HTML and JavaScript Loops, Conditionals and Functions – *still not CSS*

You may work in groups of up to four on this assignment. All student’s name will appear in the comment documenting the assignment code (also – add names to web page). All students must place the assignment in their “java” drive folder (Assign3 or Project3) for grading.

In this new assignment you will be “fixing” code written by another programmer. Although there is *(to my knowledge)* no outright errors in the code, it is incomplete and pretty poorly written.\*

Step 1. Copy the code included at the end of this assignment and save it as an HTML file in the same directory as the images. Test the code to determine what each function does. Pay attention to global variables.

**Our rules for Chutes & Ladders:**

* Player 1 always goes first. Turns alternate. (Player image options are from public-domain-image.com.)
* Roll a single die to determine how many spaces to move. The current player then moves to that board location, subject to the following additional rules:
  + If the space is occupied by the other player, this player loses her turn (no move).
  + If the space is not on the board, this player loses her turn (no move) – this also means you can only win with an exact roll.
  + If the space is at the bottom of a ladder (green), move immediately to the top of the ladder (unless the space is occupied, lose a turn).
  + If the space is at the top of a chute (red), move immediately to the bottom of the chute (unless the space is occupied, lose a turn).
* When a player wins, by rolling the exact number needed to land on 81, the game alerts the user and indicates the winner by placing the winner’s image in locations 1, 21, 41, 61 and 81.

**Things to do (in addition to the rules):**

* Check for chutes/ladders and adjust the move accordingly.
* The code provided uses an unbelievably long cascading if to locate the current player on the board. Replace this with a **loop** to perform the test that finds the current location.
* The current code does not handle the player moving off the board. Fix that.
* The current code does not display the winner’s image as described. Use a **loop** to do this. (Five sequential assignment statements is not sufficient.)

\* This was originally put together as a late-semester CPSC130 assignment. Because it uses only what we had covered in class at that time it is more than just clunky. If you really want to fix the design, you are welcome to, but still have to do all of the above *and* avoid CSS. You may find arrays and/or the DOM useful.

**Due:** TBD

**Starting code**: *see below*

**Justification** – *In most real programming jobs you will be starting with someone else’s code that you have to first understand and then modify. Starting with something lets us accomplish more in the end – a working game.  
The four required changes can be tackled independently (keep versions of working files, but only submit one).*

<html>

<head>

<title>Chutes and Ladders</title>

<script>

function RandomInt(low, high)

{

return Math.floor(Math.random()\*(high-low+1)+low);

}

function startUp()

{

player1Image = "player1Image1.jpg";

player2Image = "player2Image1.jpg";

// set up for player1's turn

document.getElementById('PlayerImage').src = player1Image;

document.getElementById('PlayerText').value = 1;

document.getElementById('NextImage').src = player2Image;

player1Loc = 0;

player2Loc = 0;

gameOver = false;

}

function rollAndMove()

{

var roll;

if (!gameOver){

roll = RandomInt(1,6);

document.getElementById('dieImage').src =

"http://balance3e.com/Images/die" + roll + ".gif";

move(roll);

}

}

function adjustForSlideOrLadder(nextLoc)

{

// check new location for slide or chute & adjust

// currently no adjustment is made, so...

return nextLoc;

}

function move(places)

{

currentPlayerNum = document.getElementById('PlayerText').innerHTML;

currentPlayer = document.getElementById('PlayerImage').src;

currentLoc = findOnBoard(currentPlayer);

thisCell = "cell" + currentLoc;

thisCellImg = currentLoc + ".jpg";

nextLoc = currentLoc + places;

if (nextLoc < 81){

nextLoc = adjustForSlideOrLadder(nextLoc);

//alert('move to: ' + nextLoc);

nextCell = "cell" + nextLoc;

if (document.getElementById(nextCell).src == document.getElementById('NextImage').src){

alert('The other player has blocked this move');

}

else { // unoccupied

// display image in new location

document.getElementById(nextCell).src = currentPlayer;

if (currentLoc > 0)

document.getElementById(thisCell).src = thisCellImg;

}

}

else if (nextLoc == 81) {

alert('Winner!');

victoryDance(currentPlayer);

gameOver = true;

}

switchPlayers(currentPlayerNum);

}

function switchPlayers(currentPlayerNum)

{

if (currentPlayerNum == 1){

document.getElementById('PlayerText').innerHTML = 2;

document.getElementById('PlayerImage').src = player2Image;

document.getElementById('NextImage').src = player1Image;

}

else {

document.getElementById('PlayerText').innerHTML = 1;

document.getElementById('PlayerImage').src = player1Image;

document.getElementById('NextImage').src = player2Image;

}

}

function findOnBoard(currentPlayer)

// if current player is not found, return 0

{

// this is the HARD way to do it... very error prone

if (document.getElementById('cell1').src == currentPlayer)

return 1;

else if (document.getElementById('cell2').src == currentPlayer)

return 2;

else if (document.getElementById('cell3').src == currentPlayer)

return 3;

else if (document.getElementById('cell4').src == currentPlayer)

return 4;

else if (document.getElementById('cell5').src == currentPlayer)

return 5;

else if (document.getElementById('cell6').src == currentPlayer)

return 6;

else if (document.getElementById('cell7').src == currentPlayer)

return 7;

else if (document.getElementById('cell8').src == currentPlayer)

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else if (document.getElementById('cell9').src == currentPlayer)

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else if (document.getElementById('cell10').src == currentPlayer)

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else if (document.getElementById('cell11').src == currentPlayer)

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else if (document.getElementById('cell12').src == currentPlayer)

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else if (document.getElementById('cell13').src == currentPlayer)

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else if (document.getElementById('cell41').src == currentPlayer)

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else if (document.getElementById('cell42').src == currentPlayer)

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else if (document.getElementById('cell64').src == currentPlayer)

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else if (document.getElementById('cell67').src == currentPlayer)

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else if (document.getElementById('cell69').src == currentPlayer)

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else if (document.getElementById('cell70').src == currentPlayer)

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else if (document.getElementById('cell71').src == currentPlayer)

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else if (document.getElementById('cell72').src == currentPlayer)

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else if (document.getElementById('cell77').src == currentPlayer)

return 77;

else if (document.getElementById('cell78').src == currentPlayer)

return 78;

else if (document.getElementById('cell79').src == currentPlayer)

return 79;

else if (document.getElementById('cell80').src == currentPlayer)

return 80;

else if (document.getElementById('cell81').src == currentPlayer)

return 81;

else // not found, so...

return 0;

}

function victoryDance(currentPlayer)

{

alert('Winner!');

}

</script>

</head>

<body onload="startUp();">

<h1>Chutes (Snakes) and Ladders</h1>

<table summary="game board" cellpadding="0" cellspacing="0">

<tr>

<td><img id="cell73" src="73.jpg" alt="73" height="66" width="66"></td>

<td><img id="cell74" src="74.jpg" alt="74" height="66" width="66"></td>

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<td><img id="cell81" src="81.jpg" alt="81" height="66" width="66"></td>

<td rowspan="9" valign="center" align="center">

<h2>Control Panel</h2>

<h3>Up Now</h3>

<h4>Player <span id="PlayerText">1</span></h4>

<p><img id="PlayerImage" src="player1Image1.jpg" alt=""></p>

<p>

<img src="http://balance3e.com/Images/die1.gif" alt="click to roll"

id="dieImage" onclick="rollAndMove();">

<br><i>Click to roll</i></p>

<h3>Up Next</h3>

<p><img id="NextImage" src="player2Image1.jpg" alt=""></p>

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<td><img id="cell72" src="72.jpg" alt="72" height="66" width="66"></td>

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</table>

</body>

</html>