Andela

Andela Nigeria Cycle 41 Technical Challenge.

Instructions for submission

Create an account on codepen.io and attempt **any 1** of the questions. You are required to make use of **only** HTML, CSS and JavaScript, and **NO FRAMEWORKS**. Please submit via this form before **4pm on Monday, January 7th, 2019.**

Question 1

Help Matt Get Home	
Context	It's been a long day for Matt. After work, he decided to go out and get a beer at the local bar a few miles down the road. However, what Matt didn't realise, was that with too much drinks you can't find the way home properly anymore. Your goal is to help Matt get back home by telling him how long the path to his house is if he drives the optimal route. Matt lives in a simple world: there is only dirt (represented by a d), a single house (Matt's house, represented by the letter 'h') and there are trees (represented by the letter 't') which he obviously can't drive through. Matt has an unlimited amount of moves and each move he can go north, north-east, east, south-east, south, south-west, west and north-west. There will only be one Matt and one house, which is Matt's.
Task	Write an algorithm that shows the shortest path to Matt's house is. The world is given to you as a comma-delimited string which represents the cells in the world from top-left to bottom-right. A 3x3 world with Matt on the top-left and his house on the bottom-right, with a tree in the middle would be represented as: **Example** M,d,d,d,t,d,d,d,h, Which in 3x3 is: **M d d** **d t d** **d d h** The answer to this world would be 3 Conditions ● Ensure the input must be "m", "d", "t", "h" ● Only one "m", "h" can be imputed ● Ensure that the input can be evaluated to 3x3 world ● If Matt is unable to go home from his current location return "Matts path is blocked by trees"
UI Design	● An text input element that takes in the world ● A button to run the program. ● A div to display result.

Question 2

Tic Tac Toe Checker	
Context	Mike and his friend love playing tic tac toe. In fact, they love it so much they created a multiplayer web version to play remotely against each other. At the last minute Mike realized he forgot to call an animation when a player won the game. Now he needs to create an application that will check it but can't do it himself because he's short on time. Mike needs your help!
Task	Create an application ticTacToeCheck that takes a two dimensional array representing a finished game of tic tac toe (e.g. [["XO-"], ["XXX"], ["XO-"]]). ● X represents player 1 move(s). ● O represents player 2 move(s). ● Dash (-) represents no move(s). Rules 1) Return true if player 1 or player 2 win the game. [["XO-"], ["XXO"], ["O-X"]] ➞ true 2) Return false if nobody won the game. [["XXO"], ["OOX"], ["XOO"]] ➞ false 3) Return "Nobody moved" if nobody made a move. [[---], [---], [---]] ➞ "Nobody moved" 4) Return "No/Incomplete game" if no value was received / all received arrays are void / type of any given value is not "array". [[], [], []] ➞ "No/Incomplete game" [[], []] ➞ "No/Incomplete game" [[]], [] ➞ "No/Incomplete game" ["XOX", ["XOX"], ["XOO"]] ➞ "No/Incomplete game" ["XOX", ["XOX"], []] ➞ "No/Incomplete game" undefined ➞ "No/Incomplete game" 5) Return "Corrupted game" if any values differ from the expected "X", "O", "-". [["X"], ["XX"], ["X-"]] ➞ "Corrupted game" [["AAA"], ["BBA"], ["ABB"]] ➞ "Corrupted game" [["XOX"], ["XOO"], [undefined]] ➞ "Corrupted game"

	[["XXX"], ["XOX"], [""]] ➞ "Corrupted game" [["XXX"], ["XOX"], [1,2,3]] ➞ "Corrupted game" Note Each array in the main array represent a line in the game.
UI Design	● An input text field to enter the game or lack of it ● A div to display the result ● A button to check the result.

Question 3

Scale Balancing	
Context	A Scale contains two elements, the first being the two positive integer weights on a balance scale (left and right sides) and the second element being a list of available weights as positive integers. Your goal is to determine if you can balance the scale by using the least amount of weights from the list, but using at most only 2 weights
Task	For example: if a scale is ["[5, 9]", "[1, 2, 6, 7]"] then this means there is a balance scale with a weight of 5 on the left side and 9 on the right side. It is in fact possible to balance this scale by adding a 6 to the left side from the list of weights and adding a 2 to the right side. Both scales will now equal 11 and they are perfectly balanced. Your program should return a comma separated string of the weights that were used from the list in ascending order, so for this example your program should return the string 2,6 Conditions ● The first element of the scale can only contain 2 weights ● It is possible to add two weights to only one side of the scale to balance it ● If it is not possible to balance the scale then your program should return "Scale Imbalanced"
UI Design	● 2 inputs to take the 2 elements of the Scale ● A button to calculate the needed weight to balance ● A div to display the result

Question 4

Workout Timer	
Context	Workout timer to time your routine during an exercise.
Task	Write an algorithm that starts a timer (that counts up in seconds, minutes and hours). This timer can be started, paused/continued or stopped. ● When the timer is paused and then continued, it should resume from where it has stopped previously ● When a timer is stopped, it should still display the time at which it was stopped at until it is started again
UI Design	● Div to display the counting timer. ● Buttons to stop, pause and continue the timer.