

Assignment TCA

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 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.

