TASK 1 – (P1.1)

Research the current state of the art with respect to game engines and outline what the most common game

engines in use today are. Write a short paragraph explaining at least three interactive game engines with one

example of a game from each.

There has been a lot of changes and development in the gaming industry these past few years and it will continue to growth in time.

Unreal engine 4

Unreal engine 4, developed by Epic, is the most popular game engine. Mostly used for 3D platforms and can create games for PC, Mac, Xbox 360 and PS3. The aim of this game engine is to develop visuals that do not require a lot of programming. Developers can modify changes faster and efficiently by using Hot Reload and Immersive View. Mass Effect was one of the games that have been created using Unreal Engine.

Developer

: Epic

Platforms

: PC, Mac, Xbox 360, PS3

Browser support

: No

Cost:

Available on request

Published titles

: Mass Effect (Bioware), The Last Remnant (Square Enix), Lost Odyssey (Mistwalker), TheWheelman (Midway)

Unity 3D

Construct 2

Construct 2 is a game engine that is great for individuals who want to start learning game developing.

Task 2

Explain how different screen sizes are catered for using the Unity game engine, with reference to the ScreenToWorldPoint function.

Usually, Unity 3D developers work on standalone view, which is 1280px by 768px ax can be used in a wide variety of devices.

When calculating the screen size, developers use either world space or screen space to calculate it. Screen space

Task 3

Explain how a simple sound effect is implemented in Unity, with reference to audio listeners.

To add sound clips into Unity, create a new folder and name the folder. Import your sound clip externally by adding them in the folder. Sounds clips can be imported as .wav or .mp3 format.

There are two types of audio components that can be implemented into Unity and they are the Audio Listener and the Audio Source.

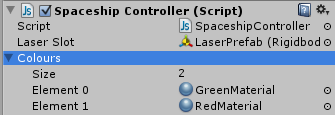
Audio Source assigns a sound to the audio clip that the source will play. These can be place both on 2D and 3D space, depending if one is working on 2D or 3D graphics. In the Audio Source property tag, the Play on Awake option is already ticked by default. Play on Awake means that when a prefab is instantiated, this sound will automatically play. For example, if I press a button that sets of the laser from a spaceship, the laser prefab will output a sound.

Audio listener acts as a microphone. It receives data from any given Audio Source in the scene and outputs sound from the speakers of any device the game is being played from. The Listener is commonly added to the main camera or the game object that represents the player for example a point-of-view shooting game. It is recommendable to have only one Audio Listener per scene in order for it to work properly. When Audio Listener is placed onto a game object or main camera, any Audio Sources that are close to the Audio Listener will be picked up and outputs the sound to the device’s speakers

Task 5 – (P3.1)

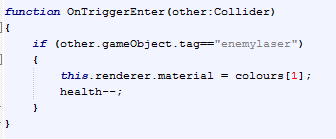
Explain how to change materials of different objects based on in-game events, with reference to the OnTriggerEnter and OnTriggerExit function.

To create different materials, one has to first create them. After that is done, the developer will then enter a script that has controllers for a game object. In this case, I will be using the spaceship. In the Spaceship Controller script, I have typed in var colours:Material[]; to create a variable and added Material[] to tell the programme that I will be using materials that I have created for my spaceship. The Unity 3D software, Colours option will appear in the script tab that is attached to the spaceship object. When opening the Colours option, Size will appear under it. From here, the developer can insert a number which adds how many materials the object has. The first material will be calculated from 0. In the image example hereunder, if the developer wants to give the spaceship 2 materials, he will type 2 near size and 2 elements will appear under size, element 0 and element 1. To insert the desired materials, just click and drag the elements in the order that you wish.



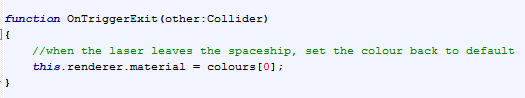
Image

After that is done, we have to go back to the Spaceship Controller and enter the OnTriggerEnter and OnTriggerExit function. OnTrigger functions can only be implemented if both the collider and the trigger have a rigidbody attached to them. Also it is important that the game objects have a tag attached to them as well.



Image

In the image above is an example of how OnTriggerEnter function works. The trigger in this example is the laser from the aliens. The collider will be the player’s spaceship. If the trigger collides with a game object that has a tag equals to “enemylaser”, the spaceship will render colours[1], which is element 1. Element 1 is attached to the red material that we dragged next to the element in image 1. Apart from changing the material, the spaceship will also lose 1 health.



Image

In this next image is an example of how OnTriggerExit function works. When the enemylaser leaves the spaceship, the spaceship will render colours[0], which is element 0. Element 0 is attached to the green material that we dragged next to the element in image 1.

TASK 7 – (P4.1)

Conceptualize an interactive system by explaining how to interrupt or control a sequence of events using

Unity, with particular reference to the start(), update() and WaitForSeconds() methods.

Codes that are written in function start() usually are the first to appear when the game starts and they only appear once. GUI. labels are commonly used in function start().

Codes written in function update() are implemented by frame second. If and else functions are two types of functions that are commonly used to change and modify how the game behaves.

WaitForSeconds() is used when you want a game object to appear later on in the game and not at the start of the game. A yield statement is required in order for this function to work.