Programming for Computer Games 24Hr Assignment.

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Task 1: Game Engines

1. Unity

- Unity uses the C# programming language as it is much easier to understand and learn.
- Unity is an engine which creates a 2D and 3D creation games.
- A Game which is programmed by unity engine is Among Us.

2. Unreal Engines

- Unreal engines use the C++ programming language. It also provides built in tools.
- Unreal Engine creates both 2D and 3d games but focus more on the 3D games.
- A Game which is programmed by the Unreal engine is Fortnite.

3. Godot Engine

- Godot Engine uses GDscript as the main programming language which is similar to the Python Language.
- Godot engine creates both 2D and 3D games but focuses and exceeding more on the 2D games.
- A Game which is programmed by the Godot Engine is Dog Mendonca & Pizza Boy.

4. Game Maker Studio 2

- Game Maker studio 2 uses its own language named GameMaker Language. It includes aspects of JavaScript and other languages such as C# and C++.
- Game Maker Studio 2 is mainly focused on 2D games but has some capabilities for an 3D games but it doesn't offer as much as a 3D game engine offers.
- A Game which is programmed by the Game Maker Studio 2 are the YOYO games such as Risen Kingdom.

5. Construct

- Construct is made of 2 different types of languages which are C++ and JavaScript.
- Construct is a 2D based game editor.
- A Game which is programmed by Construct is The Next Penelope

Task 2: File Types for Media Assets

Question a)

GIF stands for Graphics Interchange Formats; it is a series of images or soundless video that will loop continuously without stopping, creating an animation. Another Image format is the JPG. JPG (Joint Photographic Experts Group) is used to compress the containing digital images, decreasing the file size but the quality of the image will be compromised as the compression may permanently delete unwanted information. Lastly, a PNG (Portable Network Graphic) is normally used to provide a transparent background for digital art , logos atc.

Question b)

An MP3 is the compression of a sound sequence into a very small file for storage or to be transferred over the internet. It is also a king of technology that could be used to record. Another audio format is the WAV. A wave file is used to store digital audio files and does not apply any compression as it stores audio with different rates.

Task 3: Compression in Multimedia

Question a)

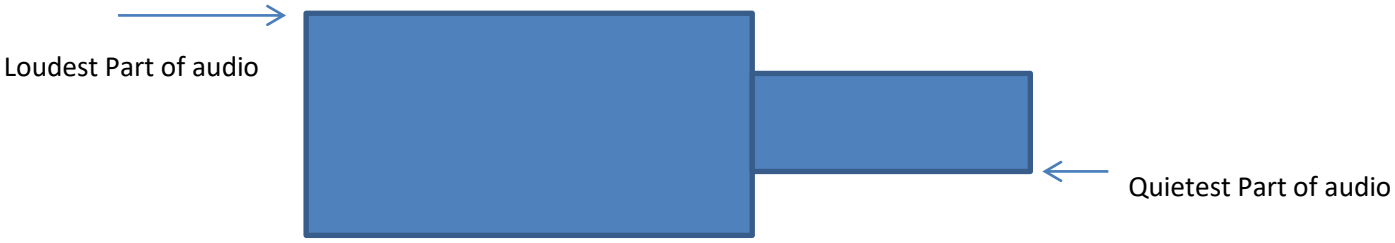
The importance of compressing images is that it reduces the bandwidth and storage which then allows more images to be stores in the given amount of the memory space. This also reduces the time required to send the images over the internet and viewing the image on a website. Another good reason why compressing image is important as it would maximize the image quality. Some peripherals load very large uncompressed images which can slow down the devices or have a difficulty loading

the uncompressed files quickly. Therefore image compression allows data to load faster on slower devices and prevent any data loss.

Question b)

Compression is a useful tool in reducing the file sizes. This means that when audio is compressed some data is removed. The goal is the reduce the number of bits required to produce analogue sounds with Lossy data compression. The first process is to remove any non-important background audio with frequencies that the human ear does hear, this is called psychoacoustics. Then we reduce the difference between the loudest and quietest parts of the audio. This can be done by reducing the loudest parts of the audio and increasing the result so that the quieter parts are more apparent.

Example: The following shows the loudest and quietest parts of the audio.



With the help of the compressor we can reduce the input signal where it is loud and leave it when it is quiet. When it is outputted and raised the difference of the loudest and quietest is less, thus compression. The below diagram shows the following.