PROGRAMMING OF COMPUTER GAMES HOME ASSIGNMENT 1: REASERCH AND DESIGN

Naomi Chetcuti

88902L MSD4.2B

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	Naomi Chetcuti		**ID Number**	**88902L**		**Class / Group**	MSD4.2B

☐	*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:	N.chetcuti	**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 a*ssignment 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: Game Engines

Research 5 Game Engines. In point form, and in your own words, for each engine list:

- The Programming Language(s) used in it
- A game programmed using that Engine
- Whether it is a 2D/3D (or both) Engine

5 Game engines

- Unity – programming languages used are c#, JavaScript and used to be used more in the beginning of unity Boo a similar language to python. these two are games Lara Croft Go and Kerbal space program. Unity is a 3D engine. 2D is used for just sprites.

- Godot – Godot is a 2D and 3D engine. This engine is a free use and open source, no subscription fees and no hidden strings. Godots programming languages are C++, C# and others such as Rust and Nim which are GDNative bindings.

- Solar 2D – Solar 2D obviously it's in the name is a 2D game development engine to allow developer to develop 2D games for iOS , android and desktop. This engine programming language is Lua. these two are games developed by this engine Designer City and The lost city.

- Unreal engine – Unreal engine supports both 2D and 3D. the programming language mostly used are C# or Java script. These two are games programmed using this engine Gear of War and the Arkham.

- GameMaker – It has its own programming language use which is GML (Game Maker Language).these two are games Super crate Box and Hotline Miami. This Game engine supports both 2D and 3D but is mostly used for 2D projects.

Task 2: File types of media assets

a) Choose 3 types of image formats from SVG, JPG, PNG, WEBP, GIF, BMP and explain each image format, in your own words.

- JPG (or JPEG) – A Joint Photographic Group is a raster format which is often used on the internet for images. This type of image format are used frequently due to their web friendly file size because they are usually small. Unlike PNG and GIF file formats the quality of the original image reduce its quality as it uses is compression to keep the image size small. A JPEG doesn't contain a transparent background is always with a solid background.

- PNG – A portable Graphics format is an uncompressed raster image which is used frequently on the web. It is a lossless data to maintain the same image quality. This image format was designed to transfer images through the web. This file format is able to displaying transparent background.

- GIF - A Graphics interchange Format is a lossless compression which doesn't demote the image quality. This format is used for images on the web and sprites, this format supports animations which neither other image formats do. Gif also has the availability of displaying transparent backgrounds.

b) Choose 2 types of audio formats from OGG, MP3, WAV, AAC, WMA and explain each format, in your own words.

- MP3 – is a compressed audio file format, this audio file format sounds just like the original recording but it requires less space. MP3 file format are often one tenth of the size of an uncompressed Wave or AIFF file which means the same audio as a CD.

- WAV - is an uncompressed raw audio file format which was created by Microsoft. This has become a basic pc audio file for everything such as system, game sounds and so much more. This type of file format is a viable interchange medium for other computers. Due to this content developers are able to freely move audio files between different platforms.
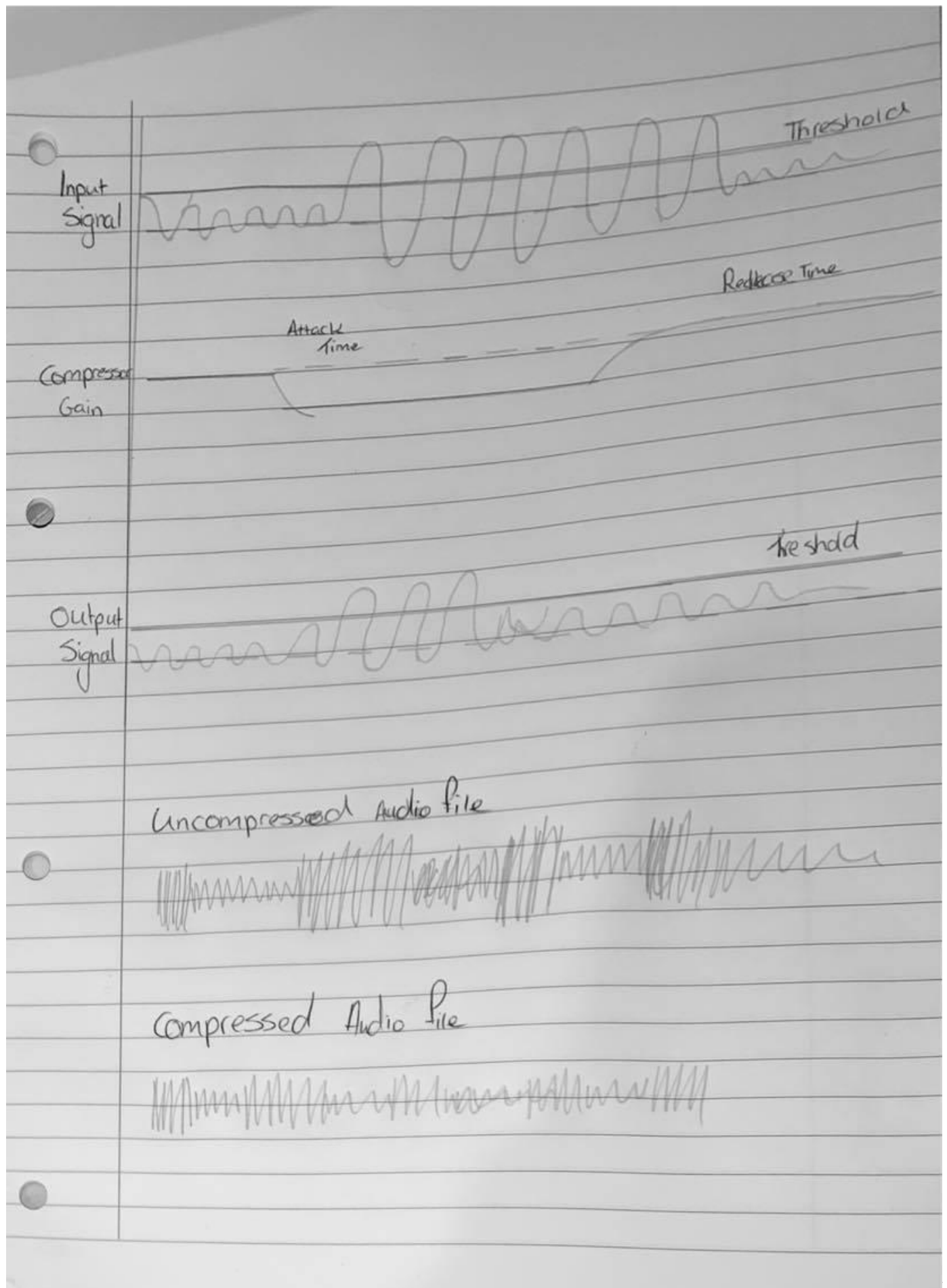
Task 3: Compression in multimedia

Research the following in your own words:

a. The importance of compression in images (100 words)

Image compression is used so often in the web as many images we've may seen can have been compressed for multiple reasons. This can benefit us by having the image load faster and web pages use less space on a webhost. It compresses the data that makes the image into a smaller size but it doesn't reduce the physical size of the image.

Some forms of storage devices such as hard drives, cd drives, cameras and computer have difficulty to load an uncompressed file quickly that is why image compression allows faster loading data. Size reduction is a very awesome benefit of image compression. Depending on what you're working on compressing an image can be compressed to your desired size. File size reduction is the best because it allows webmasters without the use of too much bandwidth or storage space to create good image quality sites.

b. Explain in detail using diagrams how compression in an audio file works. The diagram must be originally drawn by yourself, and not copied and pasted.

Threshold

Input
Signal

Reduce Time

Attack
Time

Compressor
Gain

threshold

Output
Signal

Uncompressed Audio file

Compressed Audio file

References

https://www.gamedesigning.org/career/video-game-engines/

https://www.websitetooltester.com/en/blog/best-game-engine/