**GAME ENGINES**

Graphical user interface, application

Description automatically generated

**INTRODUCTION:**

Game engine is a software framework designed to create and develop video games. Developers use them to create games for mobile devices, personal computers and consoles. The different game engines available will have their own unique features and customizations but most share common set of functionalities. First, they typically house the main game program that defines the game logic and different states that theuser will experience. They also support the graphical appearance of the game through a rendering engine. Audio is often supported through a audio engine which defines what and when the sound should be played. There are also other common game elements such as networking, AI, physics, streaming, memory management, threading etc. are the modern components of the game.

Game engine is a combination of tool sets and content pipelines used in the game areas like graphics and code scripts. It will be a little quick task for developers to create games using game engine. Developers need not to recreate a lot of conventinal infrastructure. Game engines are also called as “middleware” because they provide a flexible and reusable software platform with all the core functionality needed to develop a game. Developers can build layers of technology on top of game engines. It helps developers to extend their capabilities and improve their development efficiency.

**HISTORY:**

In the early days of gaming developers had to create their game technology from stracth. Back then, most gaming was done on consoles or computers, and the specific game information was housed on disk. The art and audio assets were loaded from the media, and the game logic tells the computer/console when to grab those assets and how ton deploy them on the screen. These assets are then deleted from the memory once gameplay no longer need them by which memory can be saved for future games. The instructions for all this work was written from scratch every time a game was developed. It was inefficient and slow.

In order to simplify the game development process, frameworks such as game engines that has removed the need to create all the things from scratch. It also increased efficiency of game development and made easy and quicker for game developers.

**Some of the engines of the early days of gaming are:**

* 1991’s Wolfenstein 3D engine by john carmack and IDE software which create the first person format that helped shape modern gaming.
* 1993’s ID Tech 1 or the “doom engine”, also developed by john carmack and ID software which provided a huge step forward in computer graphics and spawned Doom.
* Build engine, released in 1995 by Ken Silverman for 3D realms which was one of the prolific first person shooter engines of all the time.
* XNGine, released in 1995 by Bethesda which was a breakthrough engine for 3D development and was used by early terminators.

As mentioned earlier, use of the rendering capabilities of the engine will tell about the appearance of the game. This can include the display of 3D models, textures, animations and other varied asset types. It’s common for Artists to create these assets in separate applications like maya, 3D studio max, or Blender-white. Whereas **CryEngine, unity, and unreal are** among the competitors trying to capture the market of the developers targeting AAA visuals.

**ADVANTAGES:**

* Code recyclying.
* Real time rendering and lighting.
* Capable of 3D applications.
* Artificial intelligence.

**DISADVANTAGES:**

* If there is a bug in the engine, unless it is a open source we can’t fix it.
* Game engines generally are generally not free.

**Conclusion:**

A single game engine can now provide all the tools needed for game development. A very beneficial software development kit that helps game developers a lot to develop game and increase efficiency in a quicker and easy way.

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