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SETUP

Card 1 of 10

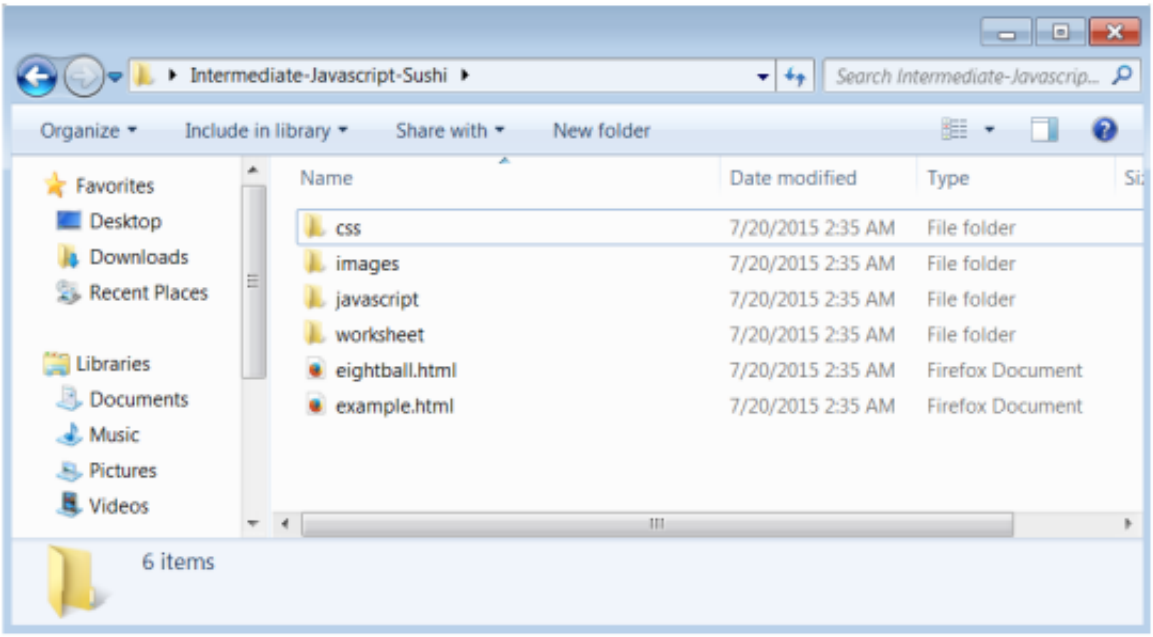
I'm Learning: Javascript

1. Make sure you have a text editor installed (Atom, Notepad++ or Sublime Text). If you need help, ask a mentor to install it for you. After installing, open your text editor.

2. **Download** the zip file from **kata.coderdojo.com/Intermediate_Javascript_Sushi**.

3. **Unzip** the compressed folder and **move** it to your documents folder.

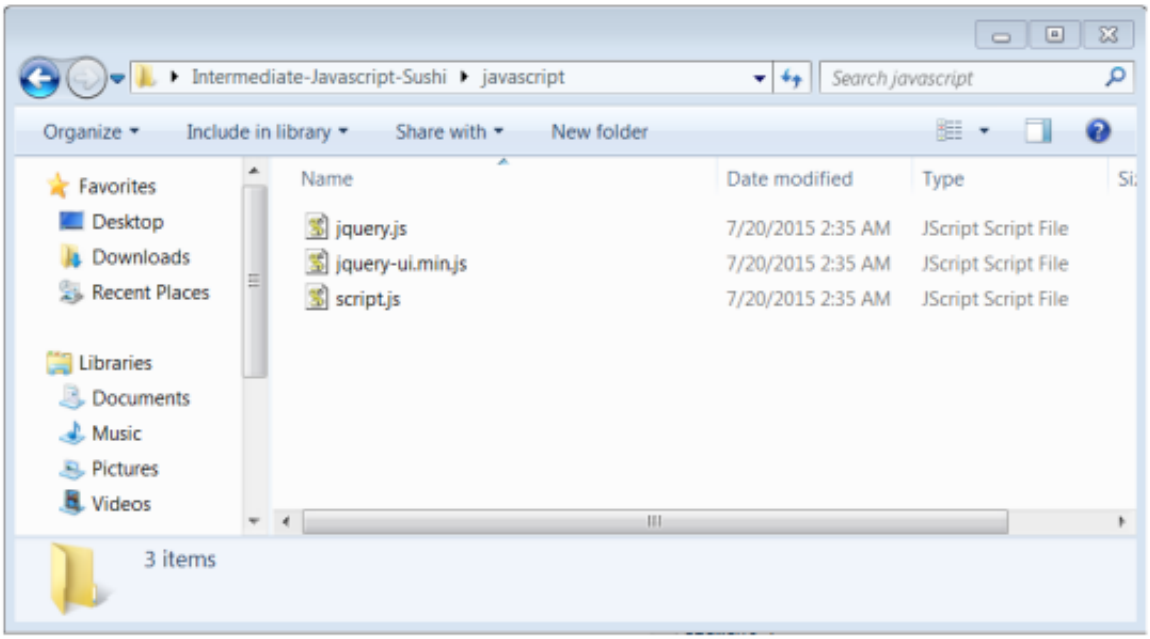
4. **Open** the **"Intermediate-Javascript-Sushi"** folder and make sure it has the same files as the screen below.



Tip: Naming any of your ids, classes, functions, etc with "ad" or "advert" can cause **AdBlock** to block it.

AdBlock is a browser extension that allows users to prevent page elements, such as advertisements from being displayed.

4 **Check** inside the **"javascript"** folder and make sure it has all three javascript files like the one in the screenshot below.



Tip: Pdf version of the sushi cards can be found in the **worksheet** folder inside the project folder.

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DEBUGGING

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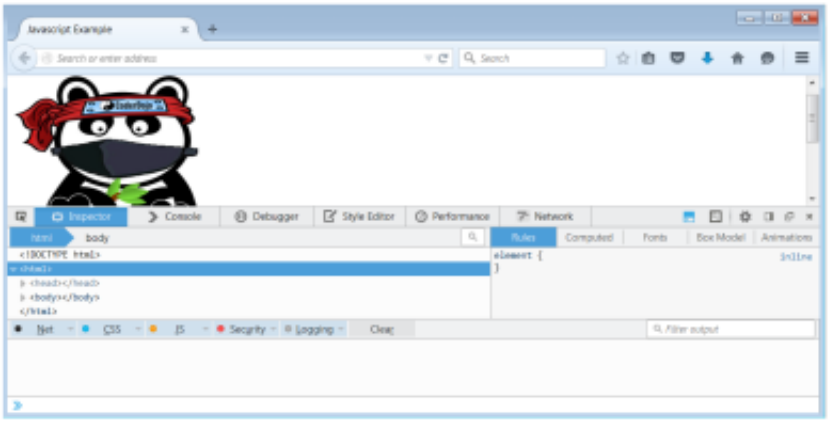
I'm Learning: Javascript

1. **Open "example.html"** located **inside** your project folder, in your browser (Google Chrome or Mozilla Firefox).
2. To open the built-in debugger tool of you browser, right click on your mouse and **choose "Inspect Element"**. Your browser will now look like the one below.

Google Chrome

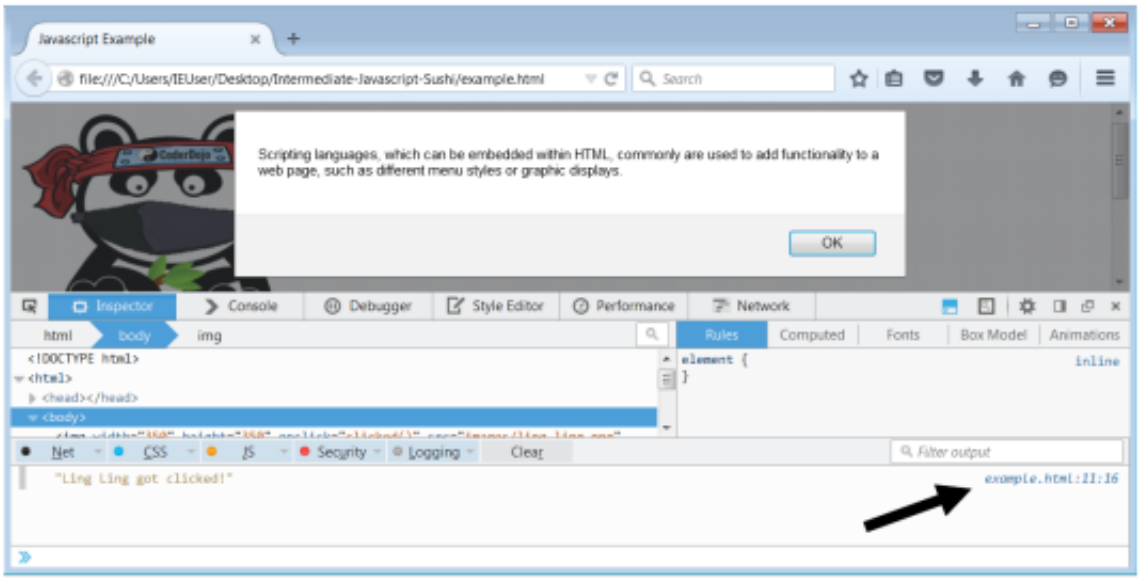


Mozilla Firefox

3. Try **clicking** Ling Ling the Panda and you should see the text **"Ling Ling got clicked!"** in the console section of the debugger.

console.log() can be used to display a value into the console of a browser.

4 **Click** the link at the right side of the **"Ling Ling got clicked!"** text. This will highlight the line of code used for that text to appear.



5 Once you've clicked the link, it will take you to the sources section (Firefox) or debugger section (Chrome). On the left portion of that section, you will see the name of the files used on that web page.

Tip: You can also test css attributes on a certain section of your web page using the debugger tool.

Fun Exercise!

Open "example.html" in your text editor and try **removing** a bracket or semicolon in the script code and **save** it. **Refresh** your page and **open** the debugger tool. Check what's written in the console section.

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CLICK EVENTS WITH JQUERY

1 **Open** "eightball.html" in your browser and try to **click** the submit button. It does nothing right? Let's try to make it work using JavaScript and the jQuery library.

2 To write your script code in a separate file, you need to link up your script and html file. To do this, **open** "eightball.html" in your text editor and **inside** the <head> tags, add the following code.

```
<script src="javascript/jquery.js"></script>
<script src="javascript/jquery-ui.min.js"></script>
<script src="javascript/script.js"></script>
```

The JavaScript files are inside the **"javascript"** folder so we need to specify the folder name too.

3 **Open** the "script.js" file which is inside the "javascript" folder, in your text editor. Write the code written below. **All your script code will be written inside the curly brackets "{}"**.

```
$(document).ready(function() {

});
```

4 Using the id name of the submit button in the html file to access it, **write** the code below to make something happen when the submit button is clicked.

```
$("#submit_button").click(function() {

});
```

5 To make the ball move when the submit button is clicked, we need to use the **effect()** function in the jQuery library. **Write** the code below, **inside** the code you've written in step 4. **Save** your code and **refresh** your page. The magic 8 ball will now shake from left to right when the submit button is clicked.

```
$("#magic8ball" ).effect("shake", "slow");
```

6 Now let's make the text inside the magic 8 ball move. **Inside** the code from step 4, **add** the code below.

```
$("#magic8balltext"  ).effect("shake" , "slow" );
```

Tip: jQuery is a JavaScript library that makes it easier to use JavaScript.

A **library** in programming is a set of functions or functionality that lets us take a shortcut when writing our own code.

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VARIABLE AND DATA TYPES

JavaScript **variables** are containers for storing data values.

Syntax:

```
var variableName = "My favourite colour is purple";
```

Variables can **store** different **Data Types.**

String is used to store text

```
var myName = "Jimmy Neutron";        // String
```

Number (or Integer) is used to store any number

```
var age = 12;                                  // Number (Integer)
```

Boolean is used to store either true or false

```
var happy = true;                            // Boolean
```

```
1  $(document).ready(function() {
2
3      $("#submit_button").click(function() {
4          $("#magic8ball").effect("shake", "slow");
5          $("#magic8balltext").effect("shake", "slow");
6      });
7  });
```

1 Just **before** the submit button click function, **create** a new variable called **"numClicks"** with a value of **0**.
It will look like the one below.

```
var numClicks = 0;
```

2 Just like the common data types, you can also **store** jQuery objects in a variable and the process is the same.
Add the code below the **"numClicks"** variable you created.

```
var ball = $("#magic8ball");
var ballText = $("#magic8balltext");
```

3 **Create** a new variable named **"input"** **inside** the click function that will store the questions written inside the input box.

```
var input = $.trim($("#input_box").val());
```

Tip: trim() function can be used to remove (white) spaces from both sides of a string.

4 **Below** the **"input"** variable, **use** console.log() to show the default value that is inside the input box in the console of the debugger tool.

```
console.log(input);
```

Fun fact:

Unlike Java, **JavaScript** is a loosely typed language. It means that variables used in the program do not have a definite type. A variable can be of **any** type and they are all created with the keyword "var".

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USING VARIABLES

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I'm Learning: Javascript

```
1   $(document).ready(function() {
2       var numClicks = 0;
3       var ball = $("#magic8ball");
4       var ballText = $("#magic8balltext");
5
6       $("#submit_button").click(function() {
7           $("#magic8ball").effect("shake", "slow");
8           $("#magic8balltext").effect("shake", "slow");
9           var input = $.trim($("#input_box").val());
10          console.log(input);
11
12      });
13  });
```

1 **Inside** the click function code, **add** a line of code to increment the value of **"numClicks"** every time the submit button is clicked.

```
numClicks++;
```

Tip: Increment (++) operator increases the value of a variable by one every time it is called.

2 **Add** another line of code to use the **console.log()** to display the number of clicks so far every time you click the submit button.

```
console.log(numClicks );
```

3 **Edit** the code in step 2 to **join** a string and the **"numClicks"** variable using a plus (+) operation. **Save** your code and **refresh** your page.

```
console.log("Number of clicks: " + numClicks);
```

4 You can **combine** int and strings using plus (+) operation too. Let's try doing that. **Create** a new variable named **"clickText"** **below** where your other variables are. It will look like the one below.

```
var clickText = "Number of clicks: " + numClicks);
```

5 **Edit** the code in step 3 so that it will look like this:

```
console.log(clickText + " so far!");
```

6 **Edit** the code **inside** the click function so that it will use the **"ball"** and **"ballText"** variable. **Save** your code and **refresh** your browser. Magic 8 ball will still work when you click the submit button.

Old code:

```
$("#magic8ball").effect("shake", "slow");
$("#magic8balltext").effect("shake", "slow");
```

New code:

```
ball.effect("shake", "slow");
ballText.effect("shake", "slow");
```

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IF STATEMENT

Card 6 of 10

I'm Learning: Javascript

An **if statement** is a way of asking your computer to make a decision on whether something is true. We ask questions like this every day like:

```
if(isItRaining) {
    // then get my umbrella
}
```

```
1  $(document).ready(function() {
2      var numClicks = 0;
3      var ball = $("#magic8ball");
4      var ballText = $("#magic8balltext");
5
6      $("#submit_button").click(function() {
7          ball.effect("shake", "slow");
8          ballText.effect("shake", "slow");
9          var input = $.trim($("#input_box").val());
10         console.log(input);
11         numClicks++;
12         console.log("Number of clicks: " + numClicks);
13
14     });
15 });
```

1 We need to check that the input box isn't empty when the submit button is clicked.
To do this, we need to **check** using an **if statement**. **Inside** the click function, **add** an **if** statement that checks if the value of **"input"** variable is not empty. It will look like this:

```
if(input.length == 0) {  // if the number of characters that the
                         // person enters is equal to zero
}
```

Tip: length counts how many characters/letters are inside a variable with a string data type.

2 **Inside** the **if** statement in step 1, **add** the following code below.

```
ballText.fadeOut("fast", function() {
    ballText.text("Don't gobblefunk around with words!");
    ballText.fadeIn("fast");
});
```

Explanation:

The code above will make the Magic 8 ball text fade out at a "fast" pace. After it is fully faded out. It will then change the text to "Don't gobblefunk around with words!" using the text() function. It will then use the fadeIn() function to make the text visible again.

Fun fact:

If statement is one of three conditional statements that we will be learning in this series.

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ELSE-IF AND ELSE STATEMENTS

An **else if statement** asks another question in exactly the same way, except that it will only be asked if the first one isn't true. For example, if it was not raining today:

```
if(isItRaining) {
    // then get my jacket!
}
else if(isItSunny) {
    // then get my sunglasses!
}
```

1 Let's check for a keyword that can be part of the question and give a fitting response. We will use an **else if** statement to check for keywords.
Add the code below **after** the **if** statement.

```
else if(input.indexOf("name") >= 0) {
    ballText .fadeOut("fast", function() {
        ballText .text("Don't gobblefunk around with words!");
        ballText .fadeIn("fast");
    });
}
```

Tip: indexOf() function lets you know the first place it finds your string **"name"** in the question you put in the input box.

"For example, if you entered "What is my name" in the input box, then the value of "indexOf('name')" would be 11. Because 11 is greater than zero that means the else if is true!"

2 **Save** your code and **refresh** your browser. Now try to **write** a question in the input box that has **"name"** word in it and **click** the submit button. e.g. "What is your name?"

Fun exercise!

Think of more keywords (e.g. age, hobby) that are often used in a question and **create** an appropriate response for it using the else-if statement and **add** it below the code you've written in step 1.

An **else statement** is a little different. It is checked if none of the other statements before it are true. Think of it as a safety net, in case something unexpected happens!

Syntax:

```
if(isItRaining) {
   // then get my jacket!
}
else if(isItSunny) {
   // then get my sunglasses!
}
else {
   // I'll get my coat
}
```

You don't have to have an else statement if you want to use else, you can use it like this too:

```
if(isItRaining) {
   // then get my jacket!
}
else {
   // I'll get my coat
}
```

3 **Add** an **else** statement **below** your other control statements to give a general answer if no keyword is found in the question given. Your **else** statement will look like the one below.

```
else {
   ballText.fadeOut("fast", function() {
      ballText.text("Yes");
      ballText.fadeIn("fast");
   });
}
```

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ARRAYS

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I'm Learning: Javascript

Arrays are used to **store** multiple values in a single container. We will be using an array to store general responses.

Syntax:

Creating array:

```
var favouriteArtists = ["David Bowie", "The Frames", "Tori Amos"];
```

Accessing values:
You will use **index numbers** to access values inside an array. First value of the array is **always** stored at index 0.

```
console.log(favouriteArtists [0]);  // display 1st value (David Bowie)
console.log(favouriteArtists [1]);  // display 2nd value (The Frames)
console.log(favouriteArtists [2]);  // display 3rd value (Tori Amos)
```

Adding new values:
You can **add** new values in an array using **push()** function. It will add the new values at the end of the array.

```
favouriteArtists.push("Florence and the Machine");  // add Florence
favouriteArtists.push("Bethoven", "Pixies");  // add Bethoven, Pixies
```

Arrays are like a list of items, such as playlist.

1. In the section of the code where all the current variables are, **add** an array named **"ballResponse"** with a list of strings with values **"Yes"** and **"No"**. The code will look like this:

```
var ballResponse = ["Yes", "No"];
```

2 To use the general responses in the array into your magic 8 ball. **Edit** the code **inside** the **else** statement so that it will look like this:

```
ballText.text(ballResponse[1]);
ballText.fadeIn("fast");
```

3 **Add** the following general responses **below** into the **"ballResponse"** array using the **push()** function. You can **write** the below the variables.

General response:

"Where your treasure is, there will your heart be also."

"Happines can be found, even in the darkest of times, if one only remembers to turn on the light."

"If you want to know whwat a man's like, take a good look at how he treats his inferiors, not his equals."

"It does not do to dwell on dreams and forget to live"

"We must all make the choice between what is right and what is easy"

Tip: you can use console.log() to display the values inside the array in the browser's debugger tool.

Fun exercise!

Change the index number of the **"ballResponse"** array in step 2 to any number from 0 **up to** the number of values inside your array **minus one**.

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USING RANDOM FUNCTION

random() function is used to generate a random number **between** zero and one. e.g. 0.1, 0.9, 0.4, 0.6

```
$("#submit_button").click(function() {
    ball.effect("shake", "slow");
    ballText.effect("shake", "slow");
    numClicks++;
    console.log("Number of clicks: " + numClicks);
    var input = $.trim($("#input_box").val());

    if(input.length == 0){
        ballText.fadeOut("fast", function() {
            ballText.text("Don't gobblefunk around with words!4");
            ballText.fadeIn("fast");
        });
    }
    else if(input.indexOf("name") >= 0){
        ballText.fadeOut("fast", function() {
            ballText.text("Cat's don't have names. Now you people have
            names. That's because you don't know who you are. We
            know who we are, so we don't need names.");
            ballText.fadeIn("fast");
        });
    }
    else{

        ballText.fadeOut("fast", function() {
            ballText.text(ballResponse[1]);
            ballText.fadeIn("fast");
        });
    }
});
```

1 **Create a** new variable named **"number" inside** the else statement and **use** random() function to generate a random number. Your else statement will now look like the one below.

```
else {
   var number = Math.floor(
      (Math.random() * ballResponse.length) + 1
   );
   ballText.fadeOut("fast", function() {
      ballText.text(ballResponse[1]);
      ballText.fadeIn("fast");
   });
}
```

Tip: floor() function is used to round a number downward to its nearest whole number. e.g. 5.7 becomes 5

length is used to return the size of an array or variable.

Ask a mentor on the process that happened in step 1 if you are not sure what it's doing.

2 In the same section of the code, **change** the index number of the **"ballResponse"** array to **"number"** variable. It will look like the code below.

```
ballText.text(ballResponse[number]);
ballText.fadeIn("fast");
```

3 **Save** your code and **refresh** your page. The general responses will now be randomly chosen every time if no keyword is seen in the question given.

Fun Exercise!

Let's make the text colour change randomly! **Add** the array below with a list of colours below where your other variables are.

```
var colour = ["green", "blue", "red", "yellow"];
```

Edit your **else** statement to use css() function to change the text colour randomly. **Add** the following code **below** the number variable.

```
ballText.css({"color" : colour[number] });
```

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FUNCTIONS

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I'm Learning: Javascript

A JavaScript **function** is a chunk of code that is reusable. For example, saying hello might be a regular task:

Syntax:

```
// function with no parameter
 function sayHi() {
    console.log("ohai");
 }
```

We can use a **parameter** called **name** to say hi to a particular person:

```
function sayHitToPerson(name) {
   console.log("ohai " + name);
}
```

1 **Create** a new function called "changeText" with one parameter named "message" **after** the submit button click function. The function code will look like this:

```
function changeText(message) {

}
```

2 **Inside** the new function, write the same code you have in the **if** statement and **change** the value inside the "text" function to "message". The changeText function will now look like the one below.

```
function changeText(message) {
   ballText.fadeOut("fast", function() {
      ballText.text(message);
      ballText.fadeIn("fast");
   });
}
```

3 **Create** a new variable named "emptyMessage" below the variables that you have and **store** "I can has a question?" as a value. It will look like this:

```
var emptyMessage = "I can has a question?";
```

4 **Edit** the code **inside** the if statement so that it's like the one below. **Save** the code and **refresh** your page. The code will work the same way as before, but now you have a better code that you can reuse.

```
if(input.length == 0) {
changeText(emptyMessage);
}
```

5 **Edit** the **else** statement so that it will look like the one below.

```
else {
var number = Math.floor(
(Math.random() * ballResponse.length) + 1
);
ballText.css({"color" : colour[number] });
changeText(ballResponse[number]);
}
```

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