Assessment Submission Coversheet:  
Computer Graphics

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| **Student Name:** | Sofi Wesson |
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| **Course Stream:** | 10702NAT – Advanced Diploma of Professional Game Development |
| **Assessment Name:** | Computer Graphics |
| **Units Covered:** | ICTICT427 – Identify, evaluate and apply current industry-specific technologies to meet organisational needs |
| **Teacher/s:** | Jesse James Donlevy |
| **Due Date:** | 29/04/2022 |
| **Date of Submission:** | *Will be automatically recorded on Canvas* |
| **Assessment Work Location** | Canvas |

**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: Sofi Wesson Date: 26/08/2022

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**Self-Evaluation**:

OpenGL was easier to use than I was initially expecting, the absence of statements and loops being used was weird and unnatural at first but I quickly became accustom to it. Due to previous general programming knowledge, it didn’t take long to pick up OpenGL. Once the set up to allow for loading and binding new shaders was implemented into the C++ project, adding new shaders to the project was quick and simple. Learning how shader code works was interesting and might be something I look more into in the future.  
A flying camera was asked to be implemented, a flying camera was already implemented but wasn’t being used so the stationary camera was replaced with the flying camera.  
The ability to control the light direction and colour in the scene using ImGUI was asked to be implemented and was addressed with an ImGUI with controls for changing the light direction and colour.  
The ability to change the position, rotation, and scale of the models using ImGUI was asked to be implemented and was addressed with an ImGUI containing separate position, rotation, and scale controls for all models in the scene.  
The Phong shader was originally quite intense and looked over saturated, this was addressed by desaturating the phong shader.  
  
Unity’s HLSL and ShaderGraph was simple and straight forward to use as I had used Unreal Engines blueprint before and allowed me to quickly grasp how the system worked. The real-time visualisation of what I was doing was very useful and satisfying helping to stream-line development of shaders inside of Unity. Implementing the shaders into the project was simple and required very little set up, would definitely use Unity’s ShaderGraph in future.   
The ability to change the shader being used on a sphere using a UI button was asked to be implemented and was addressed by fulfilling the request.  
The ability to toggle on and off a particle effect using a UI button was asked to be implemented and was addressed by fulfilling the request.

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

1. Completed Real-Time 3D OpenGL Application:   
   - 3D obj models  
   - Coded 3D shapes including a quad mesh, box, pyramid, and a grid  
   - Ability to move, rotate, and scale 3D shapes using GUI  
   - Global lighting  
   - Ability to change global lighting direction and colour  
   - Particle effect  
   - Shaders including box blur, distort, edge detection, sepia, grey scale, invert, pixelizer, and phong
2. Completed Real-Time 3D Application:   
   - Player character holding a with smooth running and aiming animations  
   - Player characters hands hold the gun at fixed positions  
   - Toggle a particle effect on and off using UI  
   - Switch between 2 shaders on a sphere using UI  
   - Pause the game with a button press and un-pause the game using UI
3. Present and Record Feedback: Feedback given and how the feedback was addressed/implemented
4. Follow Good Coding Practices:   
   - Commented code  
   - Used camel case for variables  
   - Used pascal case for functions  
   - Split different or repeated operations into own functions

*For more information on these parts, please click on the* [***Subject and Assessment Guide***](https://aie.instructure.com/courses/813/files/544412/download?download_frd=1) *link in the course* ***Game Programming Year 2*** *under the subject* ***Computer Graphics*** *on* [*https://aie.instructure.com*](https://aie.instructure.com) *and read the* ***2022 Subject & Assessment Guide – Computer Graphics***

Name: Sofi Wesson Date: 26/08/2022