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	Nicholas Falzon		**ID Number**	**426402L**	**Class / Group**	**4.2C**

X	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:	NFalzon **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)

	Name & Surname	**Signature**	**Date**
Internal Verifier : Approval of <u>assignment brief</u>		For approval signature, please refer to electronic audit trail	

Lecturer / Assessor : Issue of results and feedback to student		For approval signature, please refer to electronic audit trail	
Internal Verifier : Approval of _assessment decisions (Sample)_		For approval signature, please refer to electronic audit trail	
Learner's signature upon collection of corrected assignment.			

Assessment Criteria
KU1: Identify and describe different game engines for different tasks
KU3: Describe file types for media assets
KU4: State the relevance of compression settings in media assets
SE1: Design and specify the details of the game to be developed, including a state machine

Task 1: Game Engines

Unity

Programming Language used = C#, C++ and Boo
A game programmed using Unity is *Hellpoint*
This game engine supports 2D and 3D

GameMaker

Programming Language used = GameMaker Language and C++
A game programmed using GameMaker is *Katana Zero*
This game engine supports 2D and 3D

CryEngine

Programming Language used = C++
A game programmed using CryEngine is *Far Cry Vengeance*
This game engine supports 3D

AppGameKit

Programming Language used = AGK
A game programmed using AppGameKit is *Echoes+*
This game engine supports 2D and 3D

RPG Maker

Programming Language used = Ruby
A game programmed using RPG Maker is *94 To the Moon*
This game engine supports 2D

Task 2: File Types for media assets

Choose 3 types of image formats from SVG, JPG, PNG, WEBP, GIF, BMP and explain each image format, in your own words

JPEG

JPEG is an image format which contains lossy and compressed data. This image type maintains a reasonable quality which also reduce the image file size. Since this file type does reduces the image file size is easily shared between users. This image format is best used for websites.

PNG

PNG is an image format which is used for uncompressed and raster images. PNG is one of the image formats which can display transparent backgrounds. Also, this contains a 24bit RGB palettes and greyscale images. This image format is best used for web images.

BMP

BMP is an image format which does not have any compression or information loss. This can allow images with very high quality with the downside of having a large file size. This image format is best used for high-quality scans.

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

MP3

MP3 is one of the most popular audio formats used. This is a digitally encoded file format for audio files. This uses a Layer 3 audio compression. The compression is attained by using $1/10^{th}$ of the size of the *.WAV* file. This gives an advantage of streaming over the internet.

WAV

The WAV audio format is a format which does not apply any compression to the audio recordings, and it uses different sampling rates and bitrates. Since WAV files are used for audio recording, they are larger in size.

Task 3: Compression in multimedia

The importance of compression in images

When it comes to the importance of compression in images, the goal is to have the best image quality possible and to have the least image size for storage purposes. When it comes to create and to host a website, one needs to compress the images to reduce the size and in the long run, it will prevent the website to take longer to load up the images and data. The downside of compressing images is that an image can be decompressed to the point that there will not be as much data to read it and it becomes smaller with the loss of quality. This will also decrease the amount of sharpness the image will have hence it becomes blurrier and more difficult to see.

Diagram on how compression in an audio file works

To compress an audio file, one needs to reduce the number of bits to precisely copy an analogue sound. One way on how to compress an audio file is by the bit rate. This is done by choosing the limit on how the audio can be compressed for example 8 kilobit-per-second. When compressing an audio file, you can get a few things right but not the original piece of audio. Another way on how to compress an audio is how the brain understands sounds. This is basically using the range of how the human can hear. We can eliminate the sounds which cannot be heard outside of the range, but it will damage the recording. Also, we can use a load sound and a quiet sound and play it at the same time, and it will take the advantage of saving bits from the original file.