

Chapter 34: Marking up computer code

Section 34.1: Block with `<pre>` and `<code>`

If the formatting (white space, new lines, indentation) of the code matters, use the `pre` element in combination with the `code` element:

```
<pre>
  <code>
    x = 42
    if x == 42:
        print "x is ...      ... 42"
  </code>
</pre>
```

You still have to escape characters with special meaning in HTML (like `<` with `<`), so for *displaying* a block of HTML code (`<p>This is a paragraph.</p>`), it could look like this:

```
<pre>
  <code>
    &lt;p>This is a paragraph.&lt;/p>
  </code>
</pre>
```

Section 34.2: Inline with `<code>`

If a sentence contains computer code (for example, the name of an HTML element), use the `code` element to mark it up:

```
<p>The <code>a</code> element creates a hyperlink.</p>
```

Chapter 35: Marking-up Quotes

Section 35.1: Inline with <q>

The **q element** can be used for a quote that is part of a sentence:

```
<p>She wrote <q>The answer is 42.</q> and everyone agreed.</p>
```

Quotation marks

Version ≤ 4.01

Quotation marks should not be added. User agents should (in HTML 4.01) resp. must (in HTML 4.0) render them automatically.

Version = 5

Quotation marks must not be added. User agents will render them automatically.

Source URL (cite attribute)

The **cite attribute** can be used to reference the URL of the quoted source:

```
<p>She wrote <q cite="http://example.com/blog/hello-world">The answer is 42.</q> and everyone agreed.</p>
```

Note that browsers typically don't show this URL, so if the source is relevant, you should add a hyperlink (a element) in addition.

Section 35.2: Block with <blockquote>

The **blockquote element** can be used for a (block-level) quote:

```
<blockquote>
  <p>The answer is 42.</p>
</blockquote>
```

Source URL (cite attribute)

The **cite attribute** can be used to reference the URL of the quoted source:

```
<blockquote cite="http://example.com/blog/hello-world">
  <p>The answer is 42.</p>
</blockquote>
```

Note that browsers typically don't show this URL, so if the source is relevant, you should add a hyperlink (a element) in addition (see the section *Citation/Attribution* about where to place this link).

Citation/Attribution

Version ≤ 4.01

The citation/attribution should not be part of the blockquote element:

```
<blockquote cite="http://example.com/blog/hello-world">
  <p>The answer is 42.</p>
</blockquote>
<p>Source: <cite><a href="http://example.com/blog/hello-world" rel="external">Hello
World</a></cite></p>
```

You can add a `div` element to group the quote and the citation, but it exists no way to associate them semantically.

The **`cite` element** can be used for the reference of the quoted source (but not for the author name).

Version = 5

The citation/attribution (e.g., the hyperlink giving the source URL) can be inside the `blockquote`, but in that case it must be within a `cite` element (for in-text attributions) or a `footer` element:

```
<blockquote cite="http://example.com/blog/hello-world">
  <p>The answer is 42.</p>
  <footer>
    <p>Source: <cite><a href="http://example.com/blog/hello-world" rel="external">Hello
World</a></cite></p>
  </footer>
</blockquote>
```

The **`cite` element** can be used for the reference of the quoted source, or for the name of the quote's author.

Chapter 36: Tabindex

Value	Meaning
negative	element will be focusable, but it should not be reachable via sequential keyboard navigation
0	element will be focusable and reachable through keyboard sequential navigation, but its relative order is defined by the platform convention
positive	element must be focusable and accessible via sequential keyboard navigation; its relative order will be defined by the attribute value: the sequential follow the increasing number of the <code>tabindex</code>

Section 36.1: Add an element to the tabbing order

```
<div tabindex="0">Some button</div>
```

Note: Try to use a native HTML button or an `a` tag where appropriate.

Section 36.2: Remove an element from the tabbing order

```
<button tabindex="-1">This button will not be reachable by tab</button>
```

The element will be removed from the tabbing order but will still be focusable.

Section 36.3: Define a custom tabbing order (not recommended)

```
<div tabindex="2">Second</div>
<div tabindex="1">First</div>
```

Positive values will insert the element at the tabbing order position of its respective value. Elements without preference (i.e. `tabindex="0"` or native elements such as `button` and `a`) will be appended after those with preference.

Positive values are **not recommended** as they disrupt the expected behavior of tabbing and might confuse people who rely on screenreaders. Try to create a natural order by rearranging your DOM structure.

Chapter 37: Global Attributes

Attribute	Description
<code>class</code>	Defines one or more class names for an element. See Classes and IDs.
<code>contenteditable</code>	Sets whether the content of an element can be edited.
<code>contextmenu</code>	Defines a context menu shown when a user right-clicks an element.
<code>dir</code>	Sets the text direction for text within an element.
<code>draggable</code>	Sets whether an element can be dragged.
<code>hidden</code>	Hides an element not currently in use on the page.
<code>id</code>	Defines a unique identifier for an element. See Classes and IDs.
<code>lang</code>	Defines the language of an element's content and its text attribute values. See Content Languages.
<code>spellcheck</code>	Sets whether to spell/grammar check the content of an element.
<code>style</code>	Defines a set of inline CSS styles for an element.
<code>tabindex</code>	Sets the order in which elements on a page are navigated by the tab keyboard shortcut.
<code>title</code>	Defines additional information about an element, generally in the form of tooltip text on mouseover.
<code>translate</code>	Defines whether to translate the content of an element.

Section 37.1: Contenteditable Attribute

```
<p contenteditable>This is an editable paragraph.</p>
```

Upon clicking on the paragraph, the content of it can be edited similar to an input text field.

When the `contenteditable` attribute is not set on an element, the element will inherit it from its parent. So all child text of a content editable element will also be editable, but you *can* turn it off for specific text, like so:

```
<p contenteditable>
  This is an editable paragraph.
  <span contenteditable="false">But not this.</span>
</p>
```

Note that an uneditable text element inside an editable element will still have a text cursor as inherited from its parent as well.

Chapter 38: HTML 5 Cache

Section 38.1: Basic Example of HTML5 cache

this is our index.html file

```
<!DOCTYPE html>
<html manifest="index.appcache">
<body>
  <p>Content</p>
</body>
</html>
```

then we will create index.appcache file with below codes

```
CACHE MANIFEST
index.html
```

write those files that you want to be cached load index.html then go for offline mode and reload the tab

Note: The two files must be in the same folder in this example

Chapter 39: HTML Event Attributes

Section 39.1: HTML Form Events

Events triggered by actions inside a HTML form (applies to almost all HTML elements, but is most used in form elements):

Attribute	Description
onblur	Fires the moment that the element loses focus
onchange	Fires the moment when the value of the element is changed
oncontextmenu	Script to be run when a context menu is triggered
onfocus	Fires the moment when the element gets focus
oninput	Script to be run when an element gets user input
oninvalid	Script to be run when an element is invalid
onreset	Fires when the Reset button in a form is clicked
onsearch	Fires when the user writes something in a search field (for <code><input="search"></code>)
onselect	Fires after some text has been selected in an element
onsubmit	Fires when a form is submitted

Section 39.2: Keyboard Events

Attribute	Description
onkeydown	Fires when a user is pressing a key
onkeypress	Fires when a user presses a key
onkeyup	Fires when a user releases a key

Chapter 40: Character Entities

Section 40.1: Character Entities in HTML

Many symbols and special characters are required while developing a web page in html, but as we know that sometimes the use of characters directly may interfere with the actual html code which have certain characters reserved and also certain characters being not available on keyboard. Thus, to avoid the conflict and at same time to be able to use different symbols in our code w3 org provides us with 'Character Entities'.

Character Entities are predefined with 'Entity Name' - &entity_name; and 'Entity Number' - &#entity_number; so we need to use either of the two for the required symbol to be rendered on our page.

The list of few Character Entities can be found at <https://dev.w3.org/html5/html-author/charref>

A simple example with the use of character entity for 'magnifying glass' :

```
<input type="text" placeholder="  &#128269; Search"/>
```

which renders as



Section 40.2: Common Special Characters

Some character may be reserved for HTML and cannot be used directly as it may obstruct the actual HTML codes. For example, trying to display the left and right angle brackets (<>) in the source code may cause unexpected results in the output. Similarly, white spaces as written in the source code may not display as expected in the output HTML. Some, like ☎, are not available in the ASCII character set.

For this purpose, character entities are created. These are of the form &entity_name; or &#entity_number;. The following are some of the available HTML entities.

Character	Description	Entity Name	Entity Number
" "	non-breaking space	 	
"<"	less than	<	<
">"	greater than	>	>
"&"	ampersand	&	&
"—"	em dash	—	—
"—"	en dash	–	–
"©"	copyright	©	©
"®"	registered trademark	®	®
"™"	trademark	™	™
"☎"	phone	☎	☎

Thus, to write

© 2016 Stack Exchange Inc.

the following HTML code is used:

```
<b>&copy; 2016 Stack Exchange Inc.</b>
```


Chapter 41: ARIA

Section 41.1: role="presentation"

An element whose implicit native role semantics will not be mapped to the accessibility API.

```
<div style="float:left;">Some content on the left.</div>
<div style="float:right;">Some content on the right</div>
<div role="presentation" style="clear:both;"></div> <!-- Only used to clear floats -->
```

Section 41.2: role="alert"

A message with important, and usually time-sensitive, information.

```
<div role="alert" aria-live="assertive">Your session will expire in 60 seconds.</div>
```

Note that I've included both `role="alert"` and `aria-live="assertive"` at the same time. These are synonymous attributes, but some screen readers only support one or the other. By using both simultaneously we therefore maximize the chances that the live region will function as expected.

Source - Heydon Pickering ['Some practical ARIA examples'](#)

Section 41.3: role="alertdialog"

A type of dialog that contains an alert message, where initial focus goes to an element within the dialog.

```
<div role="alertdialog">
  <h1>Warning</h1>
  <div role="alert">Your session will expire in 60 seconds.</div>
</div>
```

Section 41.4: role="application"

A region declared as a web application, as opposed to a web document. In this example, the application is a simple calculator that might add two numbers together.

```
<div role="application">
  <h1>Calculator</h1>
  <input id="num1" type="text"> + <input id="num2" type="text"> =
  <span id="result"></span>
</div>
```

Section 41.5: role="article"

A section of a page that consists of a composition that forms an independent part of a document, page, or site.

Setting an ARIA role and/or aria-* attribute that matches the default implicit ARIA semantics is unnecessary and is not recommended as these properties are already set by the browser.

```
<article>
  <h1>My first article</h1>
  <p>Lorem ipsum...</p>
</article>
```

You would use `role=article` on non-semantic elements (not recommended, invalid)

```
<div role="article">
  <h1>My first article</h1>
  <p>Lorem ipsum...</p>
</div>
```

W3C Entry for [role=article](#)

Section 41.6: role="banner"

A region that contains mostly site-oriented content, rather than page-specific content.

```
<div role="banner">
  <h1>My Site</h1>

  <ul>
    <li><a href="/">Home</a></li>
    <li><a href="/about">About</a></li>
    <li><a href="/contact">Contact</a></li>
  </ul>
</div>
```

Section 41.7: role="button"

An input that allows for user-triggered actions when clicked or pressed.

```
<button role="button">Add</button>
```

Section 41.8: role="cell"

A cell in a tabular container.

```
<table>
  <thead>
    <!-- etc -->
  </thead>
  <tbody>
    <td role="cell">95</td>
    <td role="cell">14</td>
    <td role="cell">25</td>
  </tbody>
</table>
```

Section 41.9: role="checkbox"

A checkable input that has three possible values: true, false, or mixed.

```
<p>
  <input type="checkbox" role="checkbox" aria-checked="false">
  I agree to the terms
```

</p>

Section 41.10: role="columnheader"

A cell containing header information for a column.

```
<table role="grid">
  <thead>
    <tr>
      <th role="columnheader">Day 1</th>
      <th role="columnheader">Day 2</th>
      <th role="columnheader">Day 3</th>
    </tr>
  </thead>
  <tbody>
    <!-- etc -->
  </tbody>
</table>
```

Section 41.11: role="combobox"

A presentation of a select; usually similar to a textbox where users can type ahead to select an option, or type to enter arbitrary text as a new item in the list.

```
<input type="text" role="combobox" aria-expanded="false">
```

Typically, you would use JavaScript to build the rest of the typeahead or list select functionality.

Section 41.12: role="complementary"

A supporting section of the document, designed to be complementary to the main content at a similar level in the DOM hierarchy, but remains meaningful when separated from the main content.

```
<div role="complementary">
  <h2>More Articles</h2>

  <ul>
    <!-- etc -->
  </ul>
</div>
```

Section 41.13: role="contentinfo"

A large perceivable region that contains information about the parent document.

```
<p role="contentinfo">
  Author: Albert Einstein<br>
  Published: August 15, 1940
</p>
```

Section 41.14: role="definition"

A definition of a term or concept.

```
<span role="term" aria-labelledby="def1">Love</span>
```

```
<span id="def1" role="definition">an intense feeling of deep affection.</span>
```

Section 41.15: role="dialog"

A dialog is an application window that is designed to interrupt the current processing of an application in order to prompt the user to enter information or require a response.

```
<div role="dialog">
  <p>Are you sure?</p>
  <button role="button">Yes</button>
  <button role="button">No</button>
</div>
```

Section 41.16: role="directory"

A list of references to members of a group, such as a static table of contents.

```
<ul role="directory">
  <li><a href="/chapter-1">Chapter 1</a></li>
  <li><a href="/chapter-2">Chapter 2</a></li>
  <li><a href="/chapter-3">Chapter 3</a></li>
</ul>
```

Section 41.17: role="document"

A region containing related information that is declared as document content, as opposed to a web application.

```
<div role="document">
  <h1>The Life of Albert Einstein</h1>
  <p>Lorem ipsum...</p>
</div>
```

Section 41.18: role="form"

A landmark region that contains a collection of items and objects that, as a whole, combine to create a form.

Using the semantically correct HTML element **<form>** implies default ARIA semantics, meaning `role=form` is not required as you should not apply a contrasting role to an element that is already semantic, as adding a role overrides the native semantics of an element.

Setting an ARIA role and/or `aria-*` attribute that matches the default implicit ARIA semantics is unnecessary and is not recommended as these properties are already set by the browser.

```
<form action="">
  <fieldset>
    <legend>Login form</legend>
    <div>
      <label for="username">Your username</label>
      <input type="text" id="username" aria-describedby="username-tip" required />
      <div role="tooltip" id="username-tip">Your username is your email address</div>
    </div>
    <div>
      <label for="password">Your password</label>
      <input type="text" id="password" aria-describedby="password-tip" required />
    </div>
  </fieldset>
</form>
```

```
<div role="tooltip" id="password-tip">Was emailed to you when you signed up</div>
</div>
</fieldset>
</form>
```

You would use `role=form` on non-semantic elements (not recommended, invalid)

```
<div role=form>
  <input type="email" placeholder="Your email address">
  <button>Sign up</button>
</div>
```

Section 41.19: role="grid"

A grid is an interactive control which contains cells of tabular data arranged in rows and columns, like a table.

```
<table role="grid">
  <thead>
    <!-- etc -->
  </thead>
  <tbody>
    <!-- etc -->
  </tbody>
</table>
```

Section 41.20: role="gridcell"

A cell in a grid or treegrid.

```
<table role="grid">
  <thead>
    <!-- etc -->
  </thead>
  <tbody>
    <tr>
      <td role="gridcell">17</td>
      <td role="gridcell">64</td>
      <td role="gridcell">18</td>
    </tr>
  </tbody>
</table>
```

Section 41.21: role="group"

A set of user interface objects which are not intended to be included in a page summary or table of contents by assistive technologies.

```
<div role="group">
  <button role="button">Previous</button>
  <button role="button">Next</button>
</div>
```

Section 41.22: role="heading"

A heading for a section of the page.

```
<h1 role="heading">Introduction</h1>
<p>Lorem ipsum...</p>
```

Section 41.23: role="img"

A container for a collection of elements that form an image.

```
<figure role="img">
  
  <figcaption>This is my cat, Albert.</figcaption>
</figure>
```

Section 41.24: role="link"

An interactive reference to an internal or external resource that, when activated, causes the user agent to navigate to that resource.

In the majority of cases setting an ARIA role and/or aria-* attribute that matches the [default implicit ARIA semantics](#) is unnecessary and not recommended as these properties are already set by the browser.

Source - <https://www.w3.org/TR/html5/dom.html#aria-usage-note>

Section 41.25: role="list"

A group of non-interactive list items.

```
<ul role="list">
  <li role="listitem">One</li>
  <li role="listitem">Two</li>
  <li role="listitem">Three</li>
</ul>
```

Section 41.26: role="listbox"

A widget that allows the user to select one or more items from a list of choices.

```
<ul role="listbox">
  <li>One</li>
  <li>Two</li>
  <li>Three</li>
</ul>
```

Typically, you would use JavaScript to build the multiple-selection functionality.

Section 41.27: role="listitem"

A single item in a list or directory.

```
<ul role="list">
  <li role="listitem">One</li>
  <li role="listitem">Two</li>
  <li role="listitem">Three</li>
</ul>
```

Section 41.28: role="log"

A type of live region where new information is added in meaningful order and old information may disappear.

```
<ul role="log">
  <li>User 1 logged in.</li>
  <li>User 2 logged in.</li>
  <li>User 1 logged out.</li>
</ul>
```

Section 41.29: role="main"

The main content of a document.

```
<!-- header & nav here -->
<div role="main">
  <p>Lorem ipsum...</p>
</div>
<!-- footer here -->
```

Section 41.30: role="marquee"

A type of live region where non-essential information changes frequently.

```
<ul role="marquee">
  <li>Dow +0.26%</li>
  <li>Nasdaq +0.54%</li>
  <li>S&P +0.44%</li>
</ul>
```

Section 41.31: role="math"

Content that represents a mathematical expression.

```

```

Section 41.32: role="menu"

A type of widget that offers a list of choices to the user.

```
<ul role="menu">
  <li role="menuitem">New</li>
  <li role="menuitem">Open</li>
  <li role="menuitem">Save</li>
  <li role="menuitem">Close</li>
</ul>
```

Section 41.33: role="menubar"

A presentation of menu that usually remains visible and is usually presented horizontally.

```
<ul role="menubar">
  <li role="menuitem">File</li>
  <li role="menuitem">Edit</li>
  <li role="menuitem">View</li>
```

```
<li role="menuitem">Help</li>
</ul>
```

Section 41.34: role="menuitem"

An option in a group of choices contained by a menu or menubar.

```
<ul role="menubar">
  <li role="menuitem">File</li>
  <li role="menuitem">Edit</li>
  <li role="menuitem">View</li>
  <li role="menuitem">Help</li>
</ul>
```

Section 41.35: role="menuitemcheckbox"

A checkable menuitem that has three possible values: true, false, or mixed.

```
<ul role="menu">
  <li role="menuitem">Console</li>
  <li role="menuitem">Layout</li>
  <li role="menuitemcheckbox" aria-checked="true">Word wrap</li>
</ul>
```

Section 41.36: role="menuitemradio"

A checkable menuitem in a group of menuitemradio roles, only one of which can be checked at a time.

```
<ul role="menu">
  <li role="menuitemradio" aria-checked="true">Left</li>
  <li role="menuitemradio" aria-checked="false">Center</li>
  <li role="menuitemradio" aria-checked="false">Right</li>
</ul>
```

Section 41.37: role="navigation"

A collection of navigational elements (usually links) for navigating the document or related documents.

```
<ul role="navigation">
  <li><a href="/">Home</a></li>
  <li><a href="/about">About</a></li>
  <li><a href="/contact">Contact</a></li>
</ul>
```

Section 41.38: role="note"

A section whose content is parenthetical or ancillary to the main content of the resource.

```
<p>Lorem ipsum...</p>
<p>Lorem ipsum...</p>
<p role="note">Lorem ipsum...</p>
```

Section 41.39: role="option"

A selectable item in a select list.


```
<ul role="listbox">
  <li role="option">Option 1</li>
  <li role="option">Option 2</li>
  <li role="option">Option 3</li>
</ul>
```

Section 41.40: role="progressbar"

An element that displays the progress status for tasks that take a long time.

```
<progress role="progressbar" value="25" max="100">25%</progress>
```

Section 41.41: role="radio"

A checkable input in a group of radio roles, only one of which can be checked at a time.

```
<div role="radiogroup">
  <input role="radio" type="radio" aria-checked="true"> One<br>
  <input role="radio" type="radio" aria-checked="false"> Two<br>
  <input role="radio" type="radio" aria-checked="false"> Three
</div>
```

Section 41.42: role="region"

A large perceivable section of a web page or document, that the author feels is important enough to be included in a page summary or table of contents, for example, an area of the page containing live sporting event statistics.

```
<div role="region">
  Home team: 4<br>
  Away team: 2
</div>
```

Section 41.43: role="radiogroup"

A group of radio buttons.

```
<div role="radiogroup">
  <input role="radio" type="radio" aria-checked="true"> One<br>
  <input role="radio" type="radio" aria-checked="false"> Two<br>
  <input role="radio" type="radio" aria-checked="false"> Three
</div>
```

Section 41.44: role="row"

A row of cells in a tabular container.

```
<table>
  <thead>
    <!-- etc -->
  </thead>
  <tbody>
    <tr role="row">
      <!-- etc -->
    </tr>
  </tbody>
```

```
</table>
```

Section 41.45: role="rowgroup"

A group containing one or more row elements in a grid.

```
<table>
  <thead role="rowgroup">
    <!-- etc -->
  </thead>
  <tbody role="rowgroup">
    <!-- etc -->
  </tbody>
</table>
```

Section 41.46: role="rowheader"

A cell containing header information for a row in a grid.

```
<table role="grid">
  <thead>
    <!-- etc -->
  </thead>
  <tbody>
    <tr>
      <th role="rowheader">Day 1</th>
      <td>65</td>
    </tr>
    <tr>
      <th role="rowheader">Day 2</th>
      <td>74</td>
    </tr>
  </tbody>
</table>
```

Section 41.47: role="scrollbar"

A graphical object that controls the scrolling of content within a viewing area, regardless of whether the content is fully displayed within the viewing area.

```
<div id="content1">Lorem ipsum...</div>
<div
  role="scrollbar"
  aria-controls="content1"
  aria-orientation="vertical"
  aria-valuemax="100"
  aria-valuemin="0"
  aria-valuenow="25">
  <div class="scrollhandle"></div>
</div>
```

Section 41.48: role="search"

A landmark region that contains a collection of items and objects that, as a whole, combine to create a search facility.

```
<div role="search">
```

```
<input role="searchbox" type="text">
<button role="button">Search</button>
</div>
```

Section 41.49: role="searchbox"

A type of textbox intended for specifying search criteria.

```
<div role="search">
  <input role="searchbox" type="text">
  <button role="button">Search</button>
</div>
```

Section 41.50: role="separator"

A divider that separates and distinguishes sections of content or groups of menuitems.

```
<p>Lorem ipsum...</p>
<hr role="separator">
<p>Lorem ipsum...</p>
```

Section 41.51: role="slider"

A user input where the user selects a value from within a given range.

```
<div
  role="slider"
  aria-valuemax="100"
  aria-valuemin="0"
  aria-valuenow="25">
  <div class="sliderhandle"></div>
</div>
```

Section 41.52: role="spinbutton"

A form of range that expects the user to select from among discrete choices.

```
<input
  role="spinbutton"
  aria-valuemax="100"
  aria-valuemin="0"
  aria-valuenow="25"
  type="number"
  value="25">
```

Section 41.53: role="status"

A container whose content is advisory information for the user but is not important enough to justify an alert, often but not necessarily presented as a status bar.

```
<div role="status">Online</div>
```

Section 41.54: role="switch"

A type of checkbox that represents on/off values, as opposed to checked/unchecked values.

```
<select role="switch" aria-checked="false">
  <option>On</option>
  <option selected>Off</option>
</select>
```

Section 41.55: role="tab"

A grouping label providing a mechanism for selecting the tab content that is to be rendered to the user.

```
<ul role="tablist">
  <li role="tab">Introduction</li>
  <li role="tab">Chapter 1</li>
  <li role="tab">Chapter 2</li>
</ul>
```

Section 41.56: role="table"

A section containing data arranged in rows and columns. The table role is intended for tabular containers which are not interactive.

```
<table role="table">
  <thead>
    <!-- etc -->
  </thead>
  <tbody>
    <!-- etc -->
  </tbody>
</table>
```

Section 41.57: role="tablist"

A list of tab elements, which are references to tabpanel elements.

```
<ul role="tablist">
  <li role="tab">Introduction</li>
  <li role="tab">Chapter 1</li>
  <li role="tab">Chapter 2</li>
</ul>
```

Section 41.58: role="tabpanel"

A container for the resources associated with a tab, where each tab is contained in a tablist.

```
<ul role="tablist">
  <li role="tab">Introduction</li>
  <li role="tab">Chapter 1</li>
  <li role="tab">Chapter 2</li>
</ul>
<div role="tabpanel">
  <!-- etc -->
</div>
```

Section 41.59: role="textbox"

Input that allows free-form text as its value.

```
<textarea role="textbox"></textarea>
```

Section 41.60: role="timer"

A type of live region containing a numerical counter which indicates an amount of elapsed time from a start point, or the time remaining until an end point.

```
<p>  
  <span role="timer">60</span> seconds remaining.  
</p>
```

Section 41.61: role="toolbar"

A collection of commonly used function buttons represented in compact visual form.

```
<ul role="toolbar">  
  <li></li>  
  <li></li>  
  <li></li>  
  <li></li>  
</ul>
```

Section 41.62: role="tooltip"

A contextual popup that displays a description for an element.

```
<span aria-describedby="slopedesc">Slope</span>  
<div role="tooltip" id="slopedesc">y=mx+b</div>
```

Typically, the tooltip would be hidden. Using JavaScript, the tooltip would be displayed after a delay when the user hovers over the element that it describes.

Section 41.63: role="tree"

A type of list that may contain sub-level nested groups that can be collapsed and expanded.

```
<ul role="tree">  
  <li role="treeitem">  
    Part 1  
    <ul>  
      <li role="treeitem">Chapter 1</li>  
      <li role="treeitem">Chapter 2</li>  
      <li role="treeitem">Chapter 3</li>  
    </ul>  
  </li>  
  <li role="treeitem">  
    Part 2  
    <ul>  
      <li role="treeitem">Chapter 4</li>  
      <li role="treeitem">Chapter 5</li>  
      <li role="treeitem">Chapter 6</li>  
    </ul>  
  </li>  
  <li role="treeitem">  
    Part 3  
    <ul>
```

```

    <li role="treeitem">Chapter 7</li>
    <li role="treeitem">Chapter 8</li>
    <li role="treeitem">Chapter 9</li>
  </ul>
</li>
</ul>

```

Section 41.64: role="treegrid"

A grid whose rows can be expanded and collapsed in the same manner as for a tree.

Section 41.65: role="treeitem"

An option item of a tree. This is an element within a tree that may be expanded or collapsed if it contains a sub-level group of treeitems.

```

<ul role="tree">
  <li role="treeitem">
    Part 1
    <ul>
      <li role="treeitem">Chapter 1</li>
      <li role="treeitem">Chapter 2</li>
      <li role="treeitem">Chapter 3</li>
    </ul>
  </li>
  <li role="treeitem">
    Part 2
    <ul>
      <li role="treeitem">Chapter 4</li>
      <li role="treeitem">Chapter 5</li>
      <li role="treeitem">Chapter 6</li>
    </ul>
  </li>
  <li role="treeitem">
    Part 3
    <ul>
      <li role="treeitem">Chapter 7</li>
      <li role="treeitem">Chapter 8</li>
      <li role="treeitem">Chapter 9</li>
    </ul>
  </li>
</ul>

```

Credits

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Mr. Alien	Chapter 33
Muntasir	Chapter 30
MySpeed	Chapter 19
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