# ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)

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|---|---|---|---|---|---|
| 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 | Kyle Tabone | ID Number | 239103L | Class / Group | 4.2A |

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|---|---|
| ☒ | *Student's declaration prior to handing-in of assignment:*<br>❖ *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)***<br>❖ *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.* |

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|---|---|---|---|
| Student Signature: | Tabone | 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** |
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| ***(If necessary, use reverse side of page for IV feedback on assignment brief / sample of assessment decisions)*** |

# Programming for Computer Games

Kyle Tabone

## Task 1:

### 1) Unity

- C#, UnityScript, also known as JavaScript, Boo
- Fall Guys
- Both 2D and 3D

### 2) Unreal

- C++
- Ark: Survival Evolved
- Both 2D and 3D

### 3) Construct 3

- No codes
- Mighty Goose
- 2D

### 4) Godot

- GDScript, C#, C++, visual scripting, python
- Ex Zodiac
- Both 2D and3D

### 5) GameMaker

- Script Canvas and Lua
- The Grand Tour Game
- 3D

## Task 2:

### a) Image formats

- GIF is an animation provided with pictures of layers and uses lossless compression (uncompressed)
- PNG supports transparency, high quality and uses lossless compression (uncompressed)
- JPEG uses lossy compression (compressed) and may lose some image data causing quality loss

## b) Sound formats

- MP3 uses lossy compression (compressed)
- WAV uses lossless compression (uncompressed)

# Task 3:

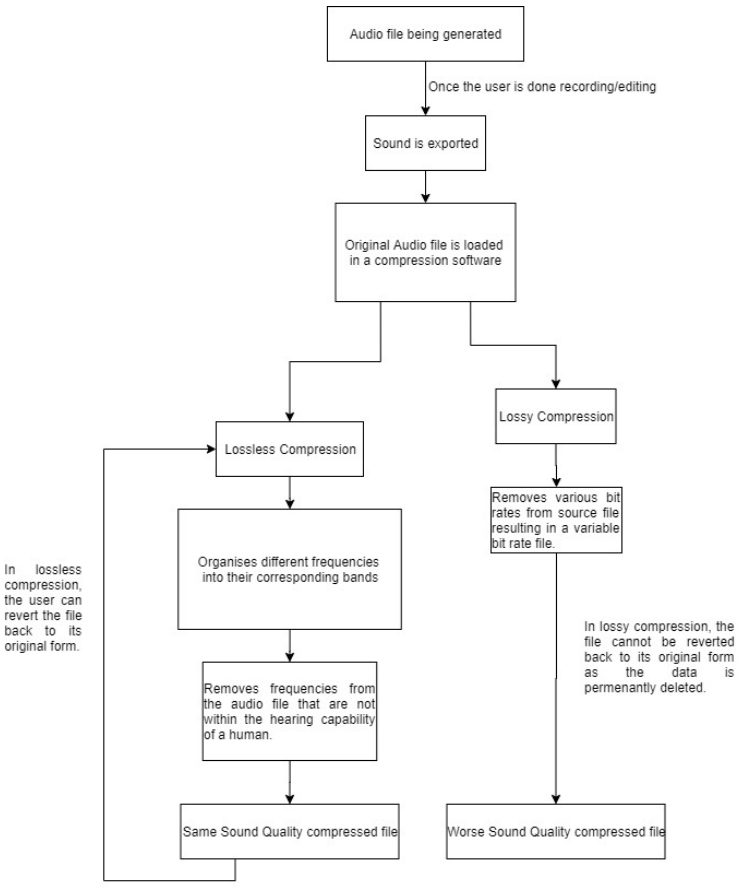
## a) Image compression

Image compression is lowering the size in bytes of a graphics file without decreasing the quality of the image. The reduction in file size allows more images to be stored in each amount of disk. It also reduces the time required for images to be downloaded / uploaded from / to websites.

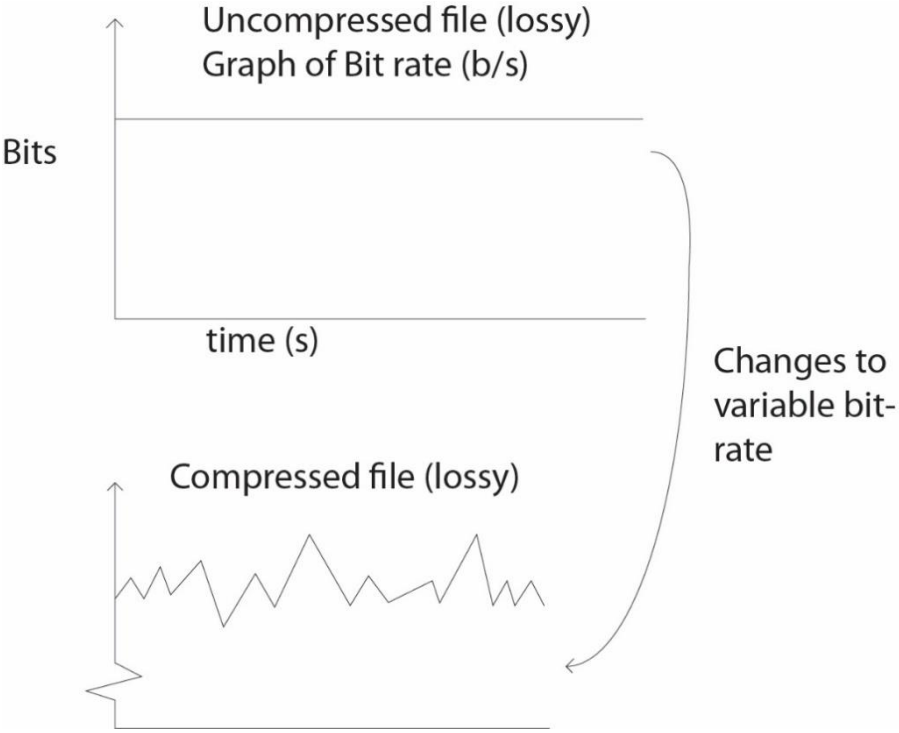
There are lots of different ways in which images can be compressed. For Internet use, the two most common compressed graphic image formats are the JPEG and the GIF format. The JPEG is more often used for photographs, while the GIF is commonly used for images in which shapes are very simple.

## b) Audio compression

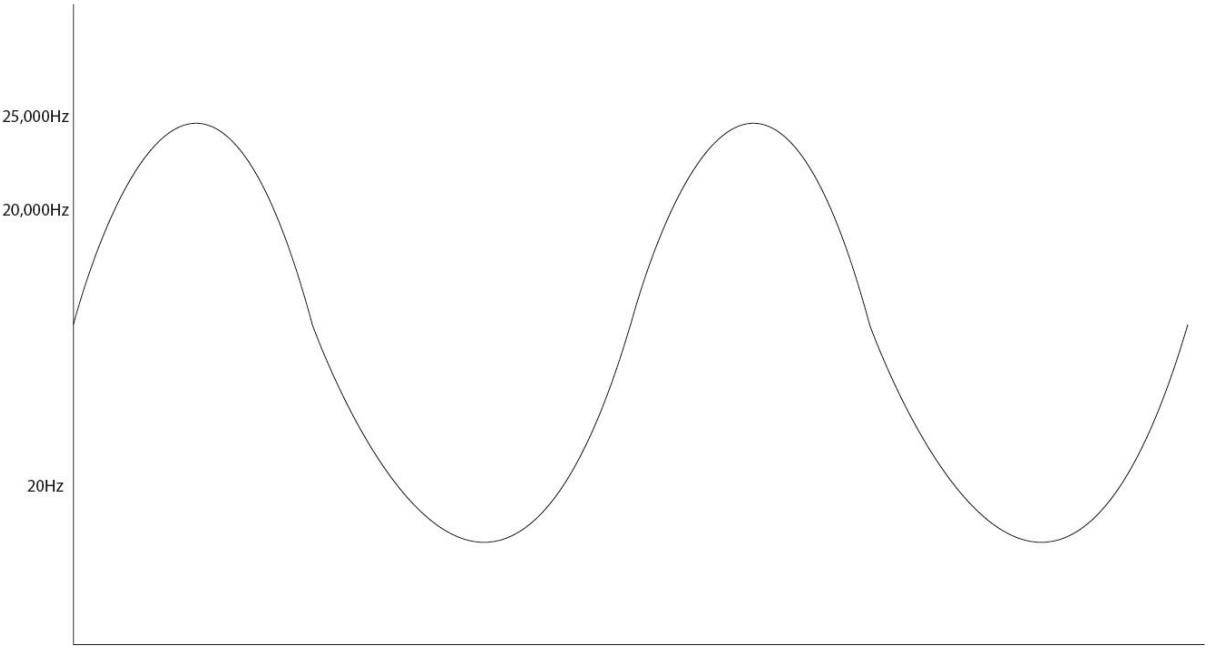
The below diagram shows a flowchart



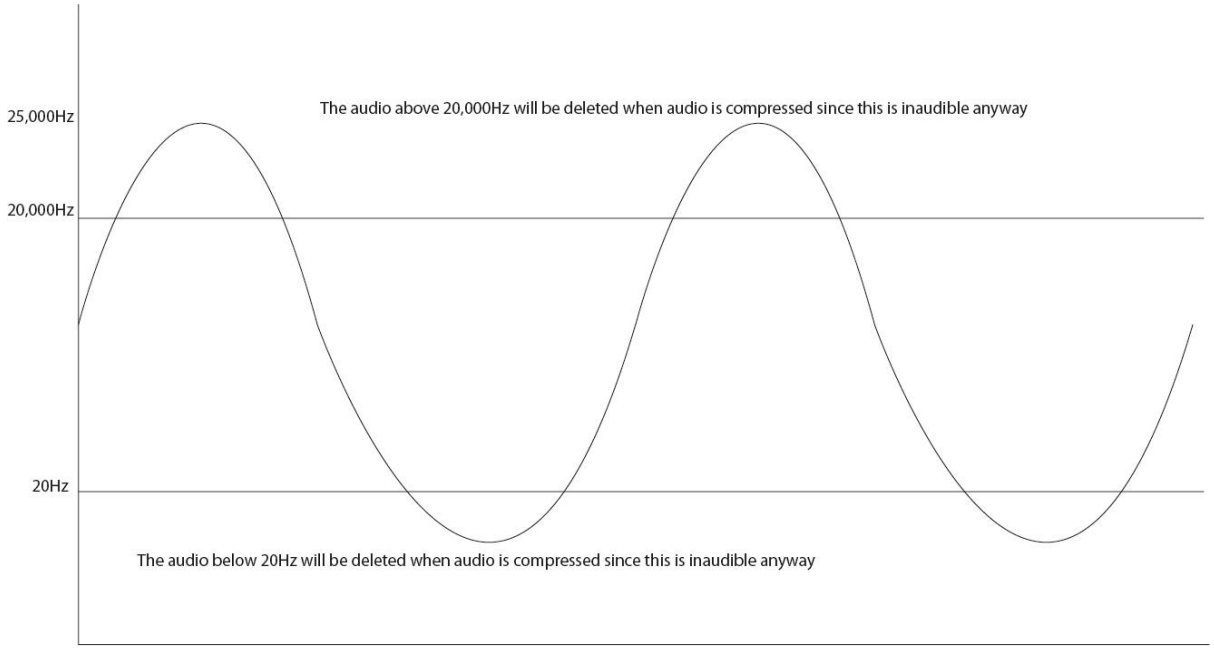
The below diagram shows a lossy audio file




The below diagram shows a non-compressed audio file.




This diagram shows how an audio file is compressed. We know that sounds below 20Hz and above 20,000Hz cannot be heard by a human being, therefore the compressions process in an audio file deletes all sounds that are inaudible leaving only the sounds that we can hear.


25,000Hz
The audio above 20,000Hz will be deleted when audio is compressed since this is inaudible anyway
20,000Hz
20Hz
The audio below 20Hz will be deleted when audio is compressed since this is inaudible anyway