Web Development – Mr. Turner

Project – Simon

**Project Overview**

Simon is a game of memory and dexterity where the computer flashes a growing pattern of colors round after round and the user must match the pattern by clicking the appropriate buttons in the allotted time.

**The Page**

The game of Simon works like this.

1. The computer flashes the pattern on screen.
2. The user must click the buttons in the correct sequence in order to match the pattern.

The pattern is comprised of a series of 4 colors (red, green, blue, yellow). Each round, the computer will add 1 of the four colors to the end of the pattern so that it is always growing. Once a color has been added to the pattern, it remains there for the entire game. The only change to the pattern round after round is the new color.

Example

Round 1: green

Round 2: green, blue

Round 3: green blue green

Round 4: green blue green red

Round 5: green blue green red yellow

The color that is added to the pattern is generated randomly so the pattern should be different every game.

When the computer shows the pattern each round, each color in the pattern should flash (on screen or in a box or whatever) for a brief time (half a second or so). Do not leave the pattern on screen as remembering is a key element to the game. Disable the buttons while the pattern is flashing and flash the ***whole*** pattern before enabling the buttons for use.

***NOTE: When flashing the pattern, make sure to show the color and then show a brief (a 10th of a second or so) display of white or nothing before showing the next color. If the pattern includes the same color twice in a row and you haven’t programmed some way for the user to see the change, it will look like a single flash of 1 color.***

Once the pattern has been shown in its entirety, enable the buttons and wait for the user to input the pattern. Make sure that the order in which the buttons are clicked matches the order of the colors in the pattern exactly.

If the user enters the correct pattern, start a new round.

If the user clicks an incorrect button (you should keep track as the user clicks instead of waiting for the whole pattern to be entered), immediately end the game.

At the end of the game, show the user how many rounds (s)he survived and show the user the complete pattern.

**Enhancements**

* The user should only have a certain amount of time to click a button. If (s)he doesn’t click the correct button in time, the game is over.
* Increase the level of difficult as the game progresses. Start very slowly, with the colors in the pattern being flashed for 1 or 2 seconds and steadily decreasing. You can also steadily decrease the amount of time the player has in which to click each button.
* Create an optional variant with 6 or even 8 colors.
* Give the user the option of playing by using the keyboard in addition to or instead of the mouse.

**Programming Requirements**

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| * You must code your own HTML and CSS. Use of a drag and drop interface or the usage of code downloaded from the internet is not permitted. |
| * Use of deprecated code is not permitted. Use an HTML 5 reference as your guide. |
| * Your home page must be named *index.html*. |
| * You must comment your name into the top of every page. |
| * Your code must be structured in a consistent and legible manner |
| * Your text must be organized through the use of sectioning tags (div, span, p, h1 – h6). Tables are acceptable for data but not for page design. |
| * Your interface must be smooth and easy to figure out for a client. |
| * Your pages must be formatted using CSS. |