Coding-Academy Challenge

Hi There!

Thanks for expressing your interest in our special bootcamp program, we wish you a great success and hope to see you in our class soon!

Your Challenge

Through this challenge you will:

- Expand your knowledge of HTML, CSS and programming in Javascript
- Create a web page with your personal details
- Improve the memory game: keep the highest score, restart the game, and more.

We recommend using Visual Studio Code as the code editing tool.

Following is a short description of the technologies and the challenge tasks.

The Basics of WEB technology: HTML, CSS, Javascript

HTML

- HTML is used to structure web pages.
- It is a markup language where each element has an opening tag and a closing tag, for example:

```
<p> I am a paragraph and I'm proud of it </p>
```

CSS

- CSS is in charge of the look of our page
- With CSS we use selectors to select some elements on the page and apply some styling rules to them
- For example:

```
/* Selects all <h1> elements and make their color blue*/
h1 {
    color: blue;
}
/* Selects elements that have the class "box"  */
.box {
    background-color: green;
}

/* Selects elements that have the class "back" and are contained in an element that has the class: "flipped" - and hide it */
.flipped .back{
    display:none;
}
```

Javascript

Javascript is a programming language. Many modern applications relay heavily on Javascript.

- Here is an example:

```
var age = prompt('Whats your age dude?');
if (age > 18) {
    alert('Carry on');
} else {
    alert('Too Young');
}
```

- a Variable is like a box with a name in which we can store a value
- We use conditions to implement our desired logic
- prompt is a built-in function that we can use to get input from the user
- alert is also a built-in function in Javascript
- We can write our own functions
- We can bind a click event from the HTML to a function we created
- For example:

```
<!-- In the HTML: -->
<button onclick="sayHello()">Feeling Lonely?</button>


// In the Javascript:
function sayHello() {
    var userName = prompt('Whats your Name?');
    alert('Hello ' + userName + '!');
}
```

The Challenge Tasks

Task 1 – Take a deep breath

Review the current game code.

- Play with it
- Take the time to research things you don't fully understand -
  review the attached presentation and watch the videos we've sent in the email.
- Make some simple CSS changes and see the effect when you run/refresh the application
- Add some more sound:
  - when user is wrong play the wrong.mp3
  - when user got it right, play the right.mp3

Task 2 – Homepage and Navigation

Create a homepage and navigation

1. Create an *index.html* page, this should be your homepage with your details:
   a. Name
   b. Picture

c. Phone
d. Email (use a *mailto link*)
e. Personal background – a short summary
f. Hobbies, Dreams, or anything else

*Get to know the following HTML elements and please use **all of them** in your homepage:*

- Headings <h1>, <h2>…
- Horizontal Line <hr />
- Line Break
- Image <img>
- Anchor <a>
- Unordered List & List Item <ul> &
- Table <table>
- Button <button>
- Division
- Span

*Learn about the following CSS rules and please **use all of them** in the index.css file:*

- font-size
- padding & margin & border
- width & height
- border-radius
- transition

2. Create a link to the memory game page
3. In the memory game, add a link back to the home page

Task 3 – Replay the Game

Let's make it so we can replay the game!

- When user wins, display a Play Again button
  - You can show or hide an element by changing its style, see here: https://css-tricks.com/snippets/javascript/showhide-element/

- You need to reset some variables and hide the Play Again button
- You need to flip all the cards
  - To be able to flip the cards we need to be able to select all the cards and remove their flipped class
  - This will require a loop *similar* to:

```
// get all divs in the document
var divs = document.querySelectorAll('div');
```

```
for (var i = 0; i < divs.length; ++i) {
    divs[i].style.color = "green";
}
```

Task 4 – Fix the bug

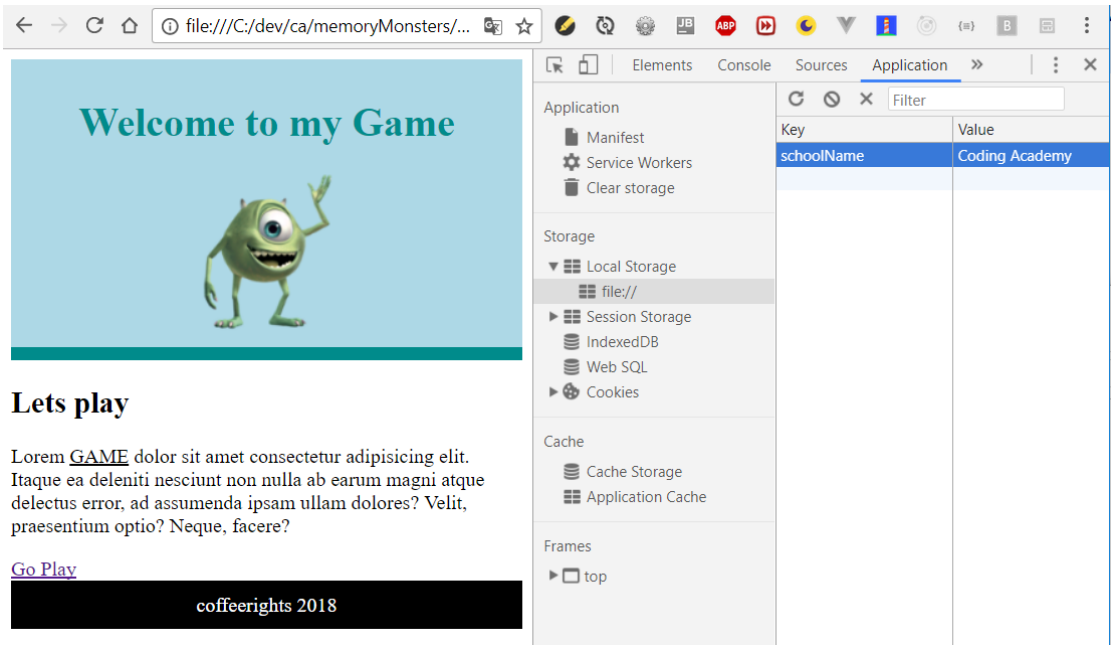
- If we click fast enough, we can flip more than 2 cards, that's a bug, fix it.
  Hint: use another variable: isProcessing that we set to true before flipping back the wrong cards. In the beginning of the cardClicked function - if its true *return* immediately.

Task 5 – playerName in localStorage

Understand the localStorage

The *localStorage* is a simple mechanism that allows keeping some data in the browser; this data is kept until the user clears his browsing history

View the localStorage by opening the **developer console** in a **chrome** browser
(To open the developer console, right click on the page and select *inspect*)



Using the localStorage from Javascript is easy, example:

```
localStorage.setItem('schoolName', 'Coding Academy');
var schoolName = localStorage.getItem('schoolName');
alert(schoolName);
```

Tip: You can simply copy and paste this code to a developer-tools console and see it in action.

Remember the player name

- When the home.html page loads check the localStorage to see if we already know his name, if not:
  - Use prompt() to get the player name
  - Use localstorage to store the player name
- Show the player name on the page
  Clue: *document.querySelector('.userName')* to access an element on the page with that class and change its innerText property.
- Show a "Change User" button with an onclick attribute; clicking it should use prompt() to ask for the player name.

Task 6 - Keeping the best time

- When the user clicks the first card, clock starts
  (Note: You are not requested to show the actual clock to the user, but you get an extra points if you do)
- For representing time in programming languages we often use timestamps
- In Javascript, a timestamp is the amount of milliseconds passed from 1970, see here: http://www.currenttimestamp.com/
  Hint: use Date.now() to get the current milliseconds.
  Hint: Add a global variable to hold the game's start time
  (starts when the first card in the game is clicked)

- When the user wins - calculate how much time has passed by subtracting 2 timestamps
- Save the best time in the localStorage
  Clue: you will need to compare 2 timestamps
- Show the best time also on the page itself
  Clue: You should use something like: *document.querySelector('.bestTime')* to access an element on the page with that class and change its innerText property.

Task 7 – Finalize

- Make the game look nice and unique
- Clean up the code

Bonus

Get some bonus points!

Shuffle the cards every game

- this will require code such as:

```
var board = document.querySelector('.board');
for (var i = board.children.length; i >= 0; i--) {
    board.appendChild(board.children[Math.random() * i | 0]);
}
```

- Wrap this code in a function so you can run it when user wins.

Show a running clock

Show the user a stopwatch:

00:00:00

Done? Start getting yourself ready for the Bootcamp!

The bootcamp is intensive, and preparation is much advised, please see a list of resources that will help getting you at the right track to success

Expand your knowledge, step by step, by completing as much as you can of the following tutorials:

Javascript

- https://developer.mozilla.org/en-US/Learn/Getting_started_with_the_web/JavaScript_basics
- https://www.udacity.com/course/intro-to-javascript--ud803
- https://learn.freecodecamp.org/ - focus on the basic javascript section

More options (some might have a cost)

- https://frontendmasters.com/courses/javascript-basics/
- https://teamtreehouse.com/library/javascript-basics
- https://www.codeschool.com/learn/javascript
- http://www.w3schools.com/js

HTML

- http://www.w3schools.com/html/
- https://developer.mozilla.org/en-US/Learn/HTML

CSS

- http://www.w3schools.com/css
- https://developer.mozilla.org/en-US/Learn/CSS