



Front End Technologies Week 11 Coding Assignment

Points possible: 70

Category	Criteria	% of Grade
Functionality	Does the code work?	25
Organization	Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear.	25
Creativity	Student solved the problems presented in the assignment using creativity and out of the box thinking.	25
Completeness	All requirements of the assignment are complete.	25

Instructions: In VS Code, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your JavaScript project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

Coding Steps:

1. Using any of the tools you've worked with so far, create a game of tic-tac-toe.
 - a. A heading should say whether it is X's or O's turn and change with each move made.
 - b. Create a tic-tac-toe grid using your HTML element of choice. When a cell in the grid is clicked, an X or O should appear in that spot depending on whose turn it is.
 - c. A button should be available to clear the grid and restart the game.
 - d. When a player has won, or the board is full and the game results in a draw, a Bootstrap alert or similar Bootstrap component should appear across the screen announcing the winner.



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Screenshots of Code:

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta http-equiv="X-UA-Compatible" content="IE=edge">
6   <meta name="viewport" content="width=device-width, initial-scale=1.0">
7   <title>Week 11 Assignment</title>
8   <link rel="stylesheet" href="node_modules/bootstrap/dist/css/bootstrap.css">
9   <link rel="stylesheet" href="styles.css">
10 </head>
11 <body>
12
13 <div>
14   <h1>Tic-Tac-Toe</h1>
15 </div><br>
16
17 <div class="board">
18   <div class="square" data-index="1"></div>
19   <div class="square" data-index="2"></div>
20   <div class="square" data-index="3"></div>
21   <div class="square" data-index="4"></div>
22   <div class="square" data-index="5"></div>
23   <div class="square" data-index="6"></div>
24   <div class="square" data-index="7"></div>
25   <div class="square" data-index="8"></div>
26   <div class="square" data-index="9"></div>
27 </div>
28
29 <script src="node_modules/jquery/dist/jquery.js"></script>
30 <script src="node_modules/bootstrap/dist/js/bootstrap.bundle.js"></script>
31 <script src="week11ca.js"></script>
32
33 </body>
34 </html>
```

```
1 body{
2   width: 100%;
3   height: 75vh;
4   display: flex;
5   justify-content: center;
6   align-items: center;
7 }
8
9 h1{
10  color: #000080;
11  margin-left: 30%;
12  font-size: 100px;
13 }
14
15 .board{
16  position: relative;
17  width: 500px;
18  height: 500px;
19  display: grid;
20  grid-template-columns: 33.33% 33.33% 33.33%;
21  grid-gap: 5px;
22 }
23
24 .square{
25  position: relative;
26  background-color: #000080;
27  cursor: pointer;
28 }
29
30 .square::before{
31  position: absolute;
32  top: 0; right: 0; bottom: 0; left: 0;
33  display: flex;
34  justify-content: center;
35  align-items: center;
36  font-weight: bold;
37  font-size: 175px;
38 }
39
```



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The screenshot shows the Visual Studio Code editor with the following files open in the Explorer: week11ca.html, week11ca.js, and styles.css. The active editor is styles.css, which contains the following CSS code:

```
38 }
39
40 .square.X::before{
41   content: "X";
42   color: #09ff00;
43 }
44
45 .square.O::before{
46   content: "O";
47   color: #09ff00;
48 }
49
50 .winner{
51   margin-right: 10%;
52   position: relative;
53   display: flex;
54   flex-direction: column;
55   align-items: center;
56   justify-content: center;
57   font-size: 25px;
58   text-align: center;
59 }
60
61 .winner button{
62   position: relative;
63   width: 250px;
64   height: 40px;
65   font-family: cursive;
66   font-size: large;
67   cursor: pointer;
68   background-color: #09ff00;
69 }
```

The status bar at the bottom indicates: Ln 56, Col 29, Spaces: 4, UTF-8, CRLF, CSS.

The screenshot shows the Visual Studio Code editor with the following files open in the Explorer: week11ca.html, week11ca.js, and styles.css. The active editor is week11ca.js, which contains the following JavaScript code:

```
1 // arrays to hold winning combination with empty arrays to hold player combinations
2 const squares = Array.from(document.querySelectorAll(".square"));
3 const winner = [[1,2,3],[4,5,6],[7,8,9],[1,5,9],[3,5,7],[1,4,7],[2,5,8],[3,6,9]];
4 let firstPlayer = [], secondPlayer = [], count = 0;
5
6 // function to check array to determine winning combination
7 function check(array){
8   let finalResult = false;
9   for(let item of winner){
10     let result = item.every(val => array.indexOf(val) !== -1);
11     if(result){
12       finalResult = true;
13     }
14   }
15   return finalResult;
16 }
17
18 // function to create restart button
19 function winningPlayer(wp){
20   const game = document.createElement("div");
21   const player = document.createTextNode(wp);
22   const replay = document.createElement("button");
23   game.classList.add("winner");
24   game.appendChild(player);
25   replay.appendChild(document.createTextNode("Restart"));
26   replay.onclick = function() { restart() };
27   game.appendChild(replay);
28   document.body.appendChild(game);
29 }
30
31 // function to add x's, o's and display game winner
32 function turn(){
33   if(this.classList == "square"){
34     count++;
35     if(count%2 !== 0){
36       this.classList.add("X");
37       firstPlayer.push(Number(this.dataset.index));
38       if(check(firstPlayer)){
39         winningPlayer("Congrats player one you win");
40         return true;
41       }
42     }
43   }
44 }
```

The status bar at the bottom indicates: Ln 58, Col 39, Spaces: 2, UTF-8, CRLF, JavaScript.



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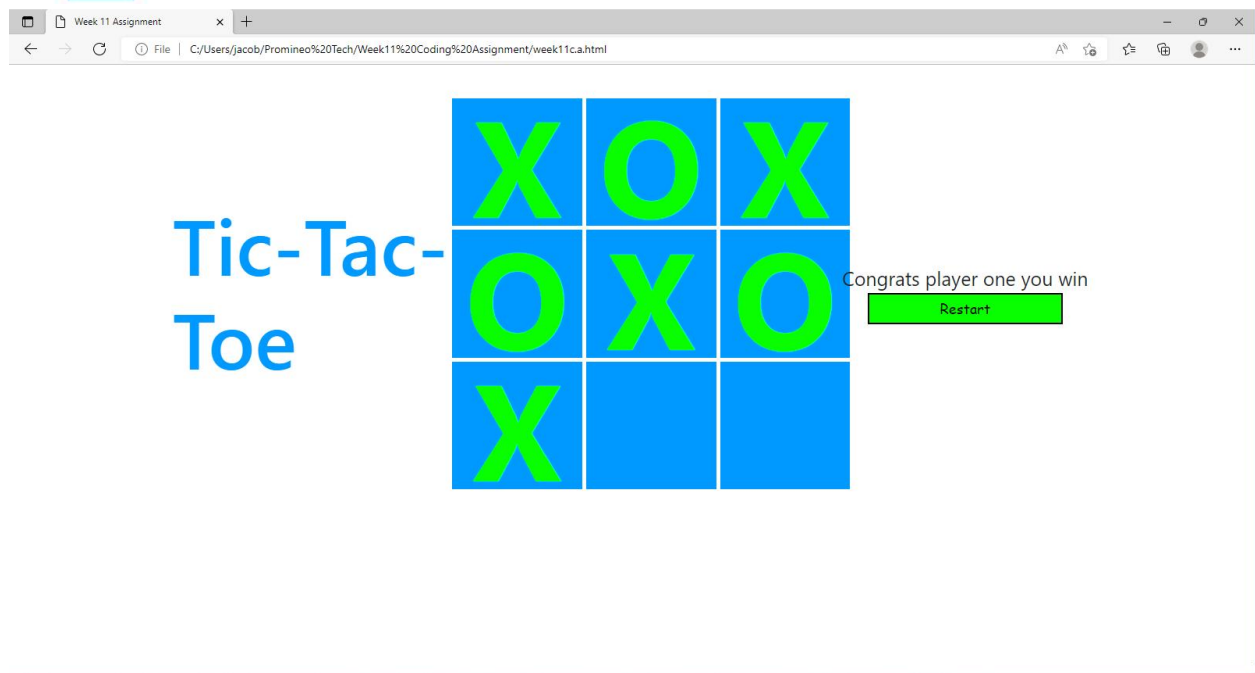
```
34 // function to check for a winner
35 if(count%2 !== 0){
36   this.classList.add("X");
37   firstPlayer.push(Number(this.dataset.index));
38   if(check(firstPlayer)){
39     winningPlayer("Congrats player one you win");
40     return true;
41   }
42 } else{
43   this.classList.add("O");
44   secondPlayer.push(Number(this.dataset.index));
45   if(check(secondPlayer)){
46     winningPlayer("Congrats player two you win");
47     return true;
48   }
49 }
50 if(count === 9){
51   winningPlayer("Draw");
52 }
53 }
54 // function to add x's and o's with a mouse click
55 squares.forEach(square => square.addEventListener("click", turn));
56 // function to clean board and restart
57 function restart(){
58   const newBoard = document.querySelector(".winner");
59   firstPlayer = [];
60   secondPlayer = [];
61   count = 0;
62   newBoard.remove();
63   [].forEach.call(squares, function(reset) {
64     reset.classList.remove("X");
65     reset.classList.remove("O");
66   });
67 }
68 }
69 }
```

Screenshots of Running Application:





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URL to GitHub Repository: <https://github.com/JacobStuder/Promineo-Tech-Week-11-Coding-Assignment.git>