**Project Deliverable #7: Fourth Release Report**

1. The customer asked us to implement the **game over** user story. We implemented this story. We spent about 20 hours total working on this iteration of the project because, besides the game over story, we also made a drastic change to the layout of the website; this was very close to the estimated amount of work time.
2. The Extreme Programming (XP) principles/practices that we followed were exactly the same as with the previous release: incremental planning, small releases, refactoring, pair programming, collective ownership, and sustainable pace.
   1. Incremental Planning – this was practiced in the form of the second deliverable our group submitted. We followed the guidelines to list our stories and describe them, including the user tasks and non-functional requirements. Rather than recording the requirements on story cards, we recorded them in a single word document (project deliverable #2).
   2. Refactoring – we cleaned up the layout for all the pages again via bootstrap this time, we edited text messages, and we made code more legible.
   3. Pair Programming – we worked in pairs; one person coded, while the other checked their work. Then the other person would code and the other would error check. One pair worked on the PHP/JavaScript, the other on the bootstrap for the layouts. Then the pairs swapped assignments. This continued until the third iteration was completed.
   4. Collective Ownership – we made sure that no islands of expertise were developed by doing the steps described in part c.
   5. Sustainable Pace – same thing as with the first two releases. Our group did not work past 10 PM each day of work. And we did not exceed 8 hours of work per workday.
3. The game over story was implemented by adding a snippet of code. If the player gets an answer incorrect 3 times, then the game ends, and a game over message is displayed. The test case for this was to make sure that the game correctly ended after three incorrect answers (three total, not only consecutively). The input is the value of 3 in $incorrect, incremented by incorrect answers from the player. The expected output is a message saying

“GAME OVER

Too bad! You've gotten too many questions wrong!

Final Score: $score”, when the player gets 3 answers incorrect.

The huge change to the layout was accomplished by implementing the twitter bootstrap.