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	Zachary Perini		ID Number	0436801L	Class / Group	4.2A

Task 1:

Blender:

- C++
- Yo Frankie!
- 3D

Unreal Engine:

- C++
- Gears 5
- 3D

Unity:

- C#/C++
- Hollow Knight
- 2D/3D

Phaser:

- C#
- Magikmon
- 2D

GameMaker Studio 2:

- C#
- Forager
- 2D

Task 2:

Question A:

JPG: This type of image file can be opened in any browser. It is a very versatile image file type because of its compression capabilities which lowers file sizes drastically which makes JPG the best for sharing, displaying and storing.

SVG: This file type deals with mainly vector graphics which are scalable. This format uses an XML text-based format to describe how the desired image should appear on screen. These images can be scaled to any resolution without losing any quality what so ever.

PNG: This format uses the lossless compression type meaning it does not lose any data when being compressed. PNG files do not support animation. This file type stores computer graphics on websites. PNG files also support transparency for tracing purposes.

Question B:

MP3: Stores music/sound data. MP3 files can be compressed to reduce the size of the file and thus devices can store more music but at a loss of sound quality.

WAV: these types of files are uncompressed raw sound/music files. WAV files are mainly used in audio editing software, video games and operating systems.

Task 3:

Question A:

When it comes to compression of images there are 2 factors that are required to understand compression. Whether the image is a vector or a raster and whether it uses lossy or lossless compression. Vectors do not loose Image quality when the resolution is changed and so a website can display more vector images/graphics without using a lot of data since they can be compressed without a loss in quality. Lossy compression is when an image is uncompressed the resulting file would not be the same as the original this allows them to trade pristine quality for a smaller file size. The main image format that uses lossy compression is JPEG. Lossless compression is used when you don't want to compromise image quality.

Question B:

The main goal in audio compression is to reproduce the original sound by using less data people do this by reducing the number of bits required to reproduce the original sound. Lossy compression is one method of audio compression where any data that is not necessary gets removed to save space. This is the most commonly used technique. The bit rate measures the number of bits used to encode 1 second of audio if for example 8kbps is used to encode audio it is only using 8 kilobits to encode each second which is not ideal because major audio types have far higher bits and so the quality would be really bad. If a 192kbps bit rate is used the quality would be far better as it can encode finer audio details.

Lossless compression is used to reduce file size while retaining the original audio. This a for of reversable data-compression.