Assessment Submission Coversheet:  
Physics for Games   
Task 1 – Create a Custom Physics Simulation

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| **Student Name:** | Ethan Dawkins |
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| **Course Stream:** | 10702NAT – Advanced Diploma of Professional Game Development |
| **Assessment Name:** | Physics for Games |
| **Units Covered:** | ICTGAM556 – Develop and implement physics in 3-D digital games |
| **Teacher/s:** | Jesse James Donlevy |
| **Due Date:** | As defined by your teacher/s. |
| **Date of Submission:** | *Will be automatically recorded on Canvas* |
| **Assessment Work Location** | Canvas/Drive location/file path |

*For more information on these parts, please click on the* [***Subject and Assessment Guide***](https://aie.instructure.com/courses/1027/files/723141?wrap=1) *link in the course* ***Game Programming Year 2*** *under the subject* ***Physics for Games*** *on* [*https://aie.instructure.com*](https://aie.instructure.com) *and read the* ***2023 Subject & Assessment Guide – Physics for Games***

*and go to* ***Assessment Tasks – Create a Custom Physics Simulation.***

**Naming Convention**

* Yourname\_PfG\_CPP\_SourceFiles.zip
* Yourname\_PfG\_CPP\_ReleaseBuild.zip

**Declaration**

By submitting this work under my name, I declare that my submission is my own work with respect to plagiarism and does not violate any copyright laws. I have retained a copy of this assessment material that I can produce if requested.

Tick to acknowledge you have read and agree with this declaration.

Name: Ethan Dawkins Date: 15/02/2023

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**Work Submitted:***Tick to acknowledge you have submitted this part of the assessment.*

1. Custom Physics Engine:   
   Write a custom physics systems and demonstrate its uses in a stand-alone real-time application.   
     
   In a few short sentences or dot points, please explain what you submitted for this part of the assessment.

I followed the tutorials to build the physics engine, and re-created pool to demonstrate it working.

1. Implement and demonstrate static and dynamic rigid bodies:   
   In your custom physics engine, implement static and dynamic rigid body physics, and demonstrate static and dynamic rigid bodies interacting with each other.   
     
   In a few short sentences or dot points, please describe what you submitted for this part of the assessment.

I followed the tutorials to implement static (kinematic) and dynamic rigid bodies and created many test scenes that showed different rigid bodies interacting and colliding.

1. Apply forces to physics bodies:  
    In your custom physics engine, implement and demonstrate the application of forces to physics bodies.   
     
   In a few short sentences or dot points, please describe what you submitted for this part of the assessment.

I followed the tutorials to implement forces that apply to physics bodies, and dynamically move them according to the Newton’s 3 laws of physics.

1. Visualise physics bodies:   
   In your demonstration application, implement functionality that enables the visualisation of physics bodies.   
     
   In a few short sentences or dot points, please describe what you submitted for this part of the assessment.

I implemented gizmos that draw the primitive shapes of the physics bodies, I also implemented a Billiards class that draws textures for the billiards. There was also a Sprite class that I made for wrapping a texture into its own class, i.e. the texture, position and size.

1. Project and source code:   
   Submit the project/solution, source code and assets for your physics system and demonstration application.   
     
   In a few short sentences or dot points, please describe what you submitted for this part of the assessment.

I submitted a zip for the release build and a zip for the source code of the project, including any resources that it uses in the physics demonstrations.

Name: Ethan Dawkins Date: 15/02/2023