Assignment TCA

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	Francesco Scicluna	ID Number	0434702L
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: Date :

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:

Unity	**C#**	**Cycles**	**2D,3D**
Unreal	C++, Python	Rocket League	2D,3D
Frostbite	C++ C#	Need For Speed (2015)	2D,3D
Game Maker	Game Maker Language (Linked to C)	Undertale	Primarily 2D
Cry Engine	C++, Lua, C#	Deceit	2D

Task 2 – File types:

a) JPG – JPEG is a very commonly used file format that compresses images lossy therefore, data can be used. JPG is commonly used to save digital photography

PNG – PNG is a lossless file compression meaning that data is not lost when an image is compressed. PNG is a raster file format that supports transparency.

GIF – GIF is a file format that saves small looping animations and supports lossless compression meaning no data is lost when compressing a file

b) MP3 – MP3 is a coding format that saves audio and uses lossy data compression. MP3 is also the most common audio used

WAV – Waveform audio is an audio file format developed by IBM and Microsoft.

Task 3 – Compression in Multimedia

a) Image compression is rather important as it saves drive space and allows more images to be stored. Compression also decreases the time taken to transfer images from one device to another. Certain formats can compress using either 2 different techniques or not allow compression in general. These two techniques are lossy and lossless. Lossy compression is a file compression technique that removes several bytes from the original photo that can never be recovered, so once an image is compressed it can never be brought back to its original quality. Lossless compression on the other hand allows the decompression of files therefore, it allows for the original quality of the image to be obtained.

b) The reason why compression occurs is to save data and to be able to transfer files quicker. In images bites of the image is deleted which worsens the quality. In audio however, a threshold is used to set the level in which the compression occurs and only when a level passes the threshold will it be compressed. These levels, the input and output are measured in decibels (dB). In audio, the key term 'Knee' is used to describe the transition between decompressed and compressed audio. If the transition is harsh, it is known as a hard knee, if it is transitioned smoothly it is known as a soft knee. When an audio file is compressed two measurements of time are taken, an attack time and a release time. Attack time is the time taken to fully compress the audio and release time is the time taken to decompress the said audio file. Attack time takes between 20 – 800 microseconds whilst the release time takes around 40-60 milliseconds to 2-5 seconds.