

**Task 1: Game Engines (KU1) – 5 marks:**

- **Unreal Engine**  
The Unreal Engine uses mainly C++ as their programming language.  
A game programmed by that engine is a first-person shooter called Bioshock.  
Unreal engine can both create both 2D and 3D games.
- **Unity**  
Unity uses C#(C-sharp) as their programming language.  
A game programmed by Unity in 2020 is Fall Guys Ultimate Knockout.  
Unity is a 3D engine but once can use 2d sprites in their creations. But it can do both 2D and 3D.
- **CryEngine**  
CryEngine use C++, C, and Lua as their programming languages.  
A game programmed by CryEngine is Warface.  
Upon the research that I made I found that CryEngine is both 2D and 3D based engine.
- **Amazon Lumberyard**  
Amazon Lumberyard use C++, C# and Lua as their programming languages.  
A game programmed by this game engine is Star Citizen.  
Amazon launched Lumber yard in 2016 as a 3D game engine.
- **Frostbite**  
Frostbite uses C++ as their programming languages.  
A game coded by this game engine is Battlefield.  
Frostbite supports both 2D and 3D.

**Task 2: File types for media assets (KU3) – 5marks:**

**3 types of image formats**

- 1) **PNG** is a format where is file format can support lossless data compression. A PNG can support palette-based images used 24-bit RGB or 32-bit RGBA. This PNG format consists of basic pixels and chunks.
- 2) **JPG** is a file format that consists of a bitmap where this format consists of individual pixels that are combined to create one image where one picture has countless number of pixels of colour which are coded in a specific hue.
- 3) **GIF** is a lossless format where it comes to image files where it can support animated pictures or static images. GIF support 8 bit per pixel for each image where it can let an image have its own palette for each frame.

**2 types of audio formats**

- 1) **MP3** is a compressed audio file format. When coming to sounds from the original and the mp3 version it is like the original but requires less disk space.
- 2) **WAV** the most common WAV audio format is uncompressed audio in the linear pulse code modulation format. Audio experts used this audio type for maximum audio quality where it is sample as 44,100 Hz with 16 bits per sample.

### Task 3: Compression in multimedia (KU4) – 5 marks

When coming to the compression of images the biggest problem that people think of is that the quality will not be good but if the image size increases even the quality increases. The file size is very important when it comes to loading times because there needs to be a balance between the image size and the quality size. When coming to image compression there are different types of images which are vector and raster. Also there are 2 different types of compressions which are lossless and lossy compression

Explain in detail using diagrams how compression in an audio file works. The diagram must be originally drawn by yourself, and not copied and pasted.

