**GAM340 Statement of Intent Date 29/09/2022**

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**Outline of project**

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| **Project Outline:**  **For this project I will create a 2D Orbital Mechanics simulator. This simulator will simulate how different orbital bodies interact in differing scenarios. The simulation will take into consideration of body size and mass to accurately simulate how an orbit would be formed in the real world.**  **Project specifics:**  **The project will include one of the well known major equations for calculating orbital paths and data. Alongside that, there will be a small suite of tools that the user will be able to interact with, which, in a base function will include, but are not limited to: - Simulation parameter window for updating multiple factors of the simulation live**  **- General information panel**  **- Simulation “reset” button**  **- Object Spawner (for the creation of objects in specific orbits)**  **- Object Thrower**  **Stretch goals:**  **- Small player controlled spaceship which can interact (land, etc) with the spheres of influence**  **- Unique effects when two (or more) bodies collide**  **- Exotic stars, star systems, and entities (Binary & Trinary stars, Neutron stars, Black holes etc.)**  **- Allow for the player to switch between multiple types of orbital calculation formulae** |

**Key indicators**

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| ***Create 2/3 main areas to be assessed on, assigning a percentage to indicate your primary focus – based on the Assignment 1 Marking Criteria***   * **Ability to correctly simulate orbit trajectory around a Sphere of Influcence** * **Create and implement a small set of utility tools that can allow the player to interact with the simulation in 4 key ways:**   + **Add Objects**   + **Delete Objects**   + **Edit Objects**   + **Move Objects** * **The ability to show and display different statistics and orbit lines of the multiple bodies** |

**Further Notes**

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| **Style and reference:**  **To cut down on the amount of time spent on art work, I’ll be going with a very simple 2D flat color style. Each body might have some smaller hand drawn elements but this is the only real artistic effort that I will have to put into the artefact.**  **Rationale:**  **I have chosen this style for a few reasons, the main one being that it allows me to put full focus into the actual codebase and means that I don’t have to worry about how it looks as that expectation will already be set. This is because it’s a simulator, made for simulating data, not for getting pretty screenshots or gameplay videos. I’m taking reference for this idea mainly from the map screen of Kerbal Space Program, with the only exception being is that mine is going to be 2D and not 3D.**  **My other rationale for this project is that this is a field (space, space games and the broader set of genres and sub genres that fall into that) is something that I’ve always been passionate about. If I can complete this project and can demonstrate the skills required to simulate these types of body interactions it will be a really good showcase piece for my portfolio, basically saying that I can do the simple aspects of Game Development Programming, but I can also do the harder more complex tasks too.** |