

Optimisation Proposal

What I am optimising?

For the optimisation task I am going to be working on my demo game for the software artefact assignment in COMP360. The game is a top down shooter where you play as a protagonist who is trying to escape the enemy stronghold. Within the game the key components are the enemies who roam around the area randomly and the follow you when you are within their line of site. The player themselves navigates the map using the keyboard, and rotates using the mouse to aim and shoot at enemies.

What are the details of the project you are optimising?

Within the project there are several elements I want to optimise.

The largest problem I feel will need to be optimised is that over time my game becomes more and more of a strain running much less efficiently. Physics is the most prominent factor causing performance issues.

Some of the code which handles the enemy roaming and pathfinding could also be improved. It currently runs more often than it needs to.

Language/engine you are optimising in?

The game which I am optimising is built using the unity engine and the language is C#. This is an engine with its own features which can be used for optimisation as well as additional tools from other parties. Visual studios is the IDE I am using to write scripts. Visual studio also has its own optimisation profiler which I might be able to use to improve the performance of my code.

Within unity you work in a debug build by default so using the right version is important to get a clear indication of performance. This way I am not unnecessarily putting resources into redundant improvements.

What tools are you going to use?

To optimise my project I am going to be utilising both Unity's own profile, visual studios profiler and later the PS4 profiler.

I am going to be using Unity's own profiler because this is already integrated and work seamlessly with project made in unity. The profiler also has the feature of view specific areas you are looking to improve and measuring these over a period of time. This will help to focus my improvements and make meaningful changes to the game. The profiler also lets you save recording which will help with to evidence my work.

Visual studios performance wizard is also a profiler I can utilise to improve the performance of my code. This profiler is nice because it allows for detailed reports after each run which I can use when optimising.

The PS4 profiler is going to be used later potentially when I am working on porting to a new console. This profile will help make the game run more efficiently on a new platform.

References

[1] <https://docs.unity3d.com/Manual/Profiler.html>

Date accessed: 08/02/2018

[2] <https://msdn.microsoft.com/en-us/library/ms182372.aspx>

Date accessed: 08/02/2018

[3] <https://msdn.microsoft.com/en-us/library/mt210448.aspx>

Date accessed: 08/02/2018

[4] <http://gameprogrammingpatterns.com/data-locality.html>

Date accessed: 08/02/2018