Lab 1 - C++ & Raylib
AI Programming for Games
COMP10068

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In this week's lab we aim first to become more familiar with the use of Microsoft Visual Studio to compile and debug elementary C++. The lab material makes use of the Raylib videogame programming library, allowing a simple route to displaying interactive graphics.

Within the lab1-cpp-raylib directory you will find part1 and part2. We completed part1 together using the slides, during the class. Now continue with part2.

1 Microsoft's VCPKG

Download the VCPKG zip archive from Aula week1 lab page. To avoid permission issues, open it with 7-zip; then select and extract the `vcpkg-export-XXXXXXXX-XXXXXX` folder to the root of the C:\drive on your machine. Rename it from `vcpkg-export-XXXXXXXX-XXXXXX` to just `vcpkg`. `C:\vcpkg` should now contain `vcpkg.exe`.

n.b. You will use this VCPKG install for the rest of the course.

Next, use CMake to configure and generate a Visual Studio solution file (.sln). Open it in Visual Studio and you will find three projects.

Raylib One (raylib1.cpp)

1.. Uncomment the three rotation value increments within the while loop

2.. Change the colour or position of the `raylib::Rectangle` object called `rect`

3.. Change the second (`source`) parameter of `DrawRectanglePro` to `{0,0}`. The rectangle then rotates around one of its corners rather than its centre.

4.. What does the `5` in the `DrawPoly` function call do? Try changing it to find out.

Raylib Two (raylib2.cpp)

1.. Add a new circle to the `std::vector` of shapes using `vector::push_back` when the left mouse button is clicked. Use the mouse position as the position of the new shape you create.

2.. Use `int GetRandomValue(int min, int max)` to return a value between `min` and `max`. Use this value to create a random size for the circle you create.

3.. A `raylib::Color` can be created from 3 unsigned characters; one each for red, green and blue. Use `GetRandomValue(0,255)` to get 3 random colour components, and use them to set the colour of each new circle you add.

4.. Declare a bool value called `circle` outside of the while loop. Initialise it to true. Now: add a circle shape when it is true; and a square shape when it is false. Change its value after you use it with: `circle = !circle;`

5.. Add the following to display the number of shapes which have been added:

```
DrawText(TextFormat("%i shapes", my_shapes.size()), 400, 10, 18, BLACK)
```