```
<!DOCTYPE html>
<html><head><meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">

    <meta name="viewport" content="width=device-width">
    <title>Ultimate Tic-Tac-Toe</title>
    <style>html{
  height: 100%;
  width: 100%;
  font-family: Verdana;
}
body{
  height: calc(100% - 16px);
  width: calc(100% - 16px);
}
h1{
  margin: 0;
  text-align: center;
      line-height: 6vh;
}
table{
      table-layout: fixed;
}
#bigBoard{
  width: 75vh;
  height: 75vh;
  position: absolute;
  top: 12.5vh;
  left: calc((100vw - 75vh) / 2)
}
.miniBoard{
  border: 2px solid green;
  width: 100%;
  height: 100%;
}
/* .miniBoard:hover:not([done]){
      background-color: green;
} */
.miniBoard.allowed:not([done]){
      background-color: lightgreen;
}
.square{
  outline: 2px solid black;
      font-size: 5vh;
      text-align: center;
      height: calc((75vh / 9) - 8px);
      overflow: none;
```

```
}
[p="x"]{
      color: red;
}
[p="o"]{
      color: blue;
}
[p="tie"]{
      color: transparent;
      background: linear-gradient(to right, red, blue);
      -webkit-background-clip: text;
}
[turn="x"]{
  border: 2px solid red;
}
[turn="o"]{
      border: 2px solid blue;
}
.allowed .square:hover:not([p]){
      background-color: darkgray;
}
[p]:not(#blurb), [done], .miniBoard:hover:not(.allowed){
      cursor: not-allowed;
}
[done="x"]{
      background-color: pink;
}
[done="o"]{
      background-color: lightblue;
}
[done="tie"]{
      background: linear-gradient(to right, pink, lightblue);
}
#blurbBox{
      margin: 0 3vh;
}
button{
      border: 2px solid;
      background-color: lightgreen;
}
button:hover{
      background-color: lightgray;
}
button:active{
      background-color: darkgray;
}
#gameInfo{
```

```
      display: flex;
      justify-content: center;
      line-height: 4vh;
}
#rules {
  width: calc(((100vw - 75vh) / 2) - 10px);
  word-break: break-word;
}</style>
  </head>
  <body>
    <h1 id="pageTitle">Ultimate Tic-Tac-Toe</h1>
    <table id="bigBoard" class="" turn="o">
      <tbody><tr>
        <td>
          <table class="miniBoard">
            <tbody><tr>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
            </tr>
            <tr>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
            </tr>
            <tr>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)"></td>
            </tr>
          </tbody></table>
        </td>
        <td>
          <table class="miniBoard" done="o">
            <tbody><tr>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
```

```
              <td class="square"
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onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
            </tr>
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            </tr>
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            </tr>
            <tr>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)"></td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)"></td>
            </tr>
            <tr>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
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onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
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onclick="this.tile.board.takeTurn(this.tile)" p="o">o</td>
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onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
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onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
              <td class="square"
onclick="this.tile.board.takeTurn(this.tile)" p="x">x</td>
            </tr>
          </tbody></table>
        </td>
      </tr>
    </tbody></table>
          <div id="gameInfo">
               <h4 id="blurbBox"><span id="blurb" p="o">O
wins!</span></h4>
               <button id="newGameButton" onclick="board.reset()">Start
a new Game!</button>
          </div>
          <p id="rules">Rules: Ultimate Tic-Tac-Toe is like a
Tic-Tac-Toe game of Tic-Tac-Toe games. The goal is to get 3 boards in a
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row, but a player only gets a board by winning the Tic-Tac-Toe game within
it by getting 3 tiles in a row. Also, when a player plays in a board, the
next player has to play in the board corresponding to the first player's
position in the board they played in. For example, if X plays in the top
right tile of the top left board, O then has to play in the top right
board. If a player's move corresponds to a board that is already
completed, then the next player may play in any of the open boards. Click
on an open tile to play, or click the button below to see a randomized
game! </p>
            <button id="randGameButton" onclick="randomGame(350)">See an
example game</button>
            <script>class Tile{
      constructor(value, elem, board, coords){
            this.value = value
            this.elem = elem
            this.elem.tile = this
            this.board = board
    this.coords = coords
            this.localCoords = coords.slice(-2)
            this.elem.removeAttribute("done")
            if(this.coords.length==4){
                  this.elem.removeAttribute("p")
                  this.elem.innerHTML = ""
            }else{
                  this.elem.removeAttribute("done")
                  this.elem.classList.add("allowed")
            }
      }
  get allowed(){
    return this.elem.classList.contains("allowed")
  }
  set allowed(allowed){
    if(allowed){
      this.elem.classList.add("allowed")
    }else{
      this.elem.classList.remove("allowed")
    }
  }
      get p(){
            return this.elem.getAttribute("p") ||
this.elem.getAttribute("done")
      }
      get done(){
            return this.p
      }
      set p(p){
            if(!p){
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                return
            }
            if(this.coords.length==4){
                this.elem.innerHTML = p;
                this.elem.setAttribute("p", p);
                this.value = p
            }else{
                this.elem.setAttribute("done", p)
            }
        }
        set done(done){
            this.p = done
        }
        get tiles(){
            if(this.coords.length==4){
                return
            }
            return Array.prototype.concat.apply([], this.value)
        }
        update(value=this.value){
            if(this.coords.length==4){
                this.value = value
                this.p = value
            }else{
                for(var i of this.value){
                    for(var j of i){
                        // console.log([i, j, this,
this.coords.length])
                        j.checkThree()
                        j.update()
                    }
                }
                this.checkThree()
            }
        }
        checkThree(){
            if(this.coords.length==4){
                return
            }
            // for(var i of this.tiles.filter(e=>e.p)){
            //    for(var j of this.tiles.filter(e=>e.p==i.p&&e!=i)){
            //        for(var k of
this.tiles.filter(e=>e.p==j.p&&e!=i&&e!=j)){
            //            // console.log([i, j, k])
            //
if((i.localCoords[0]==j.localCoords[0]&&j.localCoords[0]==k.localCoords[0]
```

```
)||(i.localCoords[1]==j.localCoords[1]&&j.localCoords[1]==k.localCoords[1]
)){
            //                      // console.log([i, j, k])
            //                      this.board.showThree(i, j, k)
            //                      return [i, j, k]
            //                }
            //          }
            //    }
            // }
            if(!this.tiles.some(e=>!e.p)){
                  // console.log(this.tiles, this.value[1][1])
                  // console.log(this)
                  this.board.showThree(this.value[1][1])
            }
            if(this.value[1][1].p){
                  if(
                        this.value[0][0].p==this.value[1][1].p &&
this.value[1][1].p==this.value[2][2].p ||
                        this.value[2][0].p==this.value[1][1].p &&
this.value[1][1].p==this.value[0][2].p
                  ){
                        this.board.showThree(this.value[1][1],
this.value[1][1].p)
                        return this.value[1][1]
                  }
            }
            for(var i of
this.tiles.filter(e=>e.localCoords[0]==e.localCoords[1] && e.p &&
e.p!="tie")){
                  if(
                        this.value[i.localCoords[0]].every(e=>e.p==i.p) ||
                        this.value.every(e=>e[i.localCoords[1]].p==i.p)
                  ){
                        this.board.showThree(i, i.p)
                        return i
                  }
            }
      }
}
class BigBoard extends Tile{
      constructor(elem, blurb, dontReset=false){
            super([], elem, false, []);
    this.blurb = blurb
            if(!dontReset){
                  this.reset()
            }
            this.board = this
```

```
      }
      reset(){
            this.turn = "x"
            this.win = false
            this.value = []
            for(var [ii, i] of
[...this.elem.firstElementChild.children].entries()){
                  var tempRow = []
                  // console.log(tempRow)
                  for(var [jj, j] of [...i.children].entries()){
                  var tempBoard = []
                  // console.log(tempBoard)
                  for(var [aa, a] of
[...j.firstElementChild.firstElementChild.children].entries()){
                        var tempBoardRow = []
                        // console.log(tempBoardRow)
                        for(var [bb, b] of [...a.children].entries()){
                              // console.log(a, b, i, j)
                              tempBoardRow.push(new Tile("", b, this, [ii,
jj, aa, bb]))
                              // console.log(tempBoardRow)
                        }
                        tempBoard.push(tempBoardRow)
                  }
                  tempRow.push(new Tile(tempBoard, j.firstElementChild,
this, [ii, jj]))
            }
                  this.value.push(tempRow)
            }
            return this
      }
      get turn(){
            return this.elem.getAttribute("turn")
      }
      set turn(turn){
            this.elem.setAttribute("turn", turn)
            this.blurb.setAttribute("p", turn)
    this.blurb.innerHTML = turn.toUpperCase()+"'s turn"
      }
  takeTurn(tile){
    if(tile.value || !this.value[tile.coords[0]][tile.coords[1]].allowed
|| this.win){
      return
    }
    tile.update(this.turn)
            this.update()
            if(this.win){
```

```
document.querySelectorAll(".allowed").forEach(e=>e.classList.remove("allow
ed"))
                  return
            }
    this.turn = this.turn=="x"?"o":"x"
            // if(!this.value[tile.coords[0]][tile.coords[1]].done &&
this.value[tile.coords[0]][tile.coords[1]].elem.querySelectorAll(".square:
not([p])").length==0){
            //    this.value[tile.coords[0]][tile.coords[1]].done = true
            // }
            if(!this.value[tile.coords[2]][tile.coords[3]].done){

document.querySelectorAll(".allowed").forEach(e=>e.classList.remove("allow
ed"))
                  this.value[tile.coords[2]][tile.coords[3]].allowed = true
            }else{
                  //
console.log(document.querySelectorAll(".miniBoard:not([done])"))

document.querySelectorAll(".miniBoard:not([done])").forEach(e=>e.classList
.add("allowed"))
            }
            return tile
  }
      showThree(tile, winner="tie"){
            if(tile.coords.length==4){
                  this.value[tile.coords[0]][tile.coords[1]].p = winner;
                  this.value[tile.coords[0]][tile.coords[1]].allowed =
false;
            }else if(tile.coords.length==2){
                  // this.done = tile.p
                  // this.blurb.setAttribute("done", tile.p)
                  this.turn = winner
                  this.blurb.innerHTML =
winner!="tie"?winner.toUpperCase()+" wins!":"It's a tie!"
                  this.win = winner
                  // console.log(this.win)
            }
      }
}
var board = new BigBoard(document.getElementById("bigBoard"),
document.getElementById("blurb"))
async function randomGame(time=100){
      function randomTurn(){
            var openBoards = board.tiles.filter(e=>e.allowed)
```

```
            var openTiles =
openBoards.map(e=>e.tiles.filter(a=>!a.p)).flat()

board.takeTurn(openTiles[Math.floor(Math.random()*openTiles.length)])
      }
      return new Promise((resolve, reject) => {
            var botGame = setInterval(() => {
                  if(!board.win){
                        randomTurn()
                  }else{
                        clearInterval(botGame)
                        resolve(board.win)
                  }
            }, time)
      })
}</script>

</body></html>
```