Home Assignment 1

Task 1: Game Engines

1. Unity

- The language that's Unity operates with is known as C# which is proclaimed as C-sharp. The majority of the languages that Unity deals with with are object-oriented scripting languages. Similar to any language, scripting languages consist of parts of speech, syntax, and the fundamental parts are called classes, variables, and functions.
- A game programmed by Unity is ‘GooBall’.
- Unity is a 3D engine that also contains 2D which is mostly just sprites that are textures on a flat mesh.

2. Unreal Engine

- The engine code in Unreal Engine is composed in C++ for execution speed. Moreover, in the process of constructing a genuine game code, a mixture of Blueprint (Epic’s proprietary visual scripting system) and C++ is used.
- A game programmed by Unreal Engine is ‘Adventure Pinball: Forgotten Island’.
- Unreal Engine is a 3D game engine but it is also used to create 2D games.

3. GameMaker

- Game Maker is a game development software application dictated by Mark Overmars in the Delphi programming language. It is fabricated to enable its users to effortlessly develop computer games without the need to learn a complex programming language such as C++ or Pascal instead it can be used by “point-and-click” to create games faster and easier.
- A game programmed by GameMaker is ‘Shovel Knight’.
- GameMake supports both 3D and 2D, but it is mostly used for 2D projects.

4. Godot

- Foremost, Godot has its own IDE, subsequent Godot makes use of a language named GDScript, which is noticeably equivalent to Python. With the exclusion of that the user has the ability to solely write games in GDScript, which makes it immensely simpler to master than C++ or even Python.
- A game programmed by Godot is ‘Meterorite’.
- Godot is a free and open source for 3D and 2D engine. However, 3D is not the best option but it’s improving by time.

5. AppGameKit

- AppGameKit is a cross platform, mobile friendly 2D/3D game engine, although 3D is a work in progress. AGK is programmed mainly using AGK Script, which is a general dialect with some C++ style features.
- A game programmed by AppGameKit is ‘Driving Theory Test’.
- AppGameKit offers tools to aid in asset creation and placement for 3D and 2D games.

Task 2: File types for media assets

1. JPG

“Joint Photographic Group” or in short JPG is a raster format oftentimes manipulated for photographs on the net. A JPG file is an image confined in a compressed image format regulated by the Joint Photographic Experts Group or in short JPEG. JPEG files are web friendly since the files are commonly smaller, mainly employed for stocking digital photos and deployed by a large number of digital cameras to save images.

2. PNG

PNG is short for “Portable Graphics Format”. It is the most commonly exercised uncompressed raster image format on the web. This lossless data compression format was constructed to take the place of the “Graphics Interchange Format” or in short GIF.

PNG file format is perfect for digital art such as icons, logos, flat images and so much more. It makes us of 24-bit colour as a base and has the potential to operate a transparency channel increases the versatility of this file type.

3. GIF

“Graphics Interchange Format' known as GIF is an image file format mainly harnessed for sprites in software programs and images on the web. Contrary to the JPEG image format, GIFs makes use of lossless compression that does not degrade the quality of the image.

4. MP3

MP3 stands for MPEG Audio Layer-3. It is a compressed audio file format formed by the “Moving Picture Experts Group’ which is short for MPEG. A common **MP3** file sounds equivalent to the original recording, however, it demands remarkably less disk space.

5. WAV

‘Waveform Audio File Format” or in shorter form known as WAV is an older format. Despite being the oldest format, the WAV file has multiple appreciable advantages when it comes to professional, high fidelity recording applications. Due to it’s precise, lossless format the audio quality won’t be lost when the format reproduced.

Task 3: Compression in multimedia

Image compression is decreasing the size in bytes of a graphics file without lowering the quality of the image to a displeasing level. The reduction in file size permits an increased number of images to be stacked in a memory disk or in a given amount of disk. In addition, images typically contain a huge amount of useless redundancy so compressing images saves storage space as nowadays storage costs a bit of money. Furthermore, the time needed for images to be sent over the Internet or downloaded from Web pages is reduced and will help a website load much quicker.

- How compression in an audio file works: Lossy Compression