

## 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	Letizia Mifsud		ID Number	483197M	Class / Group	4.2B

✓	<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				
✓	<b>Student's declaration on assessment special arrangements (Tick only if applicable)</b> † 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%; border: none;"> <tr> <td style="width: 20%; border: none;">Student Signature:</td> <td style="width: 40%; border: none;">Letizia Mifsud</td> <td style="width: 20%; border: none;">Date :</td> <td style="width: 20%; border: none;">18.12.2020</td> </tr> </table>		Student Signature:	Letizia Mifsud	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	

<b>Assessor's feedback to student</b>
<i>(If necessary, use reverse side of page for IV feedback on assignment brief / sample of assessment decisions)</i>

	Name & Surname	Signature	Date
<b>Internal Verifier</b> : Approval of <u>assignment brief</u>		For approval signature, please refer to electronic audit trail	
<b>Lecturer / Assessor</b> : Issue of results and feedback to student		For approval signature, please refer to electronic audit trail	
<b>Internal Verifier</b> : Approval of <u>assessment decisions</u> (Sample)		For approval signature, please refer to electronic audit trail	
<b>Learner's signature upon collection of corrected assignment.</b>			

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>

# Home Assignment 1: Research and Design

## 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

### **Game Engine One: Unreal Engine**

The programming Language that is used by Unreal Engine would be C++ hence why the execution speed is better.

A game programmed by this engine would be Rocket leagues via Epic Games.

It is both a 2D and a 3D engine.

### **Game Engine Two: Unity**

Unity uses different programming languages which are C#, JavaScript, Boo, IronPython, Lua, C/C++ and Rust.

A game Programmed by this engine would be Trash Dash.

It is both a 2D and a 3D engine.

### **Game Engine Three: GameMaker**

GameMaker uses different programming languages which are C++ or Pascal.

A game Programmed by this engine would be Undertale.

GameMaker is meant for making 2D isometric games however there is functionality to create 3D graphics and effects.

### **Game Engine Four: Godot**

Godot uses different programming languages that are GDScript, Visual Scripting, C# and C++.

A game Programmed by this engine would be: The Legend of Zelda.

Godot is a both 2D and 3D engine. However, it excels in 2D compared to another engine while in 3D not so much.

## **Game Engine Five: AppGameKit**

The programming language used is AGK script that is a basic language with similar features of C++.

Games Programmed by this engine would be EduGuruMaths.

It is both a 2D and a 3D engine. However, it excels in 2D as in 3D it is a work in progress.

## Task 2: File types for media assets (KU3) – 5 Marks.

- 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 stands for Joint Photographic Experts Group that is used mostly for storing digital photos. It is mostly used by digital cameras. It is a standard image format for containing lossy and compressed image data.

### **GIF**

GIF stands for Graphics Interchange Formant and it is commonly used for images online and sprites in software programs. This format supports both animated and static images.

### **PNG**

PNG stands for Portable Graphics Format and it is most ideal for digital art such as logos or flat images. It has the ability to use a transparency channel and it increases the versatility of this file type.

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

### **MP3**

MP3 stands for MPEG Audio Layer-3 and it is a compressed audio file where it has a similar quality to CD audio tracks however, they are smaller in size due to using lossy data compressions. It is very convenient to store music on smartphones.

### **WAV**

WAV stands for Waveform Audio File Format and it is the standard format in which all CDs are encoded. It has a large file size due to being uncompressed however the sound quality is good.

### 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 very important as it reduces the file size therefore more memory space is left on the device as well reduces the time required to be downloaded or sent via the internet. Moreover, with image compression there is no degrading of the image quality. Having images that are compressed will also enhance user engagement as there loading time would be much faster. On the other hand, uncompressed images in a website will highly impacted the page loading speed as well as the storage. There are several ways in which an image file can be compressed which usually for the internet the most used formats would be JPEG format and GIF format.

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

Compression is the act of reducing the level of sound whenever the sound reaches a certain threshold. Therefore, the aim is to reduce the number of bits required to accurately reproduce an analog sound. There are two main types of audio compression and these are lossy and lossless compression. In a lossy compression, one would remove data which is useless to help reduce the media file size. On the other hand, lossless compression removes any unnecessary data which results in reducing the file size as well.

#### Diagram of lossless compression:

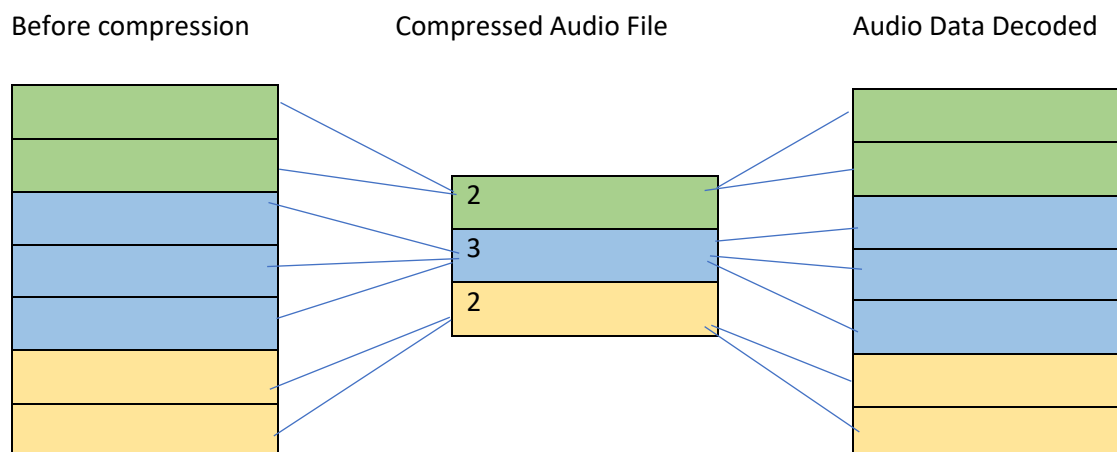


Diagram of lossy compression:

