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	Max Zammit	**ID Number**	**25702L**	**Class / Group**	**4.2C**

☑	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:		**Date :**	**12/18/2020**

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
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Unit: IICT4016 -
Programming for Computer Games

Home Assignment 1: Research and Design (24 hours)

Assignment Submission:

On your Assignment Repository, create a folder *Research and Design* and in it upload:

a. **Task 1, 2 and 3 as a single PDF**
b. **Task 4 as a JPG or PNG**

Max Zammit - 4.2C

Task 1: Game Engines (KU1) – 5 marks:

1. Unity:
    - Unity uses C# language, C++, and Boo.
    - A game made with unity is Heartstone.
    - The game engine supports both 2D and 3D.

2. Unreal Engine:
    - Unreal Engine uses C++.
    - A game made with unity is Robo Recall
    - The game engine supports both 2D and 3D.

3. GameMaker:
    - GameMaker uses C++, C# and Delphi.
    - A game created with GameMaker is Undertale.
    - GameMaker is a high-end 2d engine but it also supports some 3D graphics.

4. Godot:
    - Godot uses C++, C# and Visual Scripting.
    - A game created with Godot is Kingdoms of the Dump.
    - Godot comes with separate 2D and 3D engines.

5. RPG Maker:
    - RPG Maker uses Ruby as a programming language.
    - A game created with RPG Maker is Lockheart Indigo.
    - RPG Maker supports 2D but it doesn't support 3D.

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.

JPG – JPG is an image format which is lossy and compressed. It is commonly used by digital cameras and it is the most popular image format to share photos or images since it is a small image file size.

PNG – PNG is an image file format which is used for uncompressed and raster images. PNG can have transparent backgrounds and it is does not lose quality after image compression. PNG is mostly used in websites.

GIF – Gif is a series of images and is a continuously looping video without sound. Gif is commonly used in social media and during messaging.

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

MP3 – MP3 is a compressed audio file, and it sounds like the original recording. MP3 file format was commonly used to store music files on a computer or portable music players.

WAV – WAV is a lossless audio format, and it does not apply any compression to the recordings, so the file size is larger. It is mostly used by digital music companies.

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

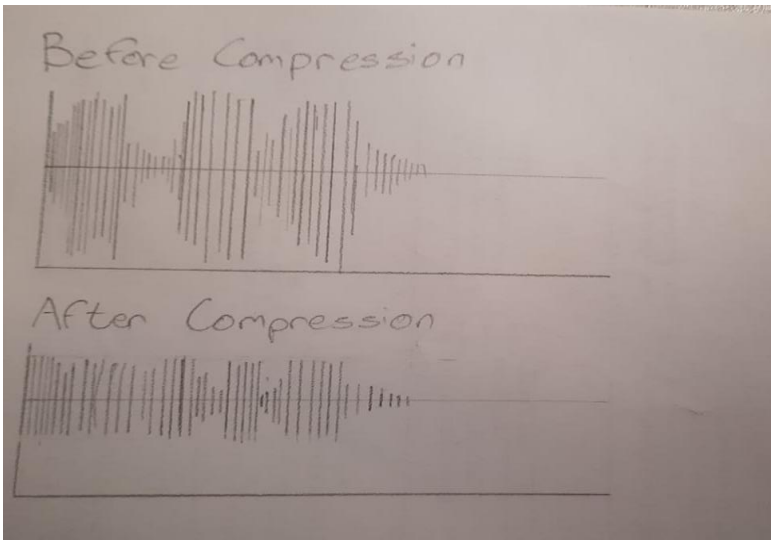
Research the following in your own words:

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

When compressing images, the goal is to have the best image quality possible with the least amount of image size for storage purposes. For websites image compression is very important to increase the loading speed while it also saves data visitors use to see the website. Image compression is also important to store images to reduce unnecessary memory space. Compressed images are easier to be transferred because of the size and it affects the quality of the image slightly, but the images would still be significantly different.

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.

Lossless compression reduces the size of the file, but it does not affect the quality of the sound. Compression is keeping a ratio between the loudest and quietest parts of the song. Compressing an audio file is measured by bit rate and it is controlled by kbps. When a person compresses an audio file, he reduces the amount of bitrate, therefore reducing the audio file size.



Assignment Rubric:

Criteria and tasks	**Marks**
KU1: Identify and describe different game engines for different tasks	
For 5 Game Engines list:	**5**
The Programming Languages used in it	
A game programmed using each Engine	
2D/3D Engine	
KU3: Describe file types for media assets	
Explain 3 image formats	**3**
Explain 2 audio formats	**2**
KU4: State the relevance of compression settings in media assets	
Research the importance of compression in images	**2**
Explain in detail using diagrams how compression in an audio file works	**3**
SE1: Design and specify the details of the game to be developed, including a state machine	
Create a good State Diagram for the scenario	**5**
All states must be listed in the State Diagram	**2**
All triggers must be correct in the State Diagram	**3**
TOTAL MARKS:	**25**