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# Project 2

**Project Description:** A website app that lets two users play Tic-Tac-Toe. Everything is be ran on a single page. There are some options, such as switching which player has what symbol (i.e. X & O) and input boxes for users to enter their own names. Once the users hit a button to trigger the game, users can interact with the 3x3 grid where the game is played. Lastly, a leaderboard table created in Javascript and injected into the DOM gets updated as players win.

**Feature List: (With a list of technical tasks for each feature)**

1. Input boxes that allow the users to enter names to be recorded in the leaderboard

* The names will be saved in objects for player one and player two, which will be referenced in most of the other functions used.

1. A button to switch which player has X & O

* Swaps the values of player one and player two’s name input values with a single swapping function
  + Since the player objects are not created until the users press the play button, switching the names is all that is necessary to swap which mark belongs to which player.

1. Play button that starts the game once all options are set

* Takes the values set through the options and creates two player objects
* Resets the Tic-Tac-Toe grid to be blank by looping through each cell and overwriting the value potentially left from the last game.
* After the options have been saved, the player objects are added to an array. A random item is then selected from the array (either player one or player two) to decide which player goes first.
  + The text above the grid is updated with which player goes first
* Lastly, it sets the game’s state to active and prohibits the changing of options until the current game has ended.

1. Tic-Tac-Toe grid formatted with CSS rules to look like the classic hashtag that one would sketch out to play Tic-Tac-Toe on paper

* While the game is active, a player turn function will be called until a player connects three in a row or nine turns have passed. The function fires from an onclick event listener linked to all of the Tic-Tac-Toe grid cells. During a player’s turn, the following occurs:
  + The active player’s mark is added to the cell that is clicked, unless the cell already has a mark in it. If the cell is already marked, it will display an alert saying to choose another cell.
* A count variable will keep track of how many turns have gone by, increased by one at the end of each turn.
* Each turn it will display who’s turn it is above the grid by reading the active player’s name. The active player is changed after the end of each turn with a switch.
* After 5 turns, it will begin to check if a user has connected 3 marks. To check, three separate conditional statements check the columns, rows, and diagonal lines.
* If a user connects three, the game stops, the winning player’s total wins are increased by one, and a message is displayed above the Tic-Tac-Toe grid declaring the player won.
* If nine turns pass and neither player wins the game, a message is displayed declaring a tie and the game ends without awarding either player a win.
* In the case that a player does win the game, another function runs that updates the database of all previous players and the leaderboard of the top five players.

1. A leaderboard that contains the top 5 players by the total amount of wins they have. It is made of a 3x6 html table, the left column having ranks, the middle column having names, and the right column having their total wins. The top row will have table headings stating what each column represents (i.e. rank, name, wins).

* The initial leaderboard will be generated in Javascript using for loops and fake data in the form of preset objects in an array.
* As the users play more games and beat the scores presented, the leaderboard will update with the names they entered and the new highest scores.
  + Each unique name that is entered will maintain its own record of how many wins it has, even if it does not have its enough wins to be on the leaderboard. However, once the page is refreshed, any names not a part of the original leaderboard are erased.