

## **GD2S03 – Advanced Tools Development**

### **Exercise 1**

**Callan Moore**

#### **General Introduction to Lua**

Lua was created by Roberto Leruslimsky, Luiz Henrique de Figueiredo and Waldemar Celes at the Pontifical University of Rio de Janeiro in Brazil.

Lua is a programming language that has been built to be used alongside the C language. Lua leaves what the C language is already good at and provides utility to accomplish what C language is not good at

- Good distance from hardware
- Dynamic structures
- No redundancies
- Ease of testing and debugging

Lua is usable for across a large range of applications from large systems to small mobile applications and is also a free open source language.

#### **Use of Lua in Games**

Lua and other scripting languages are basically a program being run inside another program and while there is nothing in scripting that cannot be done in a compiled language, the use of scripting can make some tasks easier due to the nature of abstraction that scripting allows.

Separation of concerns: Game Engines written in C/C++ with the actual game written in Lua( or another scripting language) is quite a common practice. This can allow for the game code to be developed completely independent from the Game engine.

Flexibility: Scripting does not need to be compiled beforehand as the script compiles during runtime so a change in the script means the whole project does not need to be rebuilt. This can also allow the script to be changed while the program is running and see results without having to restart the program.

Stability and security: Scripts run inside a virtual machine and as such a bugged script shouldn't crash the host program. This is especially important as some games allow users to write their own scripts and without full knowledge there is no guarantee they won't make a mistake.

Language Features: Using a scripting language and a host language offers more functionality as you can use all features of both languages. Lua in particular has some interesting features that a very difficult to implement into C or C++.

#### **What are the Big Titles which used Lua**

- World of Warcraft
- Angry Birds
- Civilisation V
- Dark Souls
- Far Cry
- Sim City 4
- The Witcher
- Star Wars ( 4 titles)