ICS 161 – Winter, 2016 – Homework 7

Start this homework in your Wednesday, Feb. 17 lab session, and continue on your own time. Upload your files to the EEE Dropbox "ICS161-HW 7" before 11:55pm on Wednesday, Feb. 24.

Part 1 – add text capabilities to GE161

Add the text display capabilities from Texty (homework 4) to GE161. You can grab code from your homework 4 submission, or from Prof. Frost's version at http://frost.ics.uci.edu/ics161/Texty.cpp. You can include the "better Texty" capability you implemented from Homework 4, or omit it.

Modify your Pong (from Homework 6, or you can go back to the original version that was supplied) so that the instructions scene uses this text capability, instead of a png file with text in it. Modify the game play scene so that the current "score" (the number of time the ball has hit the right edge) is displayed on the window.

Make sure to follow the existing style of GE161, including the design goals discussed in class.

Turn in a Word or PDF file named Text (.doc, .docx, .pdf) that contains the following:

- A screen shot showing your modified instructions scene as it runs.
- A screen shot showing your game play scene with the "score".
- A discussion of any design issues you faced – what was the issue, how did you resolve it? If your implementation is incomplete or buggy, mention that in this section.
- A listing of all the code you modified or added, copy and pasted from Visual Studio.   Indicate what file each code snippet is from.

Part 2 – Collision detection

Add the following method definition to the public part of GE161::GameObject:

```
bool overlapsWith(GameObject& otherGameObject);
```

Implement this method in GameObject.cpp. The method should return true if "this" GameObject and otherGameObject both have attached sprites and the sprites overlap on the screen; false otherwise. Ignore transparent pixels – it should be a rectangle to rectangle comparison.

Modify your Pong's game play scene to use this GameObject feature when testing if the ball should bounce off the paddle.

Extra credit: figure out and implement a clean way to use this method when we want to check whether the ball (or another sprite) has gone off-screen. Modify your Pong accordingly.

Turn in a Word or PDF file named Boing (.doc, .docx, .pdf) that contains the following:

- A brief discussion of the following:
    - If your implementation is incomplete or buggy, mention that in this section.
    - If you did the extra credit, discuss your design decisions.
    - Suppose GE161 had the capability (which it will soon) of handling game generated events. Would it make sense to create such an event after every collision?
    - Describe a different way the GE161 engine could provide the capability of recognizing overlapping sprites. Would this way be better than the overlapsWith() you implemented?
- A listing of all the code you modified or added, copy and pasted from Visual Studio.   Indicate what file each code snippet is from.