| **22** | **Member Illness** | **2** | **7** | **Team** | **Ensure Illness is communicated if affects schedule** | **14** |
| **23** | **Priority of unplanned work** | **4** | **8** | **Team** | **Communication if it affects the master schedule** | **32** |
| **24** | **Unplanned project disruptions** | **3** | **6** | **Steven** | **Time buffer of tasks/Alter the master schedule** | **18** |

The risk matrix is used to manage the possible risks of the project by planning actions that can be taken to mitigate the risk. This project focused on the following risk management approaches using Steve McConnell’s literature: Prevention, risk mitigation and the elimination of root causes (McConnell, S. 1996). The project follows these approaches, to minimise the risk source.

**References**

Lavanya, N. & Malarvizhi, T. (2008) ‘Risk analysis and management: a vital key to effective project management’, *PMI® Global Congress*: Sydney, New South Wales, Australia. Austrillia: Project Management Institute.

Leveson, N. (1991) *Software Safety in Embedded Computer Systems*. Available at: <https://dl.acm.org/doi/abs/10.1145/102792.102799> (Accessed: 15/03/21)

McConnell, S., 1996. *Rapid development: taming wild software schedules 1st ed*., Redmond, Wash.: Microsoft Press.