Rules:

* A player may not move on the same space his or her opponent took on the previous turn.
* If there is a letter on the space, whether once or twice, the space is considered held by that player.
* A player can win the game with connected single-layer captures.
* X will always go first.
* On the player’s turn, they must choose a space by clicking on it.
* On the computer’s turn it will choose a space at random. I will implement strategies for the computer if I do the enhancement.

Variable I need to keep track of:

* The number of layers chosen
* The score
* The position of the square
* If the instruction is needed or not(boolean)
* The message inside the box

Individual tasks the function perform:

* Initialize
  + Perform the function Reset
  + Update the score to 0
  + Show the interface
    - Table with 9 empty slots
    - The option (“do you want to be X or O”) and “Begin Game” button
    - Reset button
* ClickSquare (PS: Only for the player, not AI)
  + Check the interface of the square, there could be **3 conditions**
    - If not taken, then replace the square with the user’s interface and update the number of layers chosen to one.
    - If taken once, there could be **2 conditions**
      * If the square shows AI’s interface, then replace it with the user’s interface and the number of layers chosen stays the same.
      * If the square shows user’s interface, then the interface shown on the board stays the same and update the number of layers chosen to two.
    - If taken twice, then notify the user that this square is already occupied and the click has no effect whatsoever.
* Reset
  + clear the board and let him or her choose X or O again..
  + Do not reset score.
* ShowInstructions (only operates when the user clicks the instruction button)
  + There could be **2 conditions**
    - If the user didn’t click the instruction button, change the innerHTML of the button to indicate and notify the user that instruction has shown. Then, the innerHTML of the message will be changed from blank to the instruction.
    - If the user already clicked the instruction button, change the innerHTML of the button back to where it started and change the innerHTML of the message to blank.
* AIresponse (PS: this is for the enhancement)
  + The AI could have **3 strategies**
    - Aggressive
      * If the AI is one step from winning, it ignores other strategies and finishes the game.
    - Defensive
      * Replace user’s interface with its own interface
      * Block user when the user was one step away from winning
    - Random(most basic)
      * It will choose a square at random, but does not break the game
    - Strategic(the hardest)
      * Think 1 step ahead or 2 step ahead and calculate the best move.
* RecordInterface (Only perform this task when the user click “Begin Game” button)
  + It records the user’s submission of the option (“do you want to be X or O”)
    - If the user choose X, the user goes first
    - If the user choose O, the user goes second
      * The computer will choose its own category of strategy randomly.
* Win
  + Check if the src of 3 connected images is the same.

The user interface:

● An option for the player choosing X or O .

● The board.

o The board consists of 9 squares.

o Each of the 9 squares will start empty

● A reset button.

