# Assignment - MasterMind

Build an interactive web application based on the classic MasterMind game.

## Assignment Specification

* The application randomly generates a four-digit number (0000 – 9999)
* The application permits the user to guess the number up to ten times
* Each guess will cause the application to respond by showing
  + The guessed number
  + Number of Correct Digits at the Right Position
  + Number of Correct Digits at the Wrong Position
* The application ends when the user correctly guessed the four-digit number or used up all ten guesses without guessing the number

### Layout

The webpage is to be presented with

* Heading that shows "MasterMind by *your name*"
* Presentation container that displays a column heading and up to ten rows of values that correspond to the column heading
* A second presentation container, that is positioned under the first container, shows an input textbox and a submit button

### HTML

Use HTML5 semantic elements to structure your web page

* Usage of **<table>** and related elements are strictly prohibited
* Usage of **on*eventname***(e.g., onclick, onkeydown, onload) attributes are strictly prohibited
* Use the **<header>** elementand one or more heading elements, **<h1>** through **<h6>**, to format your heading
* Use the **<article>** element for your presentation containers
* The column headings are to be displayed as, from left to right
  + **Guess**
  + **Number of Correctly Placed Digits**
  + **Number of Incorrectly Placed Digits**
* The values displayed under the **Guess** column heading should reflect the entered guesses
* The values displayed under the **Number of Correctly Placed Digits** column heading should reflect the number of correct digits in the right position
* The values displayed under the **Number of Incorrectly Placed Digits** column heading should reflect the number of correct digits in the wrong position
* Use the **<input>** element to create a textbox that accepts input of four-digit numbers
* The **<input>** element can only accept numeric characters and non-numeric characters are prohibited from being entered
* Usage of **pattern** attribute in the **<input>** element is strictly prohibited
* Use the **<button>** element, with the caption "Submit" to trigger the process that matches the input against the generated random number and displays the matching results
* The **<button>** element is to remain disabled until the value entered is exactly four digits
* Once enabled, the **<button>** element can also be triggered by pressing the **Enter** key while the focus remains with the **<input>** element

### CSS

* If there is a choice, use CSS properties instead of HTML attributes

### JavaScript

* Use event listeners instead of **on*eventname***attributes to address JavaScript events

### Webpage Algorithm

* As part of the webpage loading process,
  + A four-digit number (0000 – 9999) is to be randomly generated via the usage of the JavaScript **Math.random()** function and other JavaScript functionalities
  + The **<input>** element is to automatically receive focus
  + The **<button>** element is to be disabled
* Once the **<input>** element is filled with a four-digit number, the **<button>** element is to be enabled
* If the entered four-digit number is reduced by the **Backspace** or **Delete** key, the **<button>** element is to be re-disabled
* The **<input>** element must not accept non-numeric characters
* Once the **<button>** element is invoked, the following events must occur:
* Compare the entered guess value against the generated random number
* Display the appropriate comparison results in the presentation container
* Disable the **<button>** element
* Clear the content of the **<input>** element and enable it
* Focus on the **<input>** element
* If the random number was correctly guessed, or the allotted ten guesses had been exhausted, an appropriate alert box should be displayed accordingly
* As soon as one reaches the end of a guessing session, i.e., the guess was successful or had failed after ten consecutive attempts, the following must occur:
* Display of the appropriate message via an alert box
* Disable the **<button>** element
* Disable the **<input>** element
* One can restart the MasterMind game by reloading the webpage

## Deliverables

### Additional Responsibilities

* Your name must be coded in the comment section of your HTML file, CSS file and JavaScript file
* Your assignment must pass the validation by the W3C HTML Validator and the W3C CSS Validator
* Your assignment must be virus and malware free
* CSS must be coded in an external file
* JavaScript must be coded in external files

### Assignment Submission

* Submit your assignment in a zip file by date specified on the course addendum via the submission link on Blackboard
* The completed assignment zip file must include at least one **.htm** or **.html** file, one **.css** file and two **.js** files

**IMPORTANT:** This is not a group/team assignment and your assignment must be YOUR original work; plagiarism in any shape or form will render your assignment score as ZERO.

Note: This assignment is worth 25% of your final grade.

### Possible Assignment Outcome







