## Using JavaScript Libraries

Many individuals and groups have developed libraries of JavaScript functions and made them available via the web.

Many libraries include interaction widgets which are not otherwise supported by web-browsers, or which provide additional functionality not available with the standard widgets, e.g.:

* menus
* sliders
* combo-boxes
* editors

An example of such a library is **JQuery**

In this exercise we will compare the standard slider element supported natively by browsers with a more sophisticated slider from the JQuery JavaScript library.

First, create a web-page that includes a range input element, e.g.:

<input type='range'>

Add a text-box to your web-page. This will be used to display the current value of the slider.

Give the text-box a suitable id so that you can access it from a script.

View your web-page in a browser. The <input> element should appear as a slider, with a handle that can be dragged.

<!DOCTYPE html>

<html>

<head>

<script type ='text/javascript'>

</script>

</head>

<body>

<input type='range'>

<input type='text' id='textBox'>

</body>

</html>

Add an onchange event-handler to the <input> element.

This should call a function and pass this.value as a parameter. For example:

<input type='range' onchange='showValue(this.value)'>

Create a JavaScript function to receive this value and display it in the text-box. For example:

function showValue(sliderSetting) {

document.getElementById('textBox').value = sliderSetting;

}

View your web-page again - you should find that dragging the slider changes the displayed value.

When this is working, try customising the slider.

By default it will return values between 0 and 100, but you can change this by adding min and max properties.

You can also determine where the handle is positioned by setting the value property.

Save your web-page, then create another page which uses the JQuery JavaScript library to create a slider.

First, you will need to create a link to the online JQuery code and the style-sheet.

Add the following lines of code to the <head> of your web page:

<script src="https://code.jquery.com/jquery-3.3.1.min.js"></script>

<script src="https://code.jquery.com/ui/1.12.1/jquery-ui.js"></script>

<link rel="stylesheet"

href="http://code.jquery.com/ui/1.10.0/themes/base/jquery-ui.css">

Next, create a <div> element to act as the slider.

There is no need to make it look like a slider - that will be done by JQuery.

All that is necessary is to give it a suitable id, e.g., id = 'slider'.

<!DOCTYPE html>

<html>

<head>

<script src="https://code.jquery.com/jquery-3.3.1.min.js"></script>

<script src="https://code.jquery.com/ui/1.12.1/jquery-ui.js"></script>

<link rel="stylesheet"

href="http://code.jquery.com/ui/1.10.0/themes/base/jquery-ui.css">

<script type ='text/javascript'>

</script>

</head>

<body>

<div id='slider'></div>

<input type='text' id='textBox'>

</body>

</html>

Now place the following code inside the <script> tags in the <head> section of your web-page:

window.addEventListener('DOMContentLoaded', initialise, false);

function initialise() {

$( "#slider" ).slider({ value: [ 50 ] });

}

The code $() performs selection in JQuery:

* it will obtain a reference to the element whose id is slider
* the element will then be set-up as a slider with an initial setting of 50.

View your web-page in a browser. The <div> should appear as a slider with a draggable handle.

View the page in different browsers and see how the slider differs in appearance. Add CSS to position the slider wherever you wish on the page, and to set its width, etc..

The next stage is to recover the setting of the slider each time it changes.

Add the following code to your initialisation function:

window.addEventListener('DOMContentLoaded', initialise, false);

function initialise() {

$( "#slider" ).slider({ value: [ 50 ] });

$( "#slider" ).on(

{ slide:

function() {

var setting = $("#slider").slider("option", "value");

document.getElementById('textBox').value = setting;

}

}

);

}

(where textBox is the id of your text-box).

This code:

* creates a function that is called whenever the slider is moved

($( "#slider" ).on({ slide:).

* the function obtains the new setting of the slider (its value) and displays it in the text-box.

Note that the function doesn't have a name - it doesn't need one.

View your web-page in a browser. When the slider is moved, the new value should appear in the text-box.

One of the useful features of the JQuery slider is that it can support more than one handle.

Thus a single slider can be used (e.g.) to set both a minimum and a maximum value for a variable.

To create a slider with two handles, the code might be changed as follows:

window.addEventListener('DOMContentLoaded', initialise, false);

function initialise() {

$( "#slider" ).slider({ values: [ 20,80 ] });

$( "#slider" ).on(

{ slide:

function() {

var setting = $("#slider").slider("option", "values");

document.getElementById('textBox').value =   
     setting[0] + ', ' + setting[1];  
 }

}

);

}

In this example:

* value is changed to values, and two values are provided, separated by a comma
  + It's possible to specify more than two values if you wish to create additional handles.
* The variable setting will now hold an array in which each element holds the value of one of the slider handles.

In these examples, links to the required JQuery files were used.

It's also possible download the JQuery files, store them locally, and link to the local copies, e.g.:

<script type="text/javascript" src="jquery.js"></script>