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| **Task** | **Risk** | **Solution** |
| Flow diagrams | The flow of each chart could be incorrect as our knowledge base of DirectX is limited. | Extensive research into unknown areas e.g. labs, internet and books. |
| Requirements | Don’t know if all requirements are achievable before deadlines. | Adding additional implementation phase for advanced tasks |
| User stories | Missed some stories, due to lack of communication with target audience. | Collect more information from users, clients, stakeholders and programmers. |
| WBS | Unknown amount of workload and time needed to complete each task. | Research into how to estimate, different task workloads and time management estimations. |
| Gantt chart | Relies heavily on WBS and user stories to be correct. | Research into how to estimate, different task workloads and time management estimations. |
| Testing plan | Will not fully cover everything to be tested in the final release. | Ensure full testing is completed at the end via adequate time management. |
| Menu setup | Buttons don’t perform correctly. | Test. |
| Cameras | Loads every object within the game, leading to slow performance. | Implement code that only allows objects in view to be rendered. (Unknown solution) |
| Lighting | No knowledge base. | Research from labs, internet and books.(Unknown solution) |
|  | Graphical errors. | Unknown solution. |
| Character Creation | Model doesn’t fit the purpose of original design. | More research into the models to get a better model.(Unknown solution) |
|  | Controls don’t work correctly. | Test. |
|  | Collision detection. | Test. |
| Enemies | AI is too easy/hard to play against. | Test then balance skill level. |
|  | Collision. | Test. |
|  | Damage equation is unbalanced. | Test then balance. |
| Asteroids | Algorithm procedurally spawns them incorrectly. | Test. |
|  | Collision detection. | Test. |
| Sounds & Music | Pauses game. | Set up threads correctly. |
|  | Plays incorrect sound/SFX. | Test. |
| Shadow Mapping | Incorrect shadow placement. | Test. (Unknown solution) |
|  | No knowledge base. | Research from labs, internet and books. (Unknown solution) |
| Settings | Changing screen size might stretch images. | Test. |
|  | Sound/SFX controls work incorrectly. | Test. (Unknown solution) |
| Advanced Shaders | No knowledge base. | Research from labs, internet and books. (Unknown solution) |
| Score | Doesn’t save correctly. | Test. |
| Textures | Don’t load correctly. | Test. (Unknown solution) |
|  | Bump maps don’t work. | Test. (Unknown solution) |
| Skybox | Textures too big. | Compress and test different versions. (Unknown solution) |
| Dialog boxes | Alignment incorrect. | Test. (Unknown solution) |
|  | Font size too big/small. | Test. (Unknown solution) |
| Fonts | Fonts pixilated. | Get font letter sizes, then set the container size to be the same size as all of the letters combined. (Unknown solution) |
| Currency | Money balancing. | Black box test then balance. |

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|  |  | Severity | | |
|  |  | 1 | 2 | 3 |
| Likelihood | 1 | * Requirements - Don’t know if all requirements are achievable before deadlines. - Adding additional implementation phase for advanced tasks * Character Creation - Model doesn’t fit the purpose of original design. - More research into the models to get a better model. (Unknown solution) * Enemies - Damage equation is unbalanced. - Test then balance. * Sounds & Music-Plays incorrect sound/SFX.-Test. * Score - Doesn’t save correctly. - Test. * Dialog boxes - Font size too big/small. - Test. (Unknown solution) * Currency - Money balancing. - Black box test then balance. | * Skybox - Textures too big. - Compress and test different versions. (Unknown solution) * Character Creation - Controls don’t work correctly. - Test. * Enemies-AI is too easy/hard to play against. - Test then balance skill level. |  |
| 2 | * User stories - Missed some stories, due to lack of communication with target audience. - Collect more information from users, clients, stakeholders and programmers. * Fonts - Fonts pixilated. - Get font letter sizes, then set the container size to be the same size as all of the letters combined. (Unknown solution) | * Textures - Don’t load correctly. - Test. (Unknown solution) * Dialog boxes - Alignment incorrect. - Test. (Unknown solution) | * Testing plan - Will not fully cover everything to be tested in the final release. - Ensure full testing is completed at the end via adequate time management. * Lighting - Graphical errors. - Unknown solution. * Asteroids - Algorithm procedurally spawns them incorrectly. -Test. * Settings - Changing screen size might stretch images. - Test. * Settings - Sound/SFX controls work incorrectly. - Test. (Unknown solution) |
| 3 | * Flow diagrams - The flow of each chart could be incorrect as our knowledge base of DirectX is limited. - Extensive research into unknown areas e.g. labs, internet and books. * WBS - Unknown amount of workload and time needed to complete each task. - Research into how to estimate, different task workloads and time management estimations. * Gantt chart - Relies heavily on WBS and user stories to be correct. - Research into how to estimate, different task workloads and time management estimations. * Menu setup - Buttons don’t perform correctly. - Test. * Shadow Mapping - Incorrect shadow placement. - Test. (Unknown solution) * Advanced Shaders - No knowledge base. - Research from labs, internet and books. (Unknown solution) * Textures - Bump maps don’t work. - Test. (Unknown solution) | * Character Creation - Collision detection. - Test. * Enemies - Collision. - Test. * Sounds & Music - Pauses game. - Set up threads correctly. * Shadow Mapping - No knowledge base. - Research from labs, internet and books. (Unknown solution) | * Cameras - Loads every object within the game, leading to slow performance. - Implement code that only allows objects in view to be rendered. (Unknown solution) * Lighting - No knowledge base. - Research from labs, internet and books. (Unknown solution) * Asteroids - Collision detection. - Test. |

Note: Need to revaluate at a later date.