

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	Amy Caruana	ID Number	0488000(L) Class / Group 4.2C

<input type="checkbox"/>	<i>Student's declaration prior to handing-in of assignment:</i> † I certify that the work submitted for this assignment is my own and that I have read and understood the respective Plagiarism Policy				
<input type="checkbox"/>	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.				
<table style="width: 100%;"> <tr> <td style="width: 30%;">Student Signature:</td> <td style="width: 30%;">A.Caruana</td> <td style="width: 10%;">Date :</td> <td style="width: 30%;">18/12/2020</td> </tr> </table>		Student Signature:	A.Caruana	Date :	18/12/2020
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Assessment Criteria	Maximum Mark	Mark Achieved
<i>KU1: Identify and describe different game engines for different tasks</i>	5	
<i>KU3: Describe file types for media assets</i>	5	
<i>KU4: State the relevance of compression settings in media assets</i>	5	
<i>SE1: Design and specify the details of the game to be developed, including a state machine</i>	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 <u>assignment brief</u>		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 <u>assessment decisions</u> (Sample)		For approval signature, please refer to electronic audit trail	
Learner's signature upon collection of corrected assignment.			

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

Task 1: Game Engines (KU1) – 5 marks:

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

1) **Unity:** Unity is a cross-platform game engine.

- It uses the C# and C++ programming languages.
- The game 'Rust' is programmed using the Engine.
- It uses both 2D and 3D engines.

2) **Construct 2:** Construct 2 is an HTML5-based 2D game editor.

- It uses JavaScript and C++ programming languages.
- A game programmed using that engine is 'Ghost Shooter'.
- It uses a 2D engine.

3) **Panda3D:**

- It uses Python, C++ and C programming languages.
- A game programmed using that engine is 'Air Blade'.
- It uses a 3D engine.

4) **Godot:**

- It uses C++, C#, and any other programming language with GDNative bindings.
- A game programmed using that engine is 'City Game Studio'.
- It uses both 3D and 2D game engines.

5) Source:

- It uses C++ programming language.
- A game programmed using that engine is 'Garry's Mod'.
- It uses 3D game engine.

Task 2: File types for media assets (KU3) – 5marks

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

- **SVG:** Scalable Vector Graphics (SVG) is an Extensible Mark-up Language (XML) based vector image format for 2D graphics with support for interactivity and animation. It is developed by W3C and has lossless compression.
- **JPG:** Joint Photographic Experts Group (JPG) is the most common image format used by digital cameras. It is developed by Joint Photographic Experts Group, it uses raster file format and has lossy compression.
- **GIF:** Graphics Interchange Format (GIF) is used for simple picture animations to be used on the web. It is developed by CompuServe, it uses raster file format and it has lossless compression.

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

- **MP3:** It is a lossy compressed audio file format developed by the Moving Picture Experts Group (MPEG) for digital audio. Its filename extension is .mp3 and it is open format.
- **WAV:** Waveform Audio File Format is an audio file format standard, developed by IBM and Microsoft, for storing an audio bit stream on PCs. It is an uncompressed lossless audio stream. It's filename extension is .wav and it is extended from RIFF.
- **AAC:** Augmentative and alternative communication (AAC) is an audio coding standard for lossy digital audio compression. This standard is a speech/writing replacement used to support a person who has difficulties communicating using speech.

Task 3: Compression in multimedia (KU4) – 5 marks

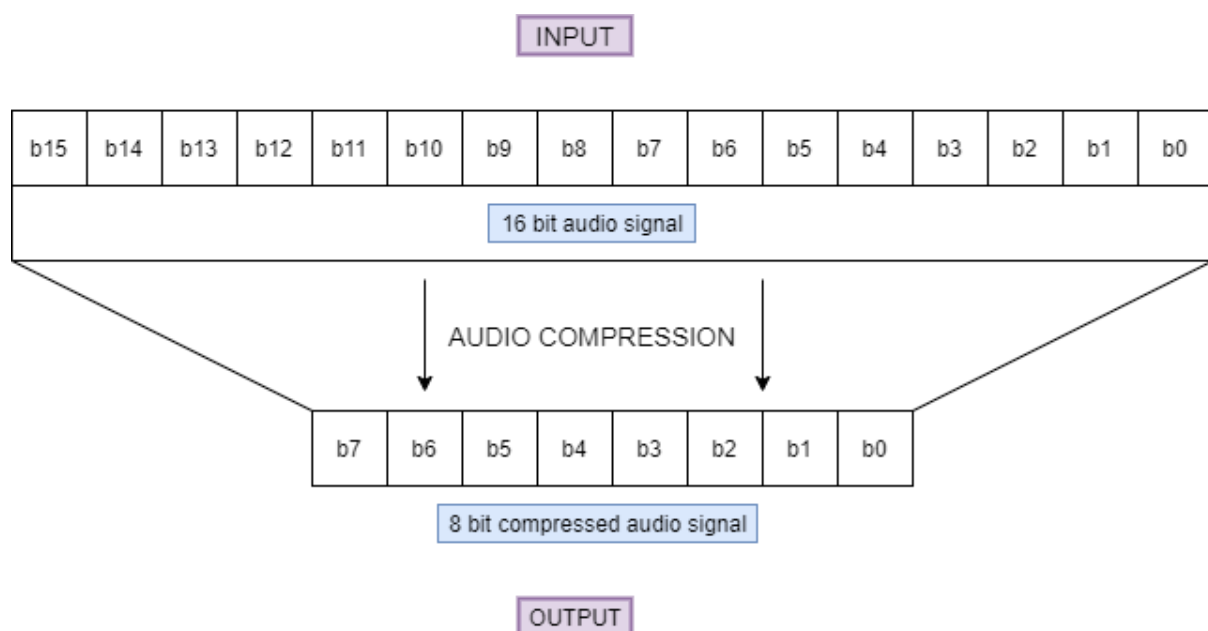
Research the following in your own words:

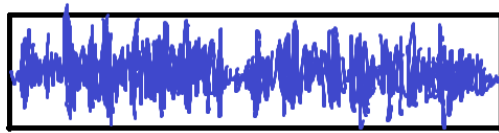
- a. The importance of compression in images (100 words)

Image compression is a type of data compression that is applied to digital images. Compressing images is very useful and important as when one adds compressed images to their website it not only increases the website's loading speed, it also saves the amount of data the website's visitors use to visit the site. There are many different methods that one can use to compress image file sizes, including changing file types, decreasing quality, minimizing image dimensions, and more. There are 2 different types of image types: these are raster images and vector images. Vector images use lines, curves, and coordinates to create images. This allows them to scale infinitely. Rasterised images, on the other hand, use pixels to create an image. There are two different types of compressions; lossy and lossless compression. Lossless file compression does not lose any information when a file is compressed. Meanwhile in a lossy file compression the size of the file is permanently reduced.

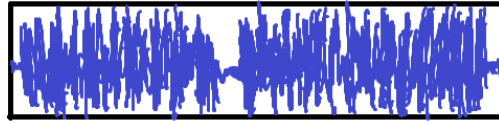
- b. Explain in detail using diagrams how compression in an audio file works. The diagram must be originally drawn by yourself, and not copied and pasted.

Audio compression is used to reduce the number of bits required to accurately reproduce an analog sound.





Before Compression



After Compression