

JavaScript objects

We are now looking at advanced JavaScript coding! In this video, Steve looks at JavaScript objects.

In this video, you will learn some new terminology, including the **properties** of strings and their length, which refers to text, and **methods**, where an action can change the characteristics of an object. For example, a string of text could be changed from lower case to upper case using JavaScript. Steve says in the first minute of the video that this is a more challenging use of JavaScript – don't let that put you off! As he also says, give it a try – you will find that if you work step by step through the video, you can master even advanced coding techniques. At the end, you will have coded a button that will measure the length of a text string and convert it to upper case.

Step 1: Findings out about objects, properties and methods (Video start – 1.10)

Watch the first 1 minute and 10 seconds of the video, where Steve explains objects, properties and methods. Don't give up at the end of this! Give it a try...

Step 2: Creating the first piece of code (video 1.11 – 01.32)

Watch the next 20 seconds or so of the video, stop it and then create the first piece of code in Notepad++. It should look like Steve's, and the screenshot on the right.

Note, Steve has created two input fields with text and a button. The function will be to convert something when the button is clicked.

```
1 <html>
2 <head>
3 </head>
4 <body>
5 <input type="text" id="messageBox"/>
6 <input type="button" value="Convert" onclick="convert()"/>
7 </body>
8 </html>
```



Step 3: Building the function inside the script tags (video 01.33 – 2.29)

In the next step, Steve types in the script tags and the function inside them. Watch the video and add the function code and the script tags to your Notepad++ document.

He uses two variables here – length and message. He also uses the syntax that should be familiar now, which tells the browser where to find the message (in the message box). Make sure your code matches Steve’s and the screenshot on the right. Don’t forget the curly bracket for the function.

```
1 <html>
2 <head>
3 <script>
4   function convert()
5   {
6     var length;
7     var message;
8
9     message = document.getElementById("messageBox").value;
10
11  }
12 </script>
13 </head>
14 <body>
15 <input type="text" id="messageBox"/>
16 <input type="button" value="Convert" onclick="convert()"/>
17 </body>
18 </html>
```

Step 4: Defining a string as an object (Video 02.20 – 03.09)

Steve adds some more code to the function, and explains how the **length** of the message is a **property** of the **string** that is the message.

Lots of new terms! Let’s go through that again. The message is a string of text, and the length in the function is a property of that string. That is, how long it is – or how many characters of text there are in the string.

Add the line of code defining the length to your Notepad++ document. It should look like the screenshot on the right.

```
1 <html>
2 <head>
3 <script>
4   function convert()
5   {
6     var length;
7     var message;
8
9     message = document.getElementById("messageBox").value;
10    length = message.length;
11  }
12 </script>
13 </head>
14 <body>
15 <input type="text" id="messageBox"/>
16 <input type="button" value="Convert" onclick="convert()"/>
17 </body>
18 </html>
```

Step 5: Adding more to the function that will change the text to upper case (Video 3.10 – 4.02)

Steve now adds another line of code which puts another function inside the function. In this case, it is a conversion from lower case to upper case letters. So the syntax tells the message (string of text) to change from lower case to upper case.

Watch the video, and Steve’s explanation, and then add this line of text to your document. It should look like the screenshot above.

```
1 <html>
2 <head>
3 <script>
4   function convert()
5   {
6     var length;
7     var message;
8
9     message = document.getElementById("messageBox").value;
10    length = message.length;
11    message = message.toUpperCase();
12  }
13 </script>
14 </head>
15 <body>
16 <input type="text" id="messageBox"/>
17 <input type="button" value="Convert" onclick="convert()"/>
18 </body>
19 </html>
```



Step 6: Getting the output of length and conversion to upper case (Video 4.03 – 4.38)

In this next piece of video, Steve adds more code that will generate the correct message in the message box – one that tells the user the length of the text string, and the conversion of the text to upper case. He also inserts a colon to appear between the length and the message by using ":".

Add this code to your document, and the close curly bracket. Make sure it looks like the screenshot on above.

```
1 <html>
2 <head>
3 <script>
4   function convert()
5   {
6     var length;
7     var message;
8
9     message = document.getElementById("messageBox").value;
10    length = message.length;
11    message = message.toUpperCase();
12    document.getElementById("messageBox").value =
13    length + ":" + message;
14  }
15
16 </script>
17 </head>
18 <body>
19   <input type="text" id="messageBox"/>
20   <input type="button" value="Convert" onclick="convert()" />
21 </body>
22 </html>
```

Step 7: Publishing the page and checking the convert button works (Video 4.39 to end)

In the final piece of video, Steve saves his code and then runs it in Chrome. A message box and button marked Convert appears. When a message is typed into the box, and the button is clicked, two things happen. A number appears, followed by a colon, and the text changes to upper case. The number is the length of the text string – that is, how many characters are in it.



So your code has used properties of objects – messages – to create two things. A way of measuring the length of the message, and a way to convert the message to something else, in this example, upper case letters. If you are still confused about the way this code has worked, watch the video again. Steve does explain it very well.

Check your code generates the same page, and test a few text strings in the box. You should find the length and the conversion to upper case happens each time the button is clicked. Take a screenshot of your working code (don't forget to debug it if it doesn't work first time), and your page with a converted piece of text in it, and insert these into your Student Log.

Well done – you got through your first task in Advanced JavaScript Coding!