Assessment Submission Coversheet: Computer Graphics

Task 3 – Present, Record and Evaluate Feedback

Student Name:	Dylan Alvaro
Student Number:	S213919
Student Email	S213919@students.aie.edu.au
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:	01/05/2023
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** link in the course **Game Programming Year 2** under the subject **Computer Graphics** on https://aie.instructure.com and read the **2023 Subject & Assessment Guide – Computer Graphics***

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: Dylan Alvaro Date: 30/04/2023

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Self-Evaluation:

Write a brief report (one [1] page) that evaluates your experience working with OpenGL using GLSL shaders, and Unity3D using HLSL/Cg and ShaderGraph.
As part of this report discuss how you used your knowledge to apply the techniques and handle the programs used in your implementations of your applications for Task 1 and Task 2, discuss your preferences for future use of shaders in Unity.

My experiences working with both OpenGL and Unity to create various shaders was a very good learning experience. OpenGLs GLSL Shaders were very challenging to work with initially and took some time to get used to, compared to Unity’s inbuilt ShaderGraph I felt that I had more fun working in engine as it was easier to understand and see how the materials were being affected in real-time.

OpenGLs implementation of creating and using Shaders by requiring needing both .vert and .frag files made insuring that the code was right very tedious and left me needing help on countless occasions from both my instructor and class-mates.
As well as this I would need to visit old websites and forums that showed interesting implementations on add different post-processing shaders. I was able to create post-process effects such as Grayscale, Sepia, Distoration, Edge Detection and a Box Blur, The required implantation was somewhat easy at the start however some required further research to get a better understanding of how it can be made.

With Unitys ShaderGraph I believe that the implementation of different shaders was a lot easier and streamlined to work with. I was able to create shaders such as a dissolve shader, rimlights and force fields that didn’t take long to make and understand, research was needed, however, because of how used unity is compared to OpenGL I was able to find a whole plethora of tutorials that led me to experimenting with different shaders.

In terms of what I would prefer for future use I believe that Unitys ShaderGraph is a lot easier to use and understand, More technical use of shaders that I would be interested in making for future projects would be creating water that includes foam around different objects.

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Self-Evaluation:

Using the feedback you have been provided by your trainer and any peers, make adjustments to your application.

Write a brief report (500 words) that list the feedback, your response to the feedback, and a brief evaluation of the technologies, techniques and programs used in your implementation(s).

For example, explain the lighting algorithms used and contrast these with other algorithms that could have been used. You could provide information on what techniques are commonly used in the industry, or where the latest research is currently focused.

In your evaluation, pay special attention to any practical implications the technology may have especially in relation to the cross-discipline team projects you will be completing later in the year (i.e., how could this be used in games, and how would this affect the game, development time, player experience, etc.).

Please contain you report in here.

When answering the report state the feedback you addressed and answer it in a long form response format (No dot point).

I received a lot of feedback when creating both the OpenGL project and the Wipeout game in the Unity engine. The various feedback that I received was from people such as my peers and instructor and with the feedback that I received I was able to make a lot of changes to my game which both helped to improve my project and will improve future projects.

Feedback in my Wipeout game were things such as making the mechanics of the game a lot simpler and easier to play, from watching my peers play the game I felt that it was obviously very hard to complete and because of that I had to ensure that various obstacles were easy to play through as I wasn't hoping for the hardest game ever. Other feedback I received for the Wipeout game was stuff like implementing checkpoints into the game so that when the player respawns, he doesn't respawn back to the beginning. Critical feedback from my instructor allowed me to elevate my game even more Implementing particles into my game allowed me to learn an entirely different system that I had never touched before, although what I made was very simple I believe that through more research I will be able to create a lot more nicer looking effects in future projects.

The lighting algorithms used for the OpenGL project were things such as ambient lighting and diffuse lighting. ambient lighting refers to lighting that is indirect and exists within the scene even if there is no direct light source within the scene, ambient lighting is very useful as it prevents completely dark areas from existing, the ambient light is present in the environment and doesn't have a specific direction or source. Industry use of lighting uses algorithms such as Global illumination. Global illumination is a group of algorithms used in computer graphics that allow for realistic lighting to exist within the scene, this algorithm accounts for a lot of different lighting. The diffuse ambient and specular reflections kd, ka, and ks refer to reflection coefficients in lighting. Kd is the diffuse reflection coefficient which refers to the incoming light and how it is scattered in all directions equally in reference to the material of the object, this can be typically seen when lighting isn't directly affecting an object and shadows are visible. The Ka coefficient refers to how light is reflected on objects as well as their shininess, this is usually seen as looking metallic. The use of proper lighting within industry-standard games allows for characters and environments to look a lot more realistic depending on what game is being made. The use of proper lighting for future projects will be very useful as it will allow for projects that I make to feel more

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Work Submitted:

Tick to acknowledge you have submitted this part of the assessment.

☒ Completed this Cover Sheet:

* Wrote about my experiences with OpenGLs shaders and Unitys Shader Graph

* Wrote a report about feeback.

☒ Received feedback from others: List all people you received feedback from

Jesse (Instructor)
Benji Sipina
Liam Drumgoole
Max Lovlett

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