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1 <!DOCTYPE html>
2 <html>
3 <head>
4   <meta charset="utf-8">
5   <title>Function Demonstrations</title>
6 <!--
7   File:  cssdweb.edu/Student Resources/Website Development I/CodeSamples/
8         FunctionDemonstrations_v2.html
9   Copyright (c) 2022-2023 by Jesse Heines. All rights reserved. May be freely
10  copied or excerpted for educational purposes with credit to the author.
11  updated by JMH on May 26, 2023 at 3:27 PM
12 -->
13 <style>
14   input[type="radio"] {
15     margin-left: 1em ;
16   }
17 </style>
18
19 <script type="text/javascript">
20
21   // get the format number for second table if supplied
22   var strQuery = window.location.search ;
23   var urlParams = new URLSearchParams( strQuery ) ;
24     // Note that URLSearchParams is a special type of function called a constructor.
25     // It takes the query string as its argument and constructs an object from which
26     // we can extract the values by their names.
27   var strFormatNumber = urlParams.get( "format" ) ;
28     // Note that the .get function always returns a string, not a number.
29   // console.log( strFormatNumber ) ;
30   // console.log( typeof strFormatNumber == "undefined" ) ;
31   // console.log( strFormatNumber == null ) ;
32   // console.log( strFormatNumber === null ) ;
33
34   // set the default format number if one is not specified as a parameter
35   if ( strFormatNumber == null ) {
36     strFormatNumber = 0 ;
37   }
38
39   // reload the current page with the selected format number as a parameter
40   var ReloadWithFormat = function( nFormat ) {
41     window.location = window.location.pathname + "?format=" + nFormat ;
42   } ;
43
44   // indicate which radio button was selected
45   var SelectFormatRadioButton = function( nFormat ) {
46     // console.log( typeof nFormat ) ;
47     switch ( nFormat ) {
48       case 0 :
49         document.getElementById( "zero" ).checked = true ; break ;
50       case 1 :
51         document.getElementById( "one" ).checked = true ; break ;
52       case 2 :
53         document.getElementById( "two" ).checked = true ; break ;
54       case 3 :
55         document.getElementById( "three" ).checked = true ; break ;
56     }
57   }
58
59   // return the area of a circle given its radius
60   var CircleArea = function( radius ) {
61     var area = Math.PI * radius * radius ;
62     return area.toFixed( 5 ) ;
63   }
64
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65 // return the area of a circle given its radius in one of three formats
66 var CircleArea2 = function( radius, nFormat ) {
67     if ( typeof nFormat == "undefined" ) {
68         nFormat = 2 ;
69     }
70     var area = Math.PI * radius * radius ;
71     switch ( nFormat ) {
72         case 0 : return area ; break ;
73         case 1 : return Math.round( area ) ; break ;
74         case 2 : return area.toFixed( 5 ) ; break ;
75         case 3 :
76             return area.toLocaleString( "en-US", { minimumFractionDigits: 5 } ) ;
77         break ;
78     }
79 }
80
81 // return today's date in ISO8601 format (YYYY-MM-DD with Leading 0s if necessary)
82 GetTodayISO8601_v1 = function() {
83     var now = new Date() ; // today's date as an object
84     var strNowISO8601 = "" ; // initialize this variable as a string
85
86     // set year
87     if ( now.getFullYear() < 1900 ) {
88         strNowISO8601 += ( now.getFullYear()+1900 ) ;
89     } else {
90         strNowISO8601 += now.getFullYear() ;
91     }
92
93     // set month
94     if ( now.getMonth()+1 < 10 ) {
95         strNowISO8601 += "-0" + ( now.getMonth()+1 ) ;
96     } else {
97         strNowISO8601 += "-" + ( now.getMonth()+1 ) ;
98     }
99
100    // set day
101    if ( now.getDate()+1 < 10 ) {
102        strNowISO8601 += "-0" + ( now.getDate() ) ;
103    } else {
104        strNowISO8601 += "-" + ( now.getDate() ) ;
105    }
106
107    // return fully constructed string
108    return strNowISO8601 ;
109 }
110
111 // return today's date in ISO8601 format
112 GetTodayISO8601_v2 = function() {
113     var now = new Date() ; // today's date as an object
114
115     // modified per suggestion by student Nathan Gilbert on January 16, 2009 at 9:52 PM
116     var strNowISO8601 = "" +
117         ( now.getFullYear() < 1900 ? now.getFullYear()+1900 : now.getFullYear() ) ;
118     strNowISO8601 += "-" +
119         ( now.getMonth()+1 < 10 ? "0" + (now.getMonth()+1) : now.getMonth()+1 ) ;
120     strNowISO8601 += "-" +
121         ( now.getDate() < 10 ? "0" + now.getDate() : now.getDate() ) ;
122
123     return strNowISO8601 ;
124 }
125
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126 // return today's date in ISO8601 format
127 GetTodayISO8601_v3 = function() {
128     var now = new Date() ; // today's date as an object
129
130     // https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/
131     // Global_Objects/Date/toISOString
132     var strNowISO8601 = now.toISOString() ;
133
134     return strNowISO8601 ;
135 }
136
137 // return today's date in ISO8601 format
138 GetTodayISO8601_v4 = function() {
139     var now = new Date() ; // today's date as an object
140
141     // https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/
142     // Global_Objects/Date/toISOString
143     // https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/
144     // Global_Objects/String/substring
145     var strNowISO8601 = now.toISOString().substring( 0, 10 ) ;
146
147     return strNowISO8601 ;
148 }
149 </script>
150
151 <style>
152     table.CircleAreas tr td:nth-child(1) {
153         text-align : center ;
154     }
155     table.CircleAreas tr td:nth-child(2) {
156         text-align : right ;
157     }
158 </style>
159 </head>
160
161 <body onload="SelectFormatRadioButton( nFormat ) ;">
162     <h3>Calling Function CircleArea( n )</h3>
163     <table class="CircleAreas" cellspacing="0" cellpadding="5" border="1">
164         <tr>
165             <th colspan="2">Circle Areas</th>
166         </tr>
167         <tr>
168             <th>Radius</th>
169             <th>Area</th>
170         </tr>
171         <tr>
172             <td>1</td>
173             <td>
174                 <script>
175                     document.writeln( CircleArea( 1 ) ) ;
176                 </script>
177             </td>
178         </tr>
179         <tr>
180             <td>2</td>
181             <td>
182                 <script>
183                     document.writeln( CircleArea( 2 ) ) ;
184                 </script>
185             </td>
186         </tr>

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187     <tr>
188         <td>4</td>
189         <td>
190             <script>
191                 document.writeln( CircleArea( 4 ) ) ;
192             </script>
193         </td>
194     </tr>
195     <tr>
196         <td>8</td>
197         <td>
198             <script>
199                 document.writeln( CircleArea( 8 ) ) ;
200             </script>
201         </td>
202     </tr>
203     <tr>
204         <td>16</td>
205         <td>
206             <script>
207                 document.writeln( CircleArea( 16 ) ) ;
208             </script>
209         </td>
210     </tr>
211     <tr>
212         <td>34</td>
213         <td>
214             <script>
215                 document.writeln( CircleArea( 32 ) ) ;
216             </script>
217         </td>
218     </tr>
219     <tr>
220         <td>64</td>
221         <td>
222             <script>
223                 document.writeln( CircleArea( 64 ) ) ;
224             </script>
225         </td>
226     </tr>
227 </table>
228
229 <br><hr>
230
231 <h3>Using a Loop Within the Table</h3>
232 <!-- format selection table -->
233 <table cellspacing="0" cellpadding="0" border="0" style="margin-bottom: 1em">
234     <tr>
235         <td><em>Format:</em></td>
236         <td><input type="radio" id="zero" onclick="ReloadWithFormat( 0 );">
237             <label for="zerp">no format</label></td>
238     </tr>
239     <tr>
240         <td></td>
241         <td><input type="radio" id="one" onclick="ReloadWithFormat( 1 );">
242             <label for="one">rounded to an integer</label></td>
243     </tr>
244     <tr>
245         <td></td>
246         <td><input type="radio" id="two" onclick="ReloadWithFormat( 2 );">
247             <label for="two">to 5 decimal places</label></td>
248     </tr>

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249     <tr>
250         <td></td>
251         <td><input type="radio" id="three" onclick="ReloadWithFormat( 3 );">
252             <label for="three">to 5 decimal places with commas in integer part</label></td>
253     </tr>
254 </table>
255
256 <!-- results output table -->
257 <table class="CircleAreas" cellspacing="0" cellpadding="5" border="1">
258     <tr>
259         <th colspan="2">Circle Areas</th>
260     </tr>
261     <tr>
262         <th>Radius</th>
263         <th>Area</th>
264     </tr>
265     <script>
266         var radius = 1 ; // initial circle radius
267         var nFormat ; // variable declaration without an initial value
268         // console.Log( strFormatNumber ) ;
269         if ( strFormatNumber == null ) {
270             nFormat = 0 ; // default format number
271         } else {
272             nFormat = parseInt( strFormatNumber ) ; // format option read from URL
273         }
274         for ( var k = 1 ; k <= 7 ; k++ ) {
275             document.writeln( "<tr>" ) ;
276             document.writeln( "<td>" + radius + "</td>" ) ;
277             document.writeln( "<td>" + CircleArea2( radius, nFormat ) + "</td>" ) ;
278             document.writeln( "</tr>" ) ;
279             radius = radius * 2 ;
280         }
281     </script>
282 </table>
283
284 <br><hr>
285
286 <h3>Functions to Return Today's Date in ISO8601 Format</h3>
287 <p>Call to function <code><strong>GetTodayISO8601_v1()</strong></code> returns:</p>
288 <blockquote>
289     <script>
290         document.writeln( GetTodayISO8601_v1() ) ;
291     </script>
292 </blockquote>
293 <p>Call to function <code><strong>GetTodayISO8601_v2()</strong></code> returns:</p>
294 <blockquote>
295     <script>
296         document.writeln( GetTodayISO8601_v2() ) ;
297     </script>
298 </blockquote>
299 <p>Call to function <code><strong>GetTodayISO8601_v3()</strong></code> returns:</p>
300 <blockquote>
301     <script>
302         document.writeln( GetTodayISO8601_v3() ) ;
303     </script>
304 </blockquote>
305 <p>Call to function <code><strong>GetTodayISO8601_v4()</strong></code> returns:</p>
306 <blockquote>
307     <script>
308         document.writeln( GetTodayISO8601_v4() ) ;
309     </script>
310 </blockquote>
311 </body>
312 </html>

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