Course:	INFO6046 Media Fundamentals
Project # 2:	3D Sounds, channel groups and DSP effects
Weight:	20 % to 33.33% of final mark (depending on number of projects)
Due Date:	December the 7th, 6:50 p.m.

This project can be done alone or in groups.

Possible groups are listed at the end of this document, you must indicate if you are working within the group or alone before submitting your project.

Description and Purpose

Create a small "sensible" application that is a game or story, utilizing streamed and sampled sounds. Your application should also control (or demonstrate) the manipulation of the sound parameters (volume, balance, speed, etc.) by using channel groups.

Create an interact with 3D sounds.

Create and implement different DSP effects.

Make sure your audio files selection is appropriate for an academic environment. When creating this project consider the possibility to add it to your professional portfolio.

Keep in mind the following:

These are the maximum marks *possible* for each section

There are some minimum requirements that must be present before you will receive any marks. For example: a win32 or console application that only loads and plays a single or multiple sound/s will get you a mark of zero (0).

Make sure to test your visual studio project before delivery, no code or project correction accepted after due date, you will be graded with whatever you decide to upload to FOL dropbox.

Details

Your application must:

1. **20 points -** Have a number of 3D sounds (at least 3)
   1.1. Allow user to manipulate listener position
   1.2. Allow user to manipulate sound position of each 3D sound.

2. **20 points -** Have at least 3 channel groups, with 3 streamed (usually music or ambient, "continuous" sounds) sounds each. There should be some interaction with ***all channel groups*** (using the keyboard) with the application to change aspects of the sounds. (You could press a specific key (tab or similar) to select 1 sound at a time)
   2.1. Volume
   2.2. Balance (pan)
   2.3. playback speed
   2.4. pitch
   2.5. etc.

3. **45 points –** Create at least 9 DSP effects. By pressing keys 1 to 9 enable/disable each effect. DSP effects must be applied to your channel groups. (at least 3 effects per channel group). i.e. effects 1 to 3 affect channel group 1, effects 4 to 6 affect channel group 2, effects 7 to 9 affect channel group 3.

4. **5 points -** Load all information from an external file (i.e. XML, JSON, txt, etc.) to allow for changing the sounds without recompiling the application. The names of the sound files should not be "hard coded"

5. **5 points -** Your implementation must be "sensible" in the sense that there is some "point" to the application/demo, not just a bunch of random events. You can choose a story, or a simple game, but it has to "make sense"
6. **5 points -** Use your own audio files; you could probably simulate/replicate an existing videogame?

   Implementation should be based on FMOD sound low level API.

   Must be in C++, and be able to be compiled with Visual Studio 2017

Bonus (optional, valid only if all previous items are successfully implemented):

5 points - Use CMake approach to deliver your project, just like my reference projects. (Include README file with instructions to generate your project, it should work with Visual Studio 2017), use a single "zip" file (LastName_FirstName.zip) containing all needed files similar to "How to upload to FOL" section.

5 points - Use OpenGL to implement this project.

How to upload to FOL:

Upload a single "zip" file (LastName_FirstName.zip) containing all needed files (after selecting clean solution on visual studio) and dependencies to successfully compile and run your project.

It is quite important to include README file and place it at "root" of your project or solution, your README file must include instructions to interact with your application/project and/or any special instructions you need me to execute/follow. ***I am unable to find requested functionality by following onscreen instructions you might not get any marks for your implementation.***

Plagiarism:

While you may freely "borrow" mine (or anyone other) code but **your code should be "sufficiently" different.**

In other words, you cannot simply use an existing game engine (or part of a game engine) to complete this assignment; **it should be either completely new or "significantly" modified.**

Grading Scheme

- Normally a grade of zero (0) will be assigned to any assignment that is submitted late.
- However, certain rare exceptions apply according to the Infotech Policy on Missed Evaluations and Evaluation Deadlines.
- If you code does not even compile, I will not mark it. Period. This will get you a mark of zero (0).
- If you code does not build (i.e. linker error) and run (i.e. no crazy run-time crash that is unexpected), I may investigate this further, but only if there is some simple problem and/or very slight and/or very obvious (and easy to fix) configuration error.

Project Corrections

If any corrections or changes are necessary they will be posted to the course web site and you will be notified of any changes in class. It is your responsibility to check the site periodically for changes to the project. Additional resources relating to the project may also be posted.

Possible Groups

You have a choice of being in the group or not.

If you choose to be in a group, all group members receive the same mark, maximum 3 students per group.

I am not going to get involved with issues like "I did all the work, and he/she is a lazy bum," and so on; if you choose to work in a group, you also choose to manage the dynamics of the group.

Note: You must indicate your grouping before submission. This can be in the comments portion on the submission page of Fanshawe Online.

Only one student needs to submit, but if you like, then you may also have every member of group submit the same project to FOL, **it is important to indicate full name (Last Name, First Name) of all team members inside FOL comments.**

Also: Either place this note (or any other note you expect me to read) in the FOL comments, in an e-mail, or in some obvious place, like a "README" file on the root of your project folder.

Please don't place them deep inside the comments of one of the files, buried within the code somewhere, etc.