MCAST
Technical College
INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGY

ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)

Course Title	Advanced Diploma		Lecturer Name & Surname	NEIL AQUILINA	
Unit Number & Title	Programming for Computer Games				
Assignment Number, Title / Type	Research and Design – Home (24 Hours)				
Date Set	18/12/2020	Deadline Date	19/12/2020		
Student Name	Gareth Scicluna	ID Number	0367402L	Class / Group	4.2B

[X]	*Student's declaration prior to handing-in of assignment:* ❖ *I certify that the work submitted for this assignment is my own and that I have read and understood the respective Plagiarism Policy*
[ ]	*Student's declaration on assessment special arrangements (Tick only if applicable)* ❖ *I certify that adequate support was given to me during the assignment through the Institute and/or the Inclusive Education Unit.* ❖ *I declare that I refused the special support offered by the Institute.*

Student Signature:	Gareth Scicluna	Date :	19/12/2020

Assessment Criteria	Maximum Mark	Mark Achieved
KU1: Identify and describe different game engines for different tasks	5	
KU3: Describe file types for media assets	5	
KU4: State the relevance of compression settings in media assets	5	
SE1: Design and specify the details of the game to be developed, including a state machine	10	
Total Mark	25	

Assessor's feedback to student
(If necessary, use reverse side of page for IV feedback on assignment brief / sample of assessment decisions)

PCG 24 Hour Assignment

Task 1

Game Engine 1: Unity

- Most popular Programming languages used in Unity are: C#, UnityScript (JavaScript) & Boo which is a language similar to Python. There are other less popular languages that can be used such as IronPython, C/C++ (used to make plugins), Rust (used for plugins) and Lua.
- A well-known game that was made using Unity is Among us.
- Unity supports both 2D and 3D game development.

Game Engine 2: Unreal Engine

- Most popular Programming language used in Unreal Engine is C++, however there can be ways how to implement certain packages which allow you to use other programming languages such as JavaScript.
- A well-known game that was made using Unreal Engine (version 4) is Fortnite.
- Unreal Engine's latest versions support 2D and 3D game development.

Game Engine 3: CryEngine

- Programming languages that can be used in CryEngine are Lua, C++ and C#.
- A game that was made using CryEngine is Far Cry.
- CryEngine's latest versions support 2D and 3D game development.

Game Engine 4: Frostbite

- Programming languages used in Frostbite are C++ and C#.
- A well-known game that was made using Frostbite is FIFA 17-21.
- Frostbite seems to only be used to make 3D games.

Game Engine 5: Godot

- Programming languages that Godot supports are GDScript, C & C++ and C#. Other languages that can be implemented are Rust, D, Python, Nim, Go & Lua.
- A game made using Godot is Gravity Ace
- Godot supports both 2D and 3D

Task 2

a. Three image formats chosen: PNG, JPG and GIF

PNG: This image format has the ability to display the transparent colour which makes it versatile and ideal for digital art such as logos or icons. It is usually significant in terms of size as it saves quality and uses all possible colours.

JPG: This image format is known as the best image format for compression however, you might lose image quality if you compress too much since you lose data. It is also good to save space as it isn't large. It's not great for digital art such as icons because it doesn't support transparent backgrounds but it is good for photography.

GIF: Normally used to create animations using frames of images. This image format allows transparent backgrounds which makes it ideal for animated digital art. They are not the best choice if you want to keep image quality high.

b. Two Audio formats chosen: MP3 and WAV

MP3: MP3 is a popular audio format that uses lossy compression which makes it ideal to save space but does not make it ideal if you want the best audio quality.

WAV: WAV is an audio format which is uncompressed and hence takes a lot more storage than lossy compressed formats. However, it does have great sound quality.

Task 3

a.Usually, image files' size tends to increase as the quality increases. Image compression is the process used in order to decrease the image file's size without decreasing the quality too much. When compressing an image file, the type of compression of the image format is taken into consideration. Those formats (such as JPG) which support lossy compression are ideal to compress since data is lost when their file size is reduced whereas lossless formats (such as PNG) can only lose up to a certain amount of data since they are a lot larger than lossy compression formats. Since Image compression makes image files smaller, it is ideal to use in activities such as web development since websites can load faster and use less storage on the server host. Image compression also makes processes run smoother on low-end devices such as touch devices which have lower memory and storage.

b.