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	Matthew Bugeja		ID Number	242603L	Class / Group	SWD4.2B

☒	*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:	Matthew Bugeja	**Date :** **18/12/2020**

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)

	Name & Surname	Signature	Date
Internal Verifier : Approval of _assignment brief_		For approval signature, please refer to electronic audit trail	
Lecturer / Assessor : Issue of results and feedback to student		For approval signature, please refer to electronic audit trail	
Internal Verifier : Approval of _assessment decisions_ (Sample)		For approval signature, please refer to electronic audit trail	
Learner's signature upon collection of corrected assignment.			

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

Task 1:

Unreal Engine

- This game engine uses C++ programming language;
- A game created by this game engine is Gears of War;
- This game engine is both 2D and 3D but mostly 3D.

Unity

- This game engine uses C# programming language;
- A game created by this game engine is Pillars of Eternity;
- This game engine is both 2D and 3D.

Godot

- This game engine uses GDScript programming language;
- A game created by this game engine is Gravity Ace;
- This game engine is both 2D and 3D.

RPG Maker

- This game engine uses Ruby & JavaScript programming languages;
- A game created by this game engine is Skyborn;
- This game engine is both 2D and 3D but mostly 2D.

CryEngine

- This game engine uses C++, Lua & C# programming languages;
- A game created by this game engine is Blue Mars;
- This game engine is 3D only;

Task 2:

Part A:

BMP:

A Bitmap (BMP), is a basic raster file format for digital images. The BMP file format is capable of storing both monochrome and colour, and optionally with data compression image files. Usually, BMP images stores image information allowing for crisp, high-resolution graphics though producing large file sizes. Hence, they are not usually used for transferring images on the Internet because they are too large and not typically compressed.

PNG:

Portable Network Graphics (PNG), is a bitmapped image format that utilises lossless date compression. It provides better compression and transparency provision as well as supporting true colour. PNG gives better image quality though it has a larger file size due to a lossless format.

SVG:

Scalable Vector Graphics (SVG), is an XML (Extensible Mark-up Language) based on vector image format for 2D graphics. SVG drawing can be dynamic and interactive as the image does not lose any quality if it is zoomed or resized.

Part B:

MP3:

This common audio format supports significant compression whilst preserving a good sound quality. It is widely supported through various computer platforms as it creates small size, high quality sounds for use on the Internet or in portable MP3 players.

WMA:

This file format is developed by Microsoft as an alternative to MP3. Windows Media Audio (WMA) format can deliver compressed audio comparable to MP3 at lower bit rates.

Task 3:

Part A:

There are two types of file compression. These being lossy and lossless. As the name suggests, lossy images, after an image is compressed, some parts of the images get lost. On the other hand, lossless images, after an image is compressed, no parts of the images are lost. However, the file size of a lossless is not reduced as much as the lossy files. Image compression reduces the size in bytes of an image file. The importance of file compression is that it allows more images to be stored in a given amount of memory or disk space. File compression also reduces the time required for images to be loaded, sent over the Internet or downloaded.

Part B:

Uncompressed Signal

Threshold

Fig.1

Compressed Signal

Threshold

Fig.2
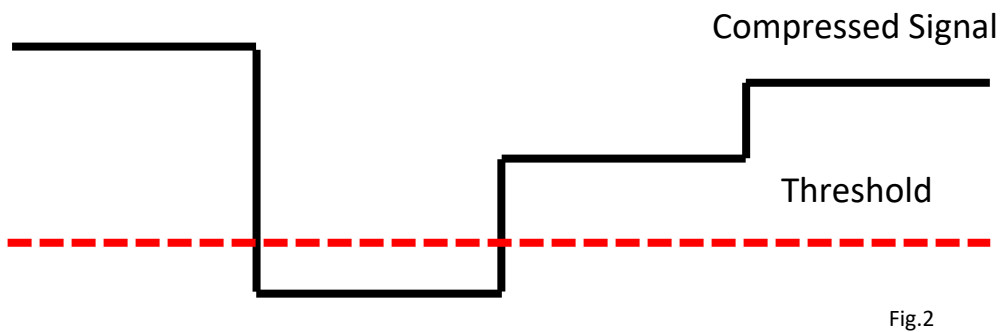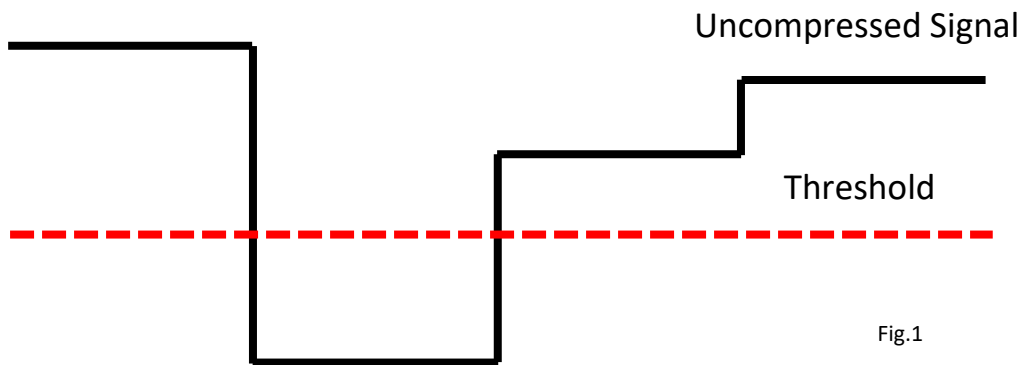
In simple terms, Figure 1 depicts a normal uncompressed audio wave whilst Figure 2 depicts a compressed audio wave.

Whilst maintaining the same threshold, in Figure 2 one can see a lower amplitude than in Figure 1.

The above depicts Figure 2 as a compressed audio wave length.