Task 6 - 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 structures 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.

Output: Lab Report (document, upload as pdf to Canvas), updated C++ code.

Like the last lab, a single C++ file is provided with a number of #TODO questions for you to work through and answer in your lab notes.

What you need to do:

1. **Download the Code.** There is a single file of C++ code. There may be additional files to help. Download the code, read the header comments. Make sure you can compile and run the code in your IDE that supports debugging.

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 as needed.
   - Uncomment particular lines if they are relevant to what you are trying to do.
   - In your lab report, clearly state your answer to each question.
   - There are some optional extra questions you might want to answer as well.
   - You can use screenshot images (suitably cropped) as evidence for key points, particularly when you are inspecting variables.

4. **Upload to canvas, show your tutor:** When your repository is ready (files you have created for this lab are saved and uploaded), upload your report to canvas 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 EXACTLY what you should be capturing in your report, not just answers to questions.