CS 4730: Computer Game Design
Engine Team: Sprite Sheets and Controller Support

Overview
For this assignment, you'll be adding a couple of simple features to your engine. Your engine must now support sprite sheets and controllers.

Sprite Sheets
Your AnimatedSprite class should now include an additional constructor which accepts two file paths (among other things). These are a path to the sprite sheet image (png file) and a path to the xml file describing the locations of each frame within the sheet.

You should still have all features from animated sprite from hw2 working. This includes multiple animations (run, walk, jump, etc.), Animations can be paused and stopped, animation speed can be changed, etc.

A couple small things:

- This site here (http://gigi.nullneuron.net/gigilabs/animations-with-sprite-sheets-in-sdl2/) might prove useful as a starting point.
- There are tools that will take your images and make a sprite sheet out of them for you. Texture packer (https://www.codeandweb.com/texturepacker) used to be a very popular one.

Controller Support
Once this is complete, you will add controller support to your engine as well. The engine should look for controllers and poll the state of their buttons every frame. This information should be passed around in the update methods so various objects can react to controllers as they wish. A couple of small things:

- These two links (https://wiki.libsdl.org/CategoryGameController) (https://lazyfoo.net/tutorials/SDL/19_gamepads_and_joysticks/index.php) are good starting points for figuring out how to use controllers in SDL2.
- You should be building a wrapper around SDL2's controller support API. As stated earlier, the update loop should receive (as a parameter) a simple data structure containing information about the state of all controllers. How you design this wrapper is completely up to you.

Demo
Produce a small demo that illustrates your working features. Your demo should include a simple character with multiple animations (run, jump, etc.) that can be controlled by the controller. You MUST demo both controller buttons and joystick support.

Turn In
As always, submit your code on Collab. Please include a README.txt file that describes your demo and the controls the TA should use when grading.