Joan Marie Spiteri 4.2A

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	Joan Marie Spiteri	**ID Number**	0056598M	**Class / Group**	4.2a

☐	*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:	J.M Spiteri	**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

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Programming for Computer Games

Research Assignment

Task 1: Game Engines

5 games engines

1. Godot

- The programming language used in Godot is C++.
- A game programmed using Godot is Gravity Ace.
- Godot is a 2D and 3D cross-platform engine.

2. GameMaker

- The programming language used in GameMaker is C++ as a runtime system as well as C# integrated.
- A game programmed using GameMaker is Hyper Light Drifter.
- GameMaker is a 2D and 3D engine but it is mostly used in 2D projects.

3. Unity

- The programming language used in Unity is C#
- A game programmed using Unity is Rust.
- Unity is a 2D and 3D engine

4. jMonkeyEngine

- The programming language used in jMonkeyEngine is Java.
- A game programmed using jMonkeyEngine is Nord
- jMonkeyEngine is a 3D game engine only.

5. Gamebryo

- The programming language used in Gamebryo is C++
- A game programmed using Gamebryo is Civilization IV.
- Gamebryo is a 3D game engine only.

Reference:

- https://www.gamedesigning.org/career/video-game-engines/
- https://godotengine.org/
- https://www.yoyogames.com/gamemaker
- https://unity.com/
- https://jmonkeyengine.org/

Task 2: File types for media assets

1. SVG

- SVG stands for Scalable Vector Graphics is a Markup Language. SVG does not rely on pixels to see the images but in fact it uses Vector data and are defined in XML text files. These images do not lose quality when scaling up or down unlike other image formats. SVG are ideal for charts, logo design, diagrams and many more.

  Reference: https://www.sitepoint.com/svg-101-what-is-svg/

JPG

- JPG stands for Joint Photographic Group. JPG file is an image saved in compressed image format with digital images. This is commonly used in digital cameras. JPG is web friendly as most of the time the files are usually smaller.

  Reference: https://www.paintshoppro.com/en/pages/jpg-file/

GIF

- A GIF stands for Graphics Interchange Format it is a bitmap format that supports fixed and animated images. A GIF file can be used to make static images, but the main purpose of the GIF is to create an animated image. IT is still an image not a video.

  Reference: https://www.howtogeek.com/441185/what-is-a-gif-and-how-do-you-use-them/

2. Mp3

- MP3 stands for MPEG Audio Layer -3, is a digital audio format to create high quality sound files. The main reason people use MP3 is the ability to compress the files makes them smaller in size that way it will require less disk space and it way more convenient. This is called lossy format.

  Reference: https://www.howtogeek.com/361516/what-is-an-mp3-file-and-how-do-i-open-one/

WAV

- WAV stands for Waveform Audio File Format. This Audio format was created by windows and IBM. The format uses containers to store the audio and bit

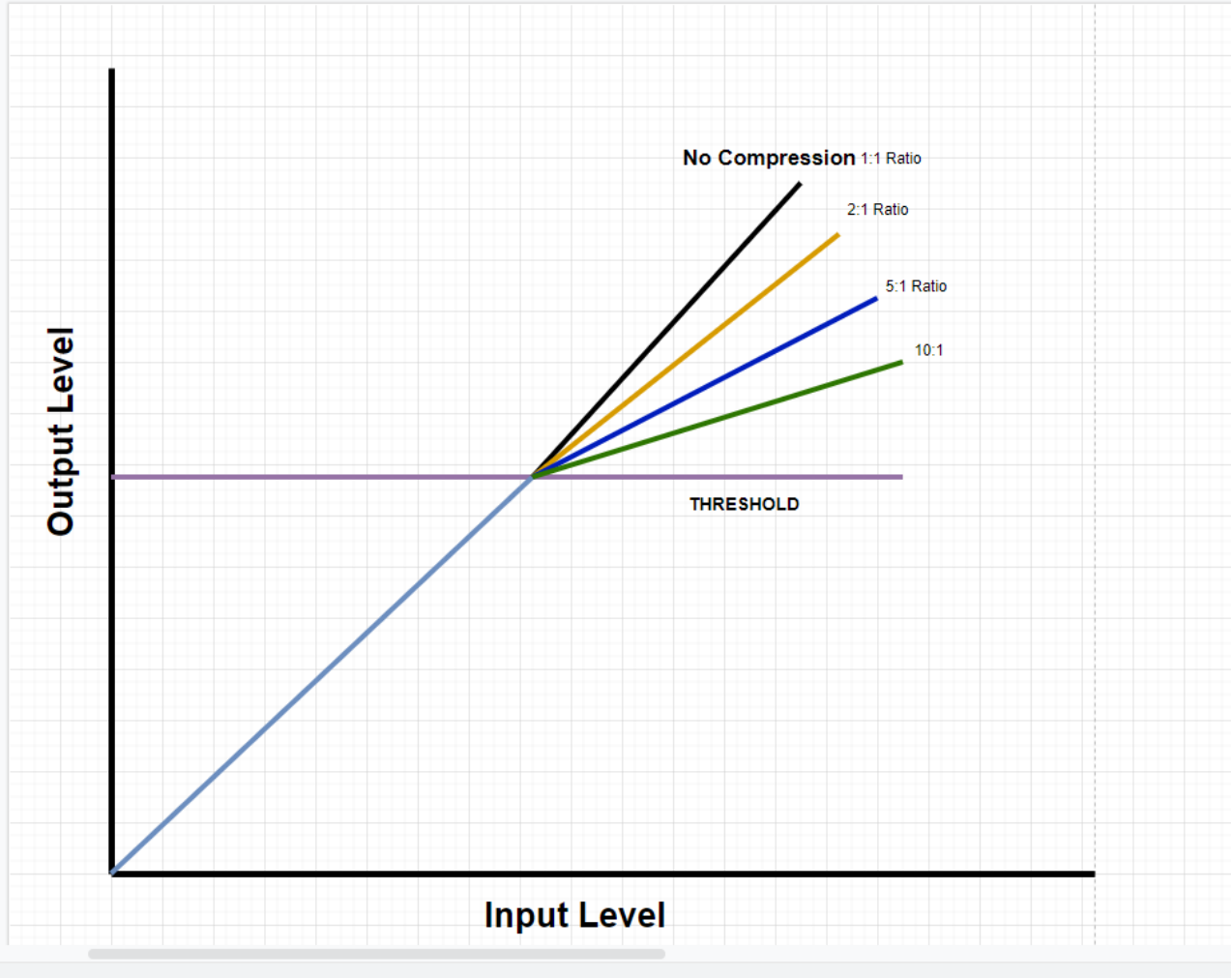
rate. unlike MP3, WAV are uncompressed meaning it can take a bit of space and this is called lossless audio.

Reference: https://www.howtogeek.com/392504/what-are-wav-and-wave-files-and-how-do-i-open-them/

Task 3: Compression in multimedia

A. Image compression is when you minimize the size of a graphic file without losing its quality. This will reduce the file size and will allow you to store more in memory space as well as it reduces time required for images to send or being download from certain web pages. The most common compressed graphic image formats are the JPEG and the GIF format. There are 2 kinds of image compression lossless and lossy. Lossless is used to keep the same quality of the file before being compressed and reducing its size. lossy will file compression will lose data and quality from the original file this is usually with files such as JPEG or an audio files such as MP3.

B.



This is an audio compression diagram with different ratio as the threshold is representing the compression.

Reference: https://www.barracuda.com/glossary/data-compression#:~:text=compression%20is%20MPEG.-,Why%20Data%20Compression%20is%20Important,transmission%20time%2C%20and%20communication%20bandwidth.&text=Compressed%20files%20require%20significantly%20less,decrease%20in%20expenses%20for%20storage.

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Task 4: Design using State Diagram