Programming for Computer Games

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	Adam Debattista		ID Number	267800(L)	Class / Group	msd 4.2b

	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:	Adam	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)

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

Game Engine number 1: **UNITY**

- C# (C-sharp)
- Escape from Tarkov is one of Unity's most popular games.
- Unity is a 3D Engine, but it does use 2D for Sprites, but that's just about it.

Game Engine number 2: **Unreal Engine**

- C++
- Street Fighter V.
- Unreal Engine uses bot 2D and 3D for its hybrid games within the editor

Game Engine number 3: **Amazon Lumberyard**

- C++ engine source code
- Breakaway
- 3D Engine

Game Engine number 4: **CryEngine**

- C++, Lua and C#
- Aion: The Tower of Eternity
- 2D

Game Engine number 5: **Godot Engine**

- C++
- Ghost Study
- 2D and 3D

Task 2: File types for media assets

Choose 3 types of image formats and explain each image format.

JPG: JPEG is an image format particularly for those pictures made by computerized photography, is a broadly utilized type of lossy pressure for advanced pictures. It is conceivable to change the level of pressure, permitting a selectable tradeoff between extra room and picture quality.

PNG: The Portable Network Graphic (PNG) file format is ideal for digital art such as Logos, Icons etc... PNG uses 24-bit color as a foundation. It's mostly popular for its background transparency and increases the versatility of this file type.

GIF: A Graphics Interchange Format or mostly knows as GIF, is a lossless format for picture records that upholds both enlivened and static pictures. It was the norm for 8-digit shading pictures on the web until PNG turned into a feasible other option. You may have seen them utilized frequently in email marks. Vivified GIFs are a few pictures or edges consolidated into a single document.

Choose 2 types of audio formats and explain each format.

MP3: The mp3 is the most popular and used when it comes down to lossy audio that is a computerized sound record that has been compressed to a sensible size for streaming, downloads and most importantly, storage.
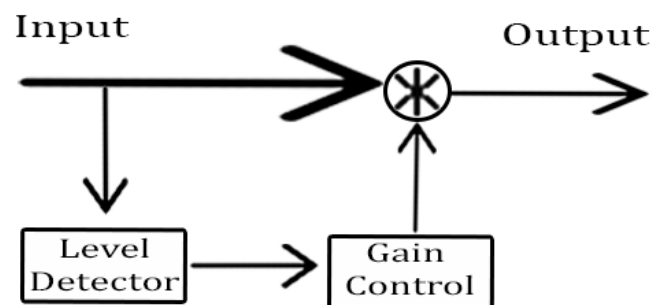
WAV: A WAV file is a lossless audio format in which the original analog audio recording from which it is derived does not compress. The Waveform audio file format was invented by Microsoft and IBM, and it is still commonly used by digital recording firms around the world but lost its popularity when MP3 came in the picture.

Task 3: Compression in multimedia

a. *The importance of compression in images*

There are 2 types of image images, which are Vector and Raster. They both have their own advantages and why they are used. Raster images uses Pixels and Dots to create an image, while on the other hand Vector Images use polygons, line segments that connect vertices' together. Both of these images are used in web design. Lossy compression and lossless compression are two types of compression. In simplistic terms, there is no data lost while lossless compression is used, but it is retained although some information is lost when lossless compression is used. For multiple image types, each of these compression types are useful and both decrease the file size when used. Despite the fact that data is lost as the file size is decreased, lossy compression can be more useful because lossless compression file sizes are usually bigger and restricted to only decreasing the size so much. Lossy compression can be managed to a maximum and it is necessary to learn how to limit lossy compression so that image quality and file size are matched.

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.

Adam Debattista