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

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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:** | 15/02/2023 |
| **Date of Submission:** | *Will be automatically recorded on Canvas* |
| **Assessment Work Location** | Canvas |

*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: Connor Mills Date: 15/02/2023

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Task 1 – Create a Custom Physics Simulation

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

1. Custom Physics Engine:

* A physics engine that handles the applying of force and collisions between a number of shapes
* Includes boxes, circles, planes, springs and soft bodies

1. Implement and demonstrate static and dynamic rigid bodies:   
   In the Eight-ball game that I submitted there are interactions between both dynamic and static rigid bodies and themselves.  
   You can see dynamic bodies interacting when the pool balls collide with one and another.   
   Dynamic and static rigid body interactions can be seen when the balls and the walls collide.
2. Apply forces to physics bodies:  
    You can see forces being applied to physics bodies in the Eight-ball game when you pull back and shot the cue ball.  
   It can also be seen when any of the balls collide with anything.
3. Visualise physics bodies:   
   The visualisation of the physics bodies is demonstrated with the balls as a sprite is drawn at their location with their size, giving the user a visual representation of the physics bodies.
4. Project and source code:   
   I have submitted the source code and assets that I used.  
   I also submitted the release build of my Eight-ball game.

Name: Connor Mills Date: 15/02/2023