ENGR:2730 Computers in Engineering
Spring 2022, Homework #4

Deadline: Friday, March 11, 2022 by 11:59pm
<mark>**Early turn in bonus deadline: Wednesday, March 9, 2022 by 11:59pm**</mark>

In this homework you will get a basic introduction to the Simple Fast Multimedia Library (SFML). Please be sure to read the following material on the Tutorials page for SFML v2.5: Getting Started, Window Module: Opening and managing an SFML window, Graphics Module: Drawing 2D stuff, Graphics Module: Sprites and textures.

To start working with SFML, you will get a basic Doodle Jump game loaded into CLion so that it can be played. Watch the following video for an introduction: https://www.youtube.com/watch?v=7Vf_vQIUk5Q.

Follow the instructions below to compile and run the Doodle Jump game.
1. Start CLion in the VDI and do an SVN update (blue down arrow).
2. Copy the "hw4" folder in the "Public/Homework/" directory and paste it into your own homework folder.
3. Add and commit this project to SVN. As usual do not check in the *cmake-build-debug* and *.idea* directories (i.e., set them to be ignored)
4. Load *CMakeLists.txt* **(be sure to load the CMakeList.txt file in your hawkid/homework/hw4 directory)**
5. Select the **DoodleJump | Debug** in the dialog box next to the green triangle if necessary.
6. Compile the DoodleJump program by clicking on the green triangle. You should get the following error: *Process finished with exit code -1073741515 (0xC0000135)*
7. Once the project is built, the current *CMakeLists.txt* does not copy the needed .dll files to the build directory. You must add two additional directories to the PATH in the project debug environment to make it work. Click on the down arrow next to the project debug button, then choose "Edit Configurations." In the resulting dialog box, click on the folder icon next to Environment variables. In the resulting dialog box, click on the plus sign. Add a variable named **PATH** with a value of **%PATH%;C:\Program Files\SFML-2.5.1\bin;C:\Program Files\mingw-w64\x86_64-7.3.0-posix-seh-rt_v5-rev0\mingw64\bin;** this will allow the compiled DoodleJump.exe to find the .dll files when you click on run. Click OK.

Part 1. [25pts] Modify the DoodleJump code to make it easier for you to understand and modify.
1. Add comments to the program to enhance your understanding of the program.
2. Add curly braces to the for-loops, while-loops and if-statements.
3. Reformat the code to have proper indentation.
4. As shown in class: for each asset (i.e., texture, font, sound) that is loaded, add an if-statement to check if the file was opened successfully and take the appropriate action if it was not. For example:

```
Texture t1;
if (!t1.loadFromFile("images/spaceship.png")) { return EXIT_FAILURE; }
```

Part 2. [25pts] Modify the DoodleJump main program in the following way.
1. Change the "struct point" to "class Point"
2. Make all the member variables private.
3. Add getter and setter methods for each member variable.
4. Make any necessary changes to the program to make it work with the getter and setter methods.

Submission Instructions
You must make a CLion project called "hw4" under your SVN homework directory. Check your homework into SVN.

Hint: you can see the current version of your submission by opening this link in a web browser:
https://class-svn.engineering.uiowa.edu/cie/projects/spring2022/