Nu Html Checker

This tool is an ongoing experiment in better HTML checking, and its behavior remains subject to change

Showing results for lesson.html

Checker Input

Show ☑ source   ☑ outline   ☑ image report   Options...

Check by | file upload ▾ | Browse... | No file selected.

Uploaded files with .xhtml or .xht extensions are parsed using the XML parser.

Check

Use the Message Filtering button below to hide/show particular messages, and to see total counts of errors and warnings.

Message Filtering

Document checking completed. No errors or warnings to show.

Image report

The `img` elements of the page are shown below categorized by their type of textual alternative. Please review that the images in each group match that group's definition.

Images with textual alternative

The following images have textual alternatives. Please review that the textual alternatives make sense considering the purpose of the image in the context of the page and that phrases like "Image of …" are avoided.

Note that iconic images that are redundant with text next to them or purely decorative should have `alt=""` instead.

Image	Textual alternative	Location
Not resolvable	university_of_west_london_logo	From line 51, column 4; to line 51, column 82
Not resolvable	POS Machine	From line 131, column 6; to line 131, column 61
Not resolvable	Green Tick	From line 190, column 9; to line 190, column 58
Not resolvable	Green Tick	From line 191, column 9; to line 191, column 58
Not resolvable	Green Tick	From line 192, column 9; to line 192, column 58
Not resolvable	Green Tick	From line 195, column 9; to line 195, column 59
Not resolvable	Green Tick	From line 196, column 9; to line 196, column 59
Not resolvable	Green Tick	From line 202, column 9; to line 202, column 56
Not resolvable	Green Tick	From line 205, column 9; to line 205, column 58

Image	Textual alternative	Location
Not resolvable	Green Tick	From line 206, column 9; to line 206, column 58
Not resolvable	Green Tick	From line 207, column 9; to line 207, column 58
Not resolvable	Green Tick	From line 213, column 9; to line 213, column 58
Not resolvable	Green Tick	From line 214, column 9; to line 214, column 58
Not resolvable	Green Tick	From line 215, column 9; to line 215, column 58
Not resolvable	Green Tick	From line 218, column 9; to line 218, column 59
Not resolvable	Green Tick	From line 219, column 9; to line 219, column 59
Not resolvable	Green Tick	From line 225, column 9; to line 225, column 56
Not resolvable	Green Tick	From line 228, column 9; to line 228, column 58
Not resolvable	Green Tick	From line 229, column 9; to line 229, column 58
Not resolvable	Green Tick	From line 230, column 9; to line 230, column 58
Not resolvable	UWL-Logo	From line 289, column 5; to line 289, column 67
Not resolvable	Valid_HTML5!	From line 324, column 6; to line 324, column 82
Not resolvable	Valid_HTML5!	From line 327, column 6; to line 327, column 80

Source

```
1.  <!--
2.  Student Name: Dragos-Gabriel Vornicu
3.  Student ID: 21490251
4.  -->
5.
6.  <!--  *** Disclaimer ***
7.
8.   - Validation has been performed using W3C's CSS validator
9.  for the style.css file and W3C's HTML validator for all .html files.
10.
11.   - .html files can't be validated using W3C's CSS validator (Error: Operation
    not permitted),
12.   as it is requested in Element 2 brief:
13.  "Validation test should be carried out on ALL PAGES by using W3C's CSS
    Validator".
14.   -->
15.
16.  <!-- *** Lessons *** -->
17.
18.  <!DOCTYPE html>
19.  <html lang="en">
20.
21.  <!-- Head section -->
22.  <head>
23.      <!-- meta and title -->
24.      <meta charset="utf-8"/>
25.      <meta name="description" content="Free tutorial of touchscreen
    technology">
26.      <meta name="keywords" content="touchscreen, tablet, smartphone, tutorial,
```

```
           lessons, technology">↵
 27.       <meta name="author" content="Dragos-Gabriel Vornicu">↵
 28.       ↵
 29.       <!-- CSS Stylesheet Link -->↵
 30.       <link rel="stylesheet" type="text/css" href="style.css">↵
 31.       ↵
 32.       <title>Lessons</title>↵
 33.  </head> ↵
 34.  <!-- End of Head section -->↵
 35.  ↵
 36.  <!--
       ********************************************************************************
       *************************** -->↵
 37.  <!--
       ********************************************************************************
       *************************** -->↵
 38.  <!--
       ********************************************************************************
       *************************** -->↵
 39.  ↵
 40.  ↵
 41.  <!-- Body section-->↵
 42.  <body>↵
 43.  ↵
 44.  ↵
 45.  <!-- header section: top line, logo, main menu -->↵
 46.  <header>↵
 47.       <!-- Top line grey - background for UWL logo white -->↵
 48.       ↵
 49.       <div id="bg_top">↵
 50.           <div id="top width">↵
 51.               <img src="images/uwl logo_main_white.png"
       alt="university_of_west_london_logo">↵
 52.           </div>↵
 53.       </div>↵
 54.  ↵
 55.       <!-- Main Menu -->↵
 56.       <div id="container_head">↵
 57.           <nav>↵
 58.               <ul>↵
 59.                   <li><a href="index.html">Home</a></li>↵
 60.                   <li><a href="about_us.html">About</a></li>↵
 61.                   <li id="nav_on">Lessons</li>↵
 62.                   <li><a href="quizz.html">Quizzes</a></li>↵
 63.                   <li><a href="resources.html">Resources</a></li>↵
 64.                   <li><a href="contact.html">Contact</a></li>↵
 65.               </ul>↵
 66.           </nav>↵
 67.       </div>↵
 68.  ↵
 69.       <hr class="nav_under">↵
 70.  </header>↵
 71.  ↵
 72.  <!--
       ********************************************************************************
       ********** -->↵
 73.  <!-- Main section -->↵
 74.  ↵
 75.  <main>↵
 76.       ↵
 77.       <!-- Table of contents -->↵
 78.           <div class="contents_container">↵
 79.               <h2>Table of Contents</h2>↵
 80.               ↵
 81.               <ol>↵
 82.                   <li><a href="#lesson_1">What is a Touchscreen</a></li>↵
 83.                   <li><a href="#lesson_2">History of Touchscreen
       Technology</a></li>↵
```

```
 84.                        <li><a href="#lesson_3">Touchscreen Technology</a></li>↵
 85.                    </ol>↵
 86.                    ↵
 87.                    <h3>YouTube Videos:</h3>↵
 88.                     ↵
 89.                    <ul>↵
 90.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=50"
      target="_blank">Three Elements of Touchscreens (0:50)</a></li>↵
 91.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=135"
      target="_blank">Strengthened Glass (2:15)</a></li>↵
 92.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=195"
      target="_blank">The Capacitor (3:15)</a></li>↵
 93.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=241"
      target="_blank">Reading the Touch (4:01)</a></li>↵
 94.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=262"
      target="_blank">Location of the Touch (4:22)</a></li>↵
 95.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=303"
      target="_blank">The Display (5:03)</a></li>↵
 96.                        <li><a href="https://youtu.be/cFvh7qM6LdA?t=345"
      target="_blank">Pixels (5:45)</a></li>↵
 97.                        <li><a href="#full_video">How Do Touchscreens Work? - Full
      Video</a></li>      ↵
 98.                    </ul>↵
 99.                    <br>↵
100.                    <br>↵
101.                    <a class="back_to_top" href="#container_head">Back to top
      (Main Menu)</a> ↵
102.                </div>↵
103.  ↵
104.  ↵
105.      <!-- Lesson 1 -->↵
106.      <!-- ******** -->↵
107.  ↵
108.          <div class="lessons_container">↵
109.              <div class="lesson_border">↵
110.                  <div class="heading_wrapper heading_color_3">↵
111.                      <h2 id="lesson_1">1. What is a Touchscreen?</h2>↵
112.                  </div>↵
113.                  ↵
114.                  <p>The touchscreen, also referred to as touch screen, is a
      technology that allows the user to provide input (as a touch panel) and also
      to obtain output (as a display) in the process of interaction with a
      computational device.</p>↵
115.                  <p>The main role of a touchscreen is to facilitate the user to
      interact directly with the information displayed on the screen, through
      tactile means.</p>↵
116.                  <p>In today&apos;s world, touchscreens are the predominant
      types of input methods. From the most popular devices that are incorporating a
      touchscreen, we can enumerate:</p>↵
117.                  <ul>↵
118.                      <li>Smart-phones</li>↵
119.                      <li>Tablets</li>↵
120.                      <li>Laptops</li>↵
121.                      <li>PC monitors</li>↵
122.                      <li>E-books</li>↵
123.                      <li>Printers</li>↵
124.                      <li>Car&apos;s multimedia systems</li>↵
125.                      <li>POS machines (<a href="#pos_machine">Fig.1</a>)
      </li>↵
126.                      <li>Ticket machines</li>↵
127.                      <li>Smart-watches</li>↵
128.                      <li>Etc&hellip;</li>↵
129.                  </ul>↵
130.                  <figure id="pos machine">↵
131.                  <img src="images/pos_touchscreen.png" alt="POS Machine">↵
132.                      <figcaption><i>Fig.1 - Example of a POS Machine with
      Touchscreen</i></figcaption>↵
133.                  </figure>↵
```

```
134. ↵
135.                 <!-- Send to quiz and table of content. -->↵
136.                 <p><b>Quizz: </b>Now that you had finished this lessons, you
     can try out the chapter quiz by clicking <a
     href="quizz.html#quizz_l_1">here</a>.</p>↵
137.                 ↵
138.                 ↵
139.                 <a class="back_to_top" href="#container_head">Back to top
     (Main Menu)</a>↵
140.             </div>↵
141.                 <br>↵
142. ↵
143. ↵
144.             <!-- Lesson 2 -->↵
145.             <!-- ******** -->↵
146.             <div class="lesson_border">↵
147.                 <div class="heading_wrapper heading_color_2">↵
148.                     <h2 id="lesson_2">2. History of Touchscreen
     Technology</h2>↵
149.                 </div>↵
150. ↵
151.                 <p>Although there are various ideas and patents recorded as
     the first touchscreen developed, such as the device developed by AT&T
     Corporation in 1962, under the name of &apos;<i>Electrographic
     transmitter</i>&apos;, generally, the invention of touchscreen↵
152.                     is attributed in 1965 to Eric Johnson, of the Royal Radar
     Establishment, in England.</p>↵
153.                 ↵
154.                 <p>In early 1970s, two engineers from CERN (European
     Organization for Nuclear Research), announced the development of a transparent
     touchscreen which has been practically implemented by different industries in
     1973.</p>↵
155.                 <p>The first multi-touch display has been invented by an Input
     Research Group, including Bill Buxton at the University of Toronto in
     1982.</p>↵
156.                 <br>↵
157.                 <!-- Send to Main Menu. -->↵
158.                 <p><b>Quizz: </b>Now that you had finished this lessons, you
     can try out the chapter quiz by clicking <a
     href="quizz.html#quizz_l_1">here</a>.</p>↵
159.                 <a class="back_to_top" href="#container_head">Back to top
     (Main Menu)</a>↵
160.             </div>↵
161.                 <br>↵
162. ↵
163. ↵
164.             <!-- Lesson 3 -->↵
165.             <!-- ******** -->↵
166.             <div class="lesson_border">↵
167.                 <div class="heading_wrapper heading_color_1">↵
168.                     <h2 id="lesson_3">3. Touchscreen Technology</h2>↵
169.                 </div>↵
170.                 <p>This lesson is based on the YouTube video &apos;How Do
     Touchscreens Work?&apos;, presented by Branch Education and we will focus
     generally on how the capacitive ↵
171.                     touchscreens are working in smartphones devices. The complete
     video can be found at the end of the lesson, with video time-marks throughout
     the article for a more comprehensive presentation. </p>↵
172.                 ↵
173.                 <p>The most common types of screens are made from glass or
     plastic. In <a href="#compar_table">Fig.2</a> can be seen a table that is ↵
174.                     generally presenting the pros and cons between the two. This
     presentation will focus on the glass screens.</p>↵
175.                 ↵
176.                 ↵
177.             <!-- Table -->                    ↵
178.                 <table id="compar_table">↵
179.                     <thead>↵
```

```
180.                            <tr>↵
181.                                <th></th>↵
182.                                <th>Plastic Screen</th>↵
183.                                <th>Glass Screen</th>↵
184.                            </tr>↵
185.                        </thead>↵
186.                        <tbody>↵
187.                            <tr>↵
188.                                <th>Shatter Resistance</th>↵
189.                                    <td>↵
190.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
191.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
192.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
193.                                    </td>↵
194.                                    <td>↵
195.                                        <img src="images/yellow_tick.png" alt="Green
     Tick">↵
196.                                        <img src="images/yellow_tick.png" alt="Green
     Tick">↵
197.                                    </td>↵
198.                            </tr>↵
199.                            <tr>↵
200.                                <th>Scratch Resistance</th>↵
201.                                    <td>↵
202.                                        <img src="images/red_tick.png" alt="Green
     Tick">↵
203.                                    </td>↵
204.                                    <td>↵
205.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
206.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
207.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
208.                                    </td>↵
209.                            </tr>↵
210.                            <tr>↵
211.                                <th>Cost</th>↵
212.                                    <td>↵
213.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
214.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
215.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
216.                                    </td>↵
217.                                    <td>↵
218.                                        <img src="images/yellow_tick.png" alt="Green
     Tick">↵
219.                                        <img src="images/yellow_tick.png" alt="Green
     Tick">↵
220.                                    </td>↵
221.                            </tr>↵
222.                            <tr>↵
223.                                <th>Aesthetic</th>↵
224.                                    <td>↵
225.                                        <img src="images/red_tick.png" alt="Green
     Tick">↵
226.                                    </td>↵
227.                                    <td>↵
228.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
229.                                        <img src="images/green_tick.png" alt="Green
     Tick">↵
230.                                        <img src="images/green_tick.png" alt="Green
```

```
            Tick">↵
231.                                    </td>↵
232.                            </tr>↵
233.                          </tbody>↵
234.                        </table>↵
235.                        <figure>↵
236.                            <figcaption class="table_caption"><i>Fig.2 - Comparative
      for Plastic vs. Glass Screens</i></figcaption>↵
237.                        </figure>↵
238.  ↵
239.                          ↵
240.                        <p>There are 3 elements that form a touchscreen: toughened
      glass, capacitive touchscreen and OLED (Organic Light Emitting Diode) display.
      These elements are assembled one on top of the other ↵
241.                        <a href="https://youtu.be/cFvh7qM6LdA?t=50"
      target="_blank">0:50</a>.</p>↵
242.  ↵
243.                        <p>The top layer is made of chemically strengthened glass
      which gives resistance to impact ↵
244.                        <a href="https://youtu.be/cFvh7qM6LdA?t=135"
      target="_blank">2:15</a>. ↵
245.                        The strengthened glass is usually about 5 times stronger than
      the normal glass. In smartphone industry, ↵
246.                        before 2007 when the first iPhone was released, the general
      standard for smartphone screens was plastic which was easily scratchable, now
      replaced with glass for a more robust aspect. </p>↵
247.  ↵
248.                        <p>The projected capacitive touchscreen is found underneath
      the toughened glass and is responsible for the detection and interpretation of
      the tactile presence. This element is composed from two ↵
249.                        transparent diamond grid patterns printed on polyester with a
      clear insulator positioned in between those. The diamond grids pattern layers
      are interacting with each other through a combination of ↵
250.                        positive and negative electric fields, forming a capacitor ↵
251.                        <a href="https://youtu.be/cFvh7qM6LdA?t=195"
      target="_blank">3:15</a>. ↵
252.                        When a conductive material (tip of the finger, stylus pen,
      etc) is in the proximity of this capacitor, it disrupts the electric field, ↵
253.                        changing the amount of positive and negative charges in
      between the diamond grids. This operation is interpreted by the processor as a
      touch↵
254.                        <a href="https://youtu.be/cFvh7qM6LdA?t=241"
      target="_blank">4:01</a>. ↵
255.                        The location of the touch on the screen&apos;s surface is
      identified by scanning the charges and voltage along the grid pattern ↵
256.                        <a href="https://youtu.be/cFvh7qM6LdA?t=262"
      target="_blank">4:22</a>. </p>↵
257.  ↵
258.                        <p>Below the capacitor we can find the LCD (Liquid Crystal
      Display) or the OLED (Organic Light Emitting Diode) ↵
259.                        <a href="https://youtu.be/cFvh7qM6LdA?t=303"
      target="_blank">5:03</a>. ↵
260.                        In this lesson we will concentrate on OLED technology, which
      can generate high resolution images ↵
261.                        that can be observed and interact with when we are using our
      smartphones. In 2018 high-end smartphones were reaching 3.3 million pixels. ↵
262.                        One pixel is constructed from 3 microscopic, individually
      controlled and dimmable lights of red, blue and green↵
263.                        <a href="https://youtu.be/cFvh7qM6LdA?t=345"
      target="_blank">5:45</a>. ↵
264.                        The image seen on the screen is a grid composited from
      millions of such pixels.</p>↵
265.  ↵
266.                        <p>If you want to have a better understanding about the
      touchscreen technology, please watch the animated video below!</p>↵
267.                        <br>↵
268.  ↵
269.                        <!-- YouTube full video -->↵
```

```
270.                        <iframe id="full_video" width="500" height="315"
     src="https://www.youtube-nocookie.com/embed/cFvh7qM6LdA" title="YouTube video
     player" allow="accelerometer; autoplay; clipboard-write; encrypted-media;
     gyroscope; picture-in-picture" allowfullscreen></iframe>↵
271.                  ↵
272.                  <!-- Send to quiz and table of content. -->↵
273.                  <p><b>Quizz: </b>Now that you had finished this lessons, you
     can try out the chapter quiz by clicking <a
     href="quizz.html#quizz_l_1">here</a>.</p>↵
274.                  <a class="back_to_top" href="#container_head">Back to top
     (Main Menu)</a>↵
275.              </div>↵
276.          </div>  ↵
277. </main>↵
278. ↵
279. ↵
280. <!--
     *****************************************************************************
     ********** -->↵
281. <!-- Footer section -->↵
282.     ↵
283. <footer>↵
284.        <div id="centre_footer">↵
285.            <section class="footer_grid">↵
286.                <h2 class="not_visible">UWL Logo</h2> <!-- work @ validation
     issue -->↵
287.                ↵
288.                <!-- UWL Logo Footer -->↵
289.                <img id="logo_footer" src="images/uwl_logo.png" alt="UWL-
     Logo">↵
290.            </section>↵
291.            ↵
292.            <!-- Company section footer -->↵
293.            <section class="footer_grid">↵
294.                <h3>Company</h3>↵
295.                <h4>University of West London</h4>↵
296.                <div>↵
297.                    <a href="https://www.uwl.ac.uk/" target="_blank">UWL
     Website</a>↵
298.                    <address>↵
299.                        St Mary Road<br>↵
300.                        Ealing<br>↵
301.                        London, UK<br>↵
302.                        W5 5RF<br>↵
303.                    </address>↵
304.                </div>↵
305.            </section>        ↵
306. ↵
307.            <!-- Student section footer -->  ↵
308.            <section class="footer_grid">↵
309.                <h3>Student</h3>↵
310.                <h4>Dragos-Gabriel Vornicu</h4>↵
311.                <div>↵
312.                    Student<br>↵
313.                    Level 3<br>↵
314.                    ID: 21490251<br>↵
315.                    Computer Science with Foundation<br>↵
316.                    University of West London<br>↵
317.                </div>↵
318.            </section>        ↵
319. ↵
320.            <!-- Validation section footer -->↵
321.            <section id="footer_grid_last">  ↵
322.                <h3>W3C Validation</h3>↵
323.                <a href="validation/validation_proof
     /html_lesson_validation.pdf" target=" blank">↵
324.                    <img height="50" src="validation/W3C_HTML5_certified.png"
     alt="Valid_HTML5!">↵
```

```
325.                    </a>↵
326.                    <a href="validation/validation_proof/css_style_proof.pdf"
        target="_blank">↵
327.                        <img height="50" src="validation/W3C_CSS_certified.png"
        alt="Valid_HTML5!">↵
328.                    </a>↵
329.                </section>↵
330.            </div>  ↵
331.    </footer>↵
332.    <div id="bottom_line"></div> <!-- dark grey line bottom -->↵
333.    </body>↵
334.    <!-- End of body section -->↵
335.    ↵
336.    </html>
```

Heading-level outline

<h1> **[missing]**

   <h2> **Table of Contents**

      <h3> **YouTube Videos:**

   <h2> **1. What is a Touchscreen?**

   <h2> **2. History of Touchscreen Technology**

   <h2> **3. Touchscreen Technology**

   <h2> **UWL Logo**

      <h3> **Company**

         <h4> **University of West London**

      <h3> **Student**

         <h4> **Dragos-Gabriel Vornicu**

      <h3> **W3C Validation**

Structural outline

- [body element with no heading]
  - [nav element with no heading]
- **Table of Contents**
  - **YouTube Videos:**
- **1. What is a Touchscreen?**
- **2. History of Touchscreen Technology**
- **3. Touchscreen Technology**
  - **UWL Logo**
  - **Company**
    - **University of West London**
  - **Student**
    - **Dragos-Gabriel Vornicu**
  - **W3C Validation**

Used the HTML parser.

Total execution time 33 milliseconds.

About this checker • Report an issue • Version: 22.4.22