CS 105 | +1 | Lab #7 (+1): Finishing the Game

Due by 6:00pm on Tuesday, April 1st, 2014

Introduction

In Lab #7, you created a tic-tac-toe game where users click a cell to place an `X` or an `O`. That was fun, but that was not really a complete tic-tac-toe game. **Let's finish the game.**

A few things to know about these +1 problems:

- You should **start this with the base files** in the base files we have provided for you on the CS 105 website. (Linked from the "Labs" page on the CS 105 website as "Lab #7: +1 Problems".)
- The "O" is a capital letter "o", not a 0, and not a lowercase "o".
- These problems are not lab problems are should be **worked on independently**.
- Since this is extra credit, the **course staff will only provide high-level help** on these problems. TAs and CAs will not tell you how to do these problems.
- ***Do not change the `id` attributes of the elements*** we have provided for you. *(If you do, your program will not be able to be graded and you will get no points.)*
- You can complete **any or all of the +1 problems**, up to a possible total of **+4 points**.

+1 Problems

+1

Problem #1: For +1, modify the program so that when a user clicks on a cell that is already occupied with an `X` or an `O`, nothing happens. That means the cell does not change and the turn does not advance to the next player.

+1

Problem #2: For +1, modify the program so that when a game is won by a player:

- The winning cells have their color changed to red
- Clicking on **any** additional cells do nothing. *(See the first +1.)*

In order to change the color of the text of an element in JavaScript, you use a similar command to the command you have used to change the element's content. Similar to the `.innerHTML` command, you change the color of the text inside of an element by:

```
document.getElementById("id").style.color = "red";
```

+1

Problem #3: For +1, program the reset button so that when a user clicks "Reset" the game resets. This includes:

- Setting all the tiles back to the initial state of an empty string.
- Resetting the current player to `X`.
- Resetting the color of all the tiles to `black` (if you completed the +1 for coloring the winning tiles).

+1

Problem #4: For +1, modify the program so that the Os are played by the computer. After an X is played by the user, an O should be automatically played following a few basic rules:

- If there is a cell that an O can be placed so that O wins the game, your program must place an O in that cell.
- If O cannot win, if there is a cell where X could win on its next turn your program must place an O in that cell. If there are two locations where X could win, place an O in either one of those cells.
- Otherwise, place an O anywhere on the board.

It is possible to make O play in such a way that it's impossible for X to win (eg: every game either O wins or it's a draw). While this is not required, it would be awesome if you were able to do it!