Task 7 – Lab: Data Structure Basics

Summary:

In later lab and spike work you will need to make use of standard collections from the C++ STL, as well as create your own data structres that are appropriate for games.

In this lab you will learn about and use standard data collection types as a good building block for later work. Of particular interest to us are the std array, vector, stack, queue and list containers. We are also able to utilise standard algorithms to do handy work on our collections for us.

Like the last lab, a single C++ file is provided with a number of guided tasks and questions (as comments) for you to work through.

You will again need to write a lab report that contains your observations, and answers with evidence.

What you need to do:

1. **Download the Code.** A single file of C++ code is available on the unit website. Download the code, make sure you can compile and run the code.

2. **Create a simple report.** Create a lab report document that will contain your notes about what you have done for this lab, and your answers to questions. (Yes – just like last time!)
   - Include your name, student id, the unit code, the task number and the date at the start of the report.
   - We suggest using MS Word this time for easy image inclusion, but you could use markdown with images if you want a new challenge or prefer to do that.

3. **Read Code, Tweak, Inspect, Write Notes and Answer Questions:**
   - Go through each section of code (numbered), read the comments, follow the instructions.
   - Change the boolean "false" values to "true" for each "if" section.
   - Uncomment particular lines if they are relevant to what you are trying to do.
   - In your report, you need to clearly explain what is going on with the code, and issues that may or may not be there.
   - Use screen shot images (suitably cropped) as evidence for key points, paritcularly when you are inspecting variables.

4. **Update doubtfire status, show your tutor:** When your repository is ready (files you have created for this lab are saved and uploaded), update your doubtfire status and show your tutor.

Recommendations:

- Make sure you understand what the code does. If something is new to you, find out about it and document your new-found knowledge in your lab report. This is why each students' reports is different! If you have an "Ah!" moment, that is EAXCTLY what you should be capturing in your report, not just answers to questions.