Course:	**INFO-6045 - Animation, Winter 2024**
Project # 1:	**Keyframe Animation**
Due Date:	**February 5th, 2024, 11:59pm**
Weight:	**20% - 25% (Depending on # of projects)**

Note: This project must be done alone. No groups allowed.

Description and Purpose

For this project, you will create a program that demonstrates using keyframe animation using multiple interpolation methods.

Details

Get creative! I'm giving you full creative control over your animation sequence. If you don't have the most creative mind then feel free to recreate a scene from a game or movie: Create Cthulhu coming up from the water depths, or Luke flying his X-Wing through to destroy the death star. Your animation can be as long as you want, as long as it fulfills the project's requirements.

Plagiarism

- ➢ While you may freely "borrow" mine (or anyone else's) code, ***but*** your code should be "sufficiently" different from mine.
- ➢ 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

1. 15% marks will be deducted ***per day*** if the project is submitted late.
2. If your code does not compile, I will not mark it. This will get you a mark of zero (0).

3. If your 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.

	Item	Marks
1	Your animation must have multiple animation sequences. Multiple animations may be running in unison, but they should all follow some sort of main animation time (Not Global).	5
2	Multiple objects are being animated at once through an animation.	10
3	You must demonstrate each of the following with KeyFrame updates: **Position** Linear Interpolation (You may use glm) - No easing - Ease In - Ease Out - Ease InOut **Scaling** Linear Interpolation - No Easing - Ease In - Ease Out - Ease InOut **Rotation** SLERP - No Easing - Ease In - Ease Out - Ease InOut	15
4	**Color coding:** Change the color of the object that is currently being updated with the type of Easing that is being used: - NoEasing: White - EaseIn: Red - EaseOut: Yellow - EaseInOut: Green	10
5	**Player Controls** Animation can be controlled by the user with the following commands: Right Arrow Key: Next Sequence Left Arrow Key: Previous Sequence 1-5 AnimationSpeed (1x - 5x) Space: Pause/Play	5
6	**Reverse Play**	5

	Press a button to play the animation in reverse. This should control every animation sequence that is active at the sametime.	
7	**BONUS:** Add a KeyFrameEvent, that when animation passes the event (KeyFrameEvent.time is between the previous animation time, and the next animation time), a callback is called. This could be a **Command** pattern or **Observer**. When this event is called: Play an Audio clip, print to the log, or something else interesting.(This may be useful for changing an object's color, based on Easing function type.)	10
	TOTAL:	50+10

Project Submission

The following are **required** for submitting your project:

- ReadMe.txt
  - Describe how to build your project.
  - Describe how to run your project.
  - Describe the user input options

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.

Project Feedback

	Item	Marks
1	**Multiple Sequences Feedback**	/ 5
2	**Animations Feedback**	/ 10
3	**Keyframe update types Feedback**	/ 15
4	**Color coding Feedback**	/ 10
5	**Player Controls Feedback**	/ 5
6	**Reverse Play Feedback**	/ 5
7	**BONUS Feedback**	/ 10