*Programming of Computer Games*

*Yanika Bugeja – 4.2A*

Question 1(A)

Unity and Construct 2 are two different game engines, meanwhile for this particular project I opted for unity as my games engine. The reason being why I opted for Unity over Construct 2, due to its popularity, being used by a wide range of developers and world know companies such as Microsoft and Paradox. Also in conjunction to the mentioned above, the Unity game engine supports a number of platforms including mobile, console and web. Meanwhile on the other hand applications which are developed using Construct 2 cause performance issues being the fact that HTML5 is not supported by most mobile devices operating system. In conjunction to the mentioned above Unity includes good and efficient editing tools such as altering certain aspects while the game is paused, meanwhile the free version of Construct 2 offers very limited essential editing tools when creating computer games. (Slant, n.d.)

Question 1(B)

C# (C Sharp) and C++ are two programming languages used in game development. For this project together with Unity as a game engine, I also opted to make use of C# as my programming language. The reason behind this decision was due to the various features offered by C#. Object oriented programming is a feature offered by C#, it’s a structured programming language which allows the program to be broken down into different parts. Other features includes the use of ‘static’ classes which reduce duplication of statements, and lastly it is type safe meaning that conversion from double to boolean will not perform.

(JavaPoint, n.d.) (Ganesh, 2001)

Question 2(A): Overview of the game

Start Scene

Level\_01 Scene

Level\_02 Scene

Level\_03 Scene

End Scene

Quit

Press “Play”

[score == 10]

[score == 25]

[score == 35]

Press “Play Again”

Press “Quit”

Question 2(B): Overview of Level Two

Load Level\_02

Tennis Ball in Air

Tennis Ball – Static Objects

Tennis Ball – Top/Bottom Border

Tennis Ball – Players’ Paddle

Tennis Ball – Left Border

Tennis Ball – Right Border

Mouse Button Clicked

Hit

Hit

Hit

Hit

Hit

Bounces Back

Bounces Back

Bounces Back

Return To Starting Position

Return To Starting Position

Load Level\_03

Load Level\_03

Reach Max Score

Reach Max Score

Question 3

Compression is used to reduce the size of certain files, which results to more available space and faster execution, meanwhile not reducing the quality of the certain files. In the case of unity, media assets take up a good amount of space, therefore compression allows the program flow to run smooth. Unity supports compression by means of lossless compression algorithms. The LZMA format is one example of compression, were by default media assets are compressed in their smallest possible size. On the other hand the LZ4 format is another example of compression within unity, this format returns a larger size of compressed media assets, and meanwhile compression takes place in ‘chunk’ biases. (Unity, 2017)

Going into more detail an image of ‘.JPEG’ type compression is done by means of a lossless algorithm which reduces the variation of color as minimal as possible making it unnoticeable to the human eye. Together with image compressions, audio compression is also available. A common type for an audio file would be of an ‘MP3’ format, compression of this file type would eliminate any low frequencies together with reducing the dynamics of the audio file. Lastly when it comes to video compression, commonly with ‘MPEG’ formats, redundant content is removed. An example of this instance would be when it comes to having the same background for multiple frames throughout the video, compression will remove these multiple redundant frames and reuses on instance of the frame having the same background. (TechTerms, 2011)

References:

Ganesh, G. G. (2001, June 9). Retrieved from http://www.c-sharpcorner.com/article/C-Sharp-and-its-features/

*JavaPoint*. (n.d.). Retrieved from https://www.javatpoint.com/csharp-features

*Slant*. (n.d.). Retrieved from https://www.slant.co/versus/1047/1058/~unity\_vs\_construct-2

*TechTerms*. (2011). Retrieved April 8, 2011, from https://techterms.com/definition/media\_compression

*Unity*. (2017). Retrieved from https://docs.unity3d.com/550/Documentation/Manual/AssetBundleCompression.html

GitHub Link:

<https://github.com/YanikaBugeja/GameRepository.git>