Programming Project #4

Building Depth

CpSc 4160/6160: Data Driven 2D Game Development

Computer Science Division, Clemson University

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In order to receive credit for this assignment, your solution folder must be compressed and submitted to the web handin bucket by 8 AM, Friday, March 31st, 2017. If you cannot make this deadline, you can receive 90% of the grade by submitting your assignment within three days of the due date.

For this assignment, you will begin to build an actual game that includes a heads-up-display, HUD, and a player object. In the previous project you used *parallax scrolling* to create the illusion of depth; in this project you will continue the depth illusion by incorporating Painter's Algorithm into your nascent video game. A summary of the requirements for this phase of the project include:

1. Incorporate a player object into your animation (encapsulated/class); use asdw to control the player.
2. Build a reconfigurable HUD by writing a Hud class. The HUD should appear for a few seconds when the game begins, and the player should be able to toggle the HUD with F1.
   The HUD should be a rectangular shape within which you display the average fps, elapsed seconds, and information about how to move your player object so that the TA and I can test your game. Optionally, you might add a health meter that appears or disappears at strategic times in the game.
3. Use Painter's algorithm to draw some of the objects in your animation. You will need to derive a strategy for storing the *painted* objects in your animation, and you may need to write a function object to sort the vector that holds the objects involved in Painter's algorithm.
4. **video**: either (1) make your own mp4, or (2) make sure the F4 option works so that the TA can make your video; be sure to set the constant in the XML that specifies the number of frames to capture.
5. Your name printed clearly (font color/size) in lower left screen.
6. In your README for this project, include a paragraph that describes the game/level that you would like to build for your final project. Provide some details about actions in the game, your sprite source, how you will keep score, and how the game will conclude.

If you would like to work synergistically with a partner, than this project is a good starting point for your collaboration. Please be aware that I will expect a little more from those working as pairs.

As you build your solution for this project, strive for proper C^{++} technique, and good object oriented principles. For example, your goal should be to write classes that "take care of themselves."

The Light at the End: Project #5 will entail incorporating projectiles and shooting, collision detection, explosions, sound, and music. The final project, Project #6, will entail incorporating Artificial Intelligence (AI) into some of the NPCs, and a menu system. For the remaining projects, we will use the tracker framework and you will **not** be changing to a new framework. In addition, you may make any modifications or extensions to the tracker framework to accommodate the game that you intend to build.