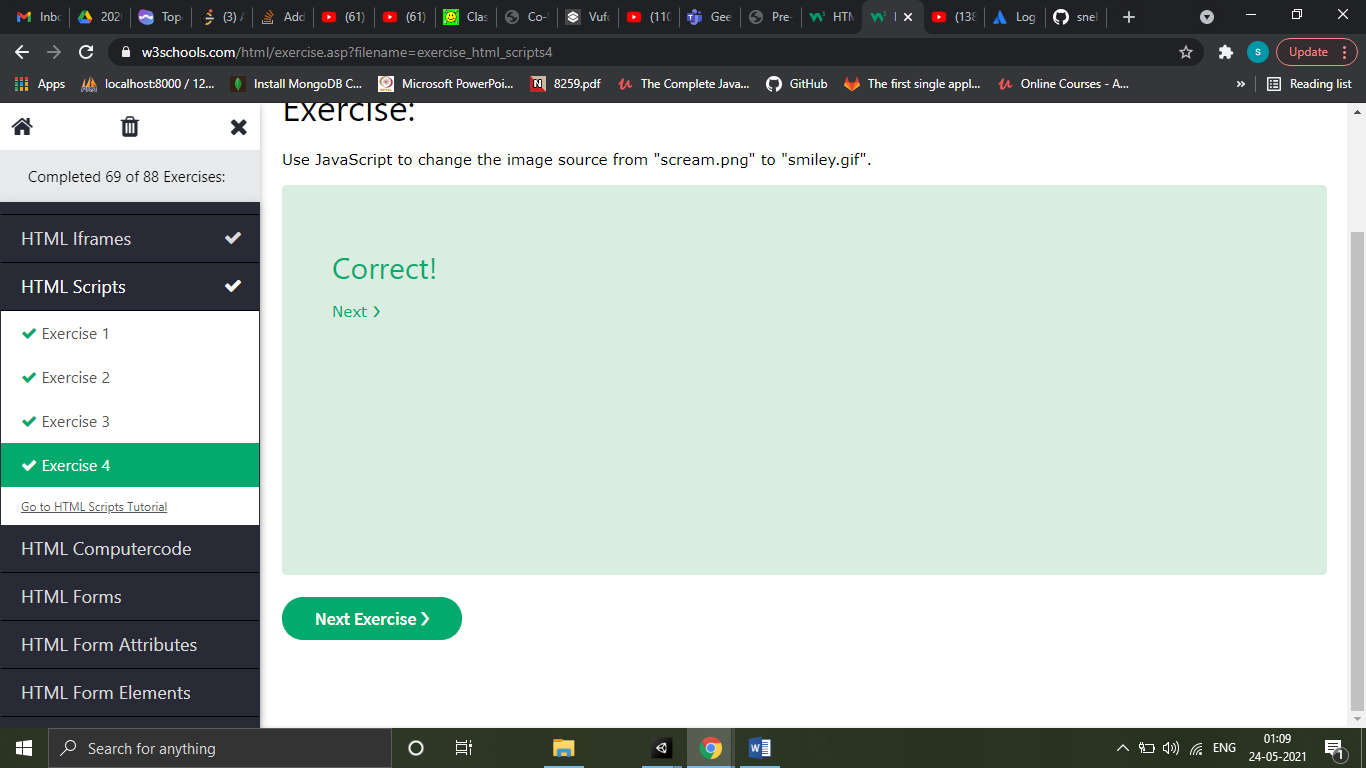
Day-3

HTML

HTML Javascript

|  |  |
| --- | --- |
| [<script>](https://www.w3schools.com/tags/tag_script.asp) | Defines a client-side script |
| [<noscript>](https://www.w3schools.com/tags/tag_noscript.asp) | Defines an alternate content for users that do not support client-side scripts |



HTML Head

The <head> element is a container for metadata (data about data) and is placed between the <html> tag and the <body> tag.

HTML metadata is data about the HTML document. Metadata is not displayed.

Metadata typically define the document title, character set, styles, scripts, and other meta information.

Title element

The <title> element defines the title of the document. The title must be text-only, and it is shown in the browser's title bar or in the page's tab.

The <title> element is required in HTML documents!

The contents of a page title is very important for search engine optimization (SEO)! The page title is used by search engine algorithms to decide the order when listing pages in search results.

The <title> element:

* defines a title in the browser toolbar
* provides a title for the page when it is added to favorites
* displays a title for the page in search engine-results

Meta Element

The <meta> element is typically used to specify the character set, page description, keywords, author of the document, and viewport settings.

The metadata will not be displayed on the page, but are used by browsers (how to display content or reload page), by search engines (keywords), and other web services.

The viewport is the user's visible area of a web page. It varies with the device - it will be smaller on a mobile phone than on a computer screen.

You should include the following <meta> element in all your web pages:

<meta name="viewport" content="width=device-width, initial-scale=1.0">

This gives the browser instructions on how to control the page's dimensions and scaling.

The width=device-width part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).

The initial-scale=1.0 part sets the initial zoom level when the page is first loaded by the browser.

The <base> element specifies the base URL and/or target for all relative URLs in a page

HTML Layout



* <header> - Defines a header for a document or a section
* <nav> - Defines a set of navigation links
* <section> - Defines a section in a document
* <article> - Defines an independent, self-contained content
* <aside> - Defines content aside from the content (like a sidebar)
* <footer> - Defines a footer for a document or a section
* <details> - Defines additional details that the user can open and close on demand
* <summary> - Defines a heading for the <details> element

HTML Responsive

To make a web page responsive

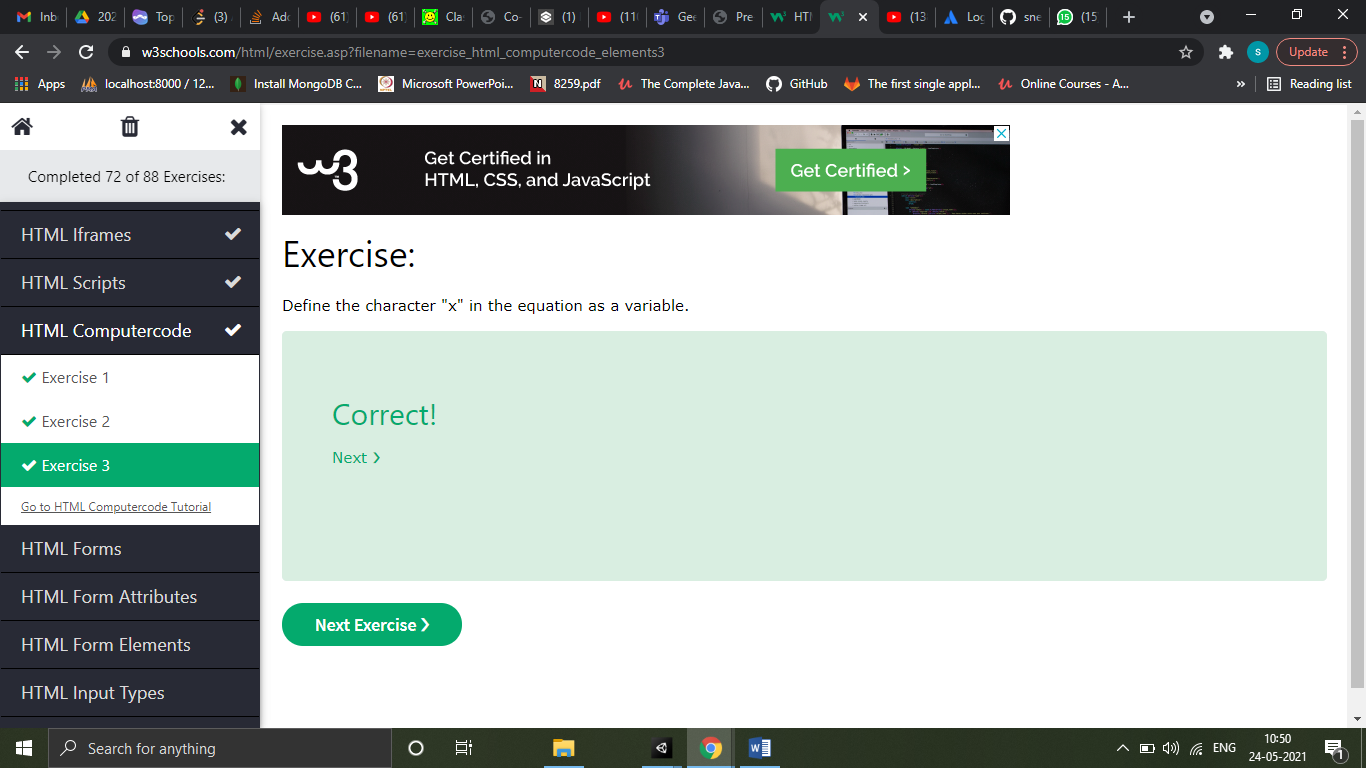
* Set the viewport
* Resize images. For ex, set image width=”100%” or max-width:100%
* Resize text to change as per browser size using viewport. For ex, font-size=”1vw”

1vw = 1% of viewport width. If the viewport is 50cm wide, 1vw is 0.5cm

* Media Queries
* Use responsive web design frameworks like w3.css or bootstrap

HTML Computercode

* The <kbd> element defines keyboard input
* The <samp> element defines sample output from a computer program
* The <code> element defines a piece of computer code
* The <var> element defines a variable in programming or in a mathematical expression
* The <pre> element defines preformatted text



HTML Semantics

A semantic web allows data to be shared and reused across applications, enterprises and communities.

Semantic elements in HTML –

|  |  |
| --- | --- |
| [<article>](https://www.w3schools.com/tags/tag_article.asp) | Defines independent, self-contained content |
| [<aside>](https://www.w3schools.com/tags/tag_aside.asp) | Defines content aside from the page content |
| [<details>](https://www.w3schools.com/tags/tag_details.asp) | Defines additional details that the user can view or hide |
| [<figcaption>](https://www.w3schools.com/tags/tag_figcaption.asp) | Defines a caption for a <figure> element |
| [<figure>](https://www.w3schools.com/tags/tag_figure.asp) | Specifies self-contained content, like illustrations, diagrams, photos, code listings, etc. |
| [<footer>](https://www.w3schools.com/tags/tag_footer.asp) | Defines a footer for a document or section |
| [<header>](https://www.w3schools.com/tags/tag_header.asp) | Specifies a header for a document or section |
| [<main>](https://www.w3schools.com/tags/tag_main.asp) | Specifies the main content of a document |
| [<mark>](https://www.w3schools.com/tags/tag_mark.asp) | Defines marked/highlighted text |
| [<nav>](https://www.w3schools.com/tags/tag_nav.asp) | Defines navigation links |
| [<section>](https://www.w3schools.com/tags/tag_section.asp) | Defines a section in a document |
| [<summary>](https://www.w3schools.com/tags/tag_summary.asp) | Defines a visible heading for a <details> element |
| [<time>](https://www.w3schools.com/tags/tag_time.asp) | Defines a date/time |

HTML Style Guide

* Use lowercase element names
* Close all html elements
* Use lowercase attribute names
* Always quote attribute values
* Always specify alt, width and height for images
* Avoid spaces around equal signs
* Avoid long code lines
* Do not add blank lines, spaces or indentations without a reason
* Never skip the title element
* Add <html>,<body> and <head> tags
* Add lang attribute inside <html> tag
* Setting the viewport
* HTML comments
* Add style sheets
* Use lowercase file names

HTML Entities

* Entity names are case sensitive

HTML Character entities

|  |  |  |  |
| --- | --- | --- | --- |
| **Result** | **Description** | **Entity Name** | **Entity Number** |
|  | non-breaking space | &nbsp; | &#160; |
| < | less than | &lt; | &#60; |
| > | greater than | &gt; | &#62; |
| & | ampersand | &amp; | &#38; |
| " | double quotation mark | &quot; | &#34; |
| ' | single quotation mark (apostrophe) | &apos; | &#39; |
| ¢ | cent | &cent; | &#162; |
| £ | pound | &pound; | &#163; |
| ¥ | yen | &yen; | &#165; |
| € | euro | &euro; | &#8364; |
| © | copyright | &copy; | &#169; |
| ® | registered trademark | &reg; | &#174; |

Combining Diacritical marks

|  |  |  |  |
| --- | --- | --- | --- |
| **Mark** | **Character** | **Construct** | **Result** |
| ̀ | a | a&#768; | à |
| ́ | a | a&#769; | á |
| ̂ | a | a&#770; | â |
| ̃ | a | a&#771; | ã |
| ̀ | O | O&#768; | Ò |
| ́ | O | O&#769; | Ó |
| ̂ | O | O&#770; | Ô |
| ̃ | O | O&#771; | Õ |

HTML Symbols

Mathematical symbols supported by HTML

|  |  |  |  |
| --- | --- | --- | --- |
| **Char** | **Number** | **Entity** | **Description** |
| ∀ | &#8704; | &forall; | FOR ALL |
| ∂ | &#8706; | &part; | PARTIAL DIFFERENTIAL |
| ∃ | &#8707; | &exist; | THERE EXISTS |
| ∅ | &#8709; | &empty; | EMPTY SETS |
| ∇ | &#8711; | &nabla; | NABLA |
| ∈ | &#8712; | &isin; | ELEMENT OF |
| ∉ | &#8713; | &notin; | NOT AN ELEMENT OF |
| ∋ | &#8715; | &ni; | CONTAINS AS MEMBER |
| ∏ | &#8719; | &prod; | N-ARY PRODUCT |
| ∑ | &#8721; | &sum; | N-ARY SUMMATION |

Greek letters supported by HTML

|  |  |  |  |
| --- | --- | --- | --- |
| **Char** | **Number** | **Entity** | **Description** |
| Α | &#913; | &Alpha; | GREEK CAPITAL LETTER ALPHA |
| Β | &#914; | &Beta; | GREEK CAPITAL LETTER BETA |
| Γ | &#915; | &Gamma; | GREEK CAPITAL LETTER GAMMA |
| Δ | &#916; | &Delta; | GREEK CAPITAL LETTER DELTA |
| Ε | &#917; | &Epsilon; | GREEK CAPITAL LETTER EPSILON |
| Ζ | &#918; | &Zeta; | GREEK CAPITAL LETTER ZETA |

Some other entities supported by HTML

|  |  |  |  |
| --- | --- | --- | --- |
| **Char** | **Number** | **Entity** | **Description** |
| © | &#169; | &copy; | COPYRIGHT SIGN |
| ® | &#174; | &reg; | REGISTERED SIGN |
| € | &#8364; | &euro; | EURO SIGN |
| ™ | &#8482; | &trade; | TRADEMARK |
| ← | &#8592; | &larr; | LEFTWARDS ARROW |
| ↑ | &#8593; | &uarr; | UPWARDS ARROW |
| → | &#8594; | &rarr; | RIGHTWARDS ARROW |
| ↓ | &#8595; | &darr; | DOWNWARDS ARROW |
| ♠ | &#9824; | &spades; | BLACK SPADE SUIT |
| ♣ | &#9827; | &clubs; | BLACK CLUB SUIT |
| ♥ | &#9829; | &hearts; | BLACK HEART SUIT |
| ♦ | &#9830; | &diams; | BLACK DIAMOND SUIT |

HTML Emojis

<meta charset="UTF-8">

Some emoji symbols in UTF-8

|  |  |
| --- | --- |
| **Emoji** | **Value** |
| 🗻 | &#128507; |
| 🗼 | &#128508; |
| 🗽 | &#128509; |
| 🗾 | &#128510; |
| 🗿 | &#128511; |
| 😀 | &#128512; |
| 😁 | &#128513; |
| 😂 | &#128514; |
| 😃 | &#128515; |
| 😄 | &#128516; |
| 😅 | &#128517; |

<https://www.w3schools.com/charsets/ref_emoji.asp>

HTML Charset

ASCII character set

* Uses the values from 0 to 31 (and 127) for control characters
* Uses the values from 32 to 126 for letters, digits, and symbols
* Does not use the values from 128 to 255

ANSI character set (Windows-1252)

* Identical to ASCII for the values from 0 to 127
* Has a proprietary set of characters for the values from 128 to 159
* Identical to UTF-8 for the values from 160 to 255

ISO-8859-1

* Identical to ASCII for the values from 0 to 127
* Does not use the values from 128 to 159
* Is identical to UTF-8 for the values from 160 to 255

UTF-8

* Identical to ASCII for the values from 0 to 127
* Does not use the values from 128 to 159
* Identical to both ANSI and 8859-1 for the values from 160 to 255
* Continues from the value 256 with more than 10 000 different characters

HTML URL Encode

scheme://prefix.domain:port/path/filename

Explanation:

* **scheme** - defines the **type** of Internet service (most common is **http or https**)
* **prefix** - defines a domain **prefix** (default for http is **www**)
* **domain** - defines the Internet **domain name**(like w3schools.com)
* **port** - defines the **port number**at the host (default for http is **80**)
* **path** - defines a **path** at the server (If omitted: the root directory of the site)
* **filename** - defines the name of a document or resource

|  |  |  |
| --- | --- | --- |
| **Scheme** | **Short for** | **Used for** |
| http | HyperText Transfer Protocol | Common web pages. Not encrypted |
| https | Secure HyperText Transfer Protocol | Secure web pages. Encrypted |
| ftp | File Transfer Protocol | Downloading or uploading files |
| file |  | A file on your computer |

XHTML

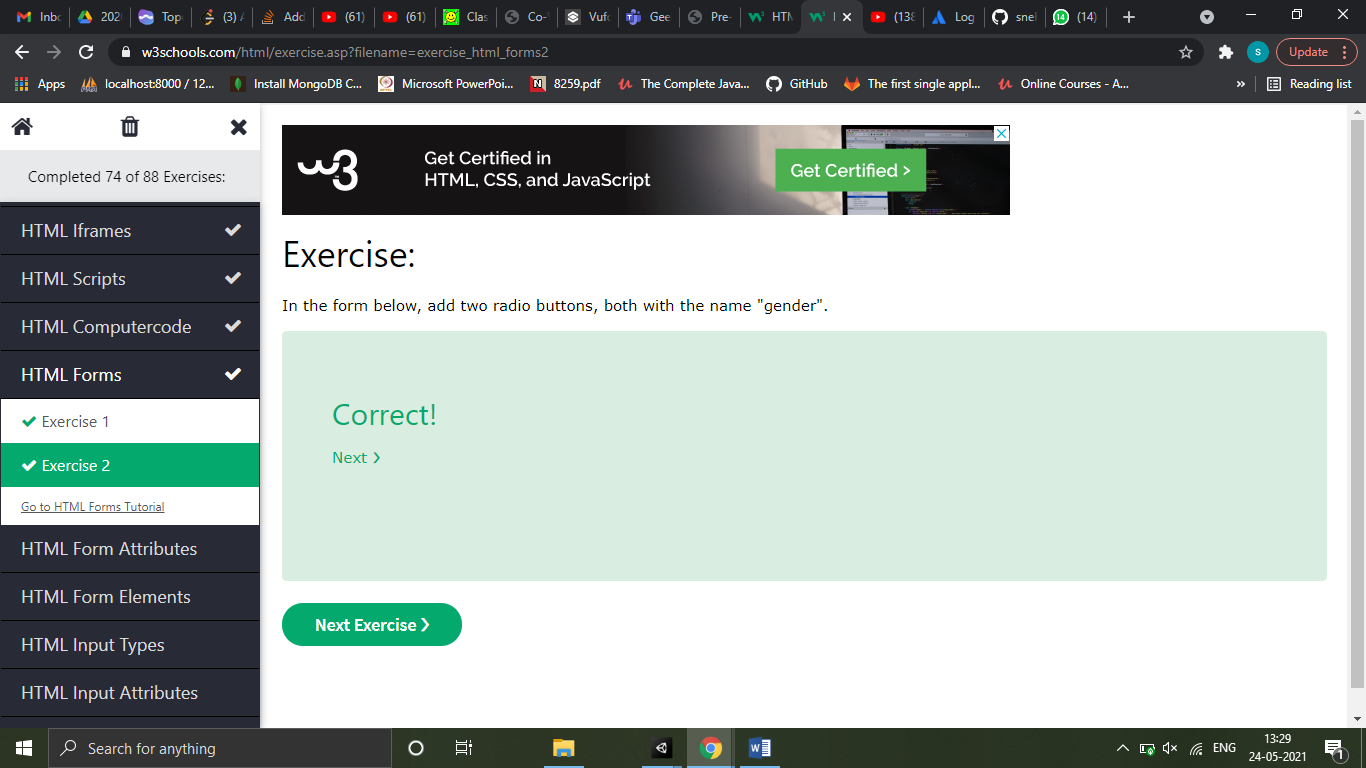
* Stands for Extensible HyperText Markup Language
* Is a stricter, more XML-based version of HTML
* Is HTML defined as an XML application
* Supported by all major browsers

Difference between HTML and XHTML

* <!DOCTYPE> is **mandatory**
* The xmlns attribute in <html> is **mandatory**
* <html>, <head>, <title>, and <body> are **mandatory**
* Elements must always be **properly nested**
* Elements must always be **closed**
* Elements must always be in **lowercase**
* Attribute names must always be in **lowercase**
* Attribute values must always be **quoted**
* Attribute minimization is **forbidden**

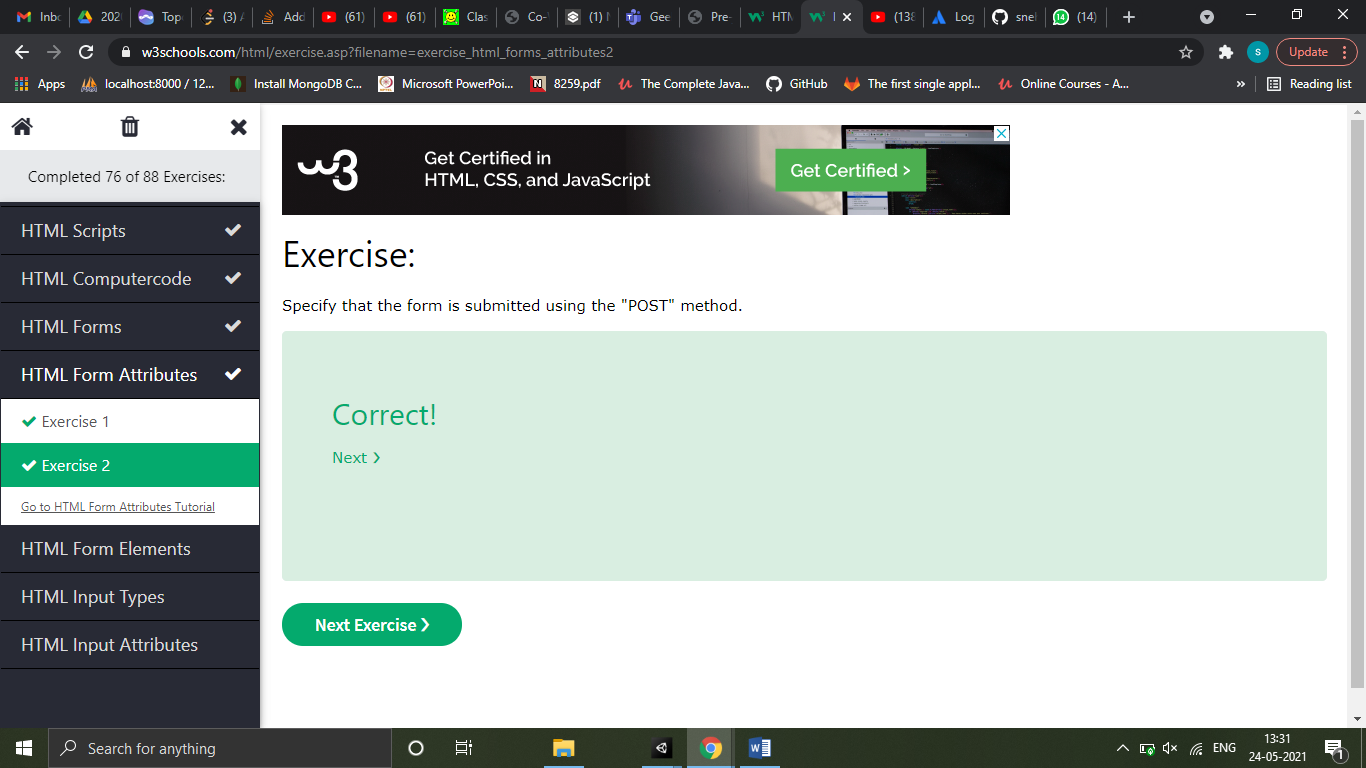
HTML Forms

|  |  |
| --- | --- |
| **Type** | **Description** |
| <input type="text"> | Displays a single-line text input field |
| <input type="radio"> | Displays a radio button (for selecting one of many choices) |
| <input type="checkbox"> | Displays a checkbox (for selecting zero or more of many choices) |
| <input type="submit"> | Displays a submit button (for submitting the form) |
| <input type="button"> | Displays a clickable button |



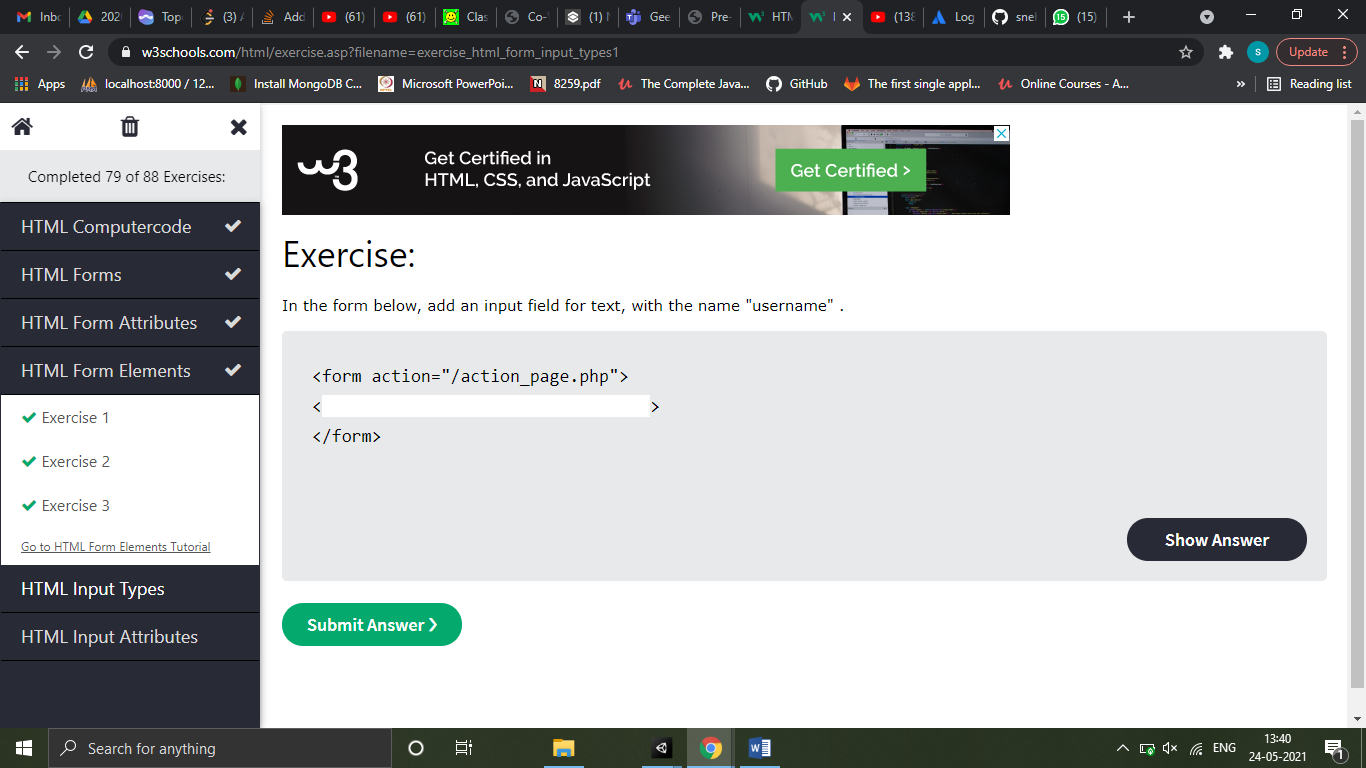
List of all <form> attributes

|  |  |
| --- | --- |
| **Attribute** | **Description** |
| [accept-charset](https://www.w3schools.com/tags/att_form_accept_charset.asp) | Specifies the character encodings used for form submission |
| [action](https://www.w3schools.com/tags/att_form_action.asp) | Specifies where to send the form-data when a form is submitted |
| [autocomplete](https://www.w3schools.com/tags/att_form_autocomplete.asp) | Specifies whether a form should have autocomplete on or off |
| [enctype](https://www.w3schools.com/tags/att_form_enctype.asp) | Specifies how the form-data should be encoded when submitting it to the server (only for method="post") |
| [method](https://www.w3schools.com/tags/att_form_method.asp) | Specifies the HTTP method to use when sending form-data |
| [name](https://www.w3schools.com/tags/att_form_name.asp) | Specifies the name of the form |
| [novalidate](https://www.w3schools.com/tags/att_form_novalidate.asp) | Specifies that the form should not be validated when submitted |
| [rel](https://www.w3schools.com/tags/att_form_rel.asp) | Specifies the relationship between a linked resource and the current document |
| [target](https://www.w3schools.com/tags/att_form_target.asp) | Specifies where to display the response that is received after submitting the form |



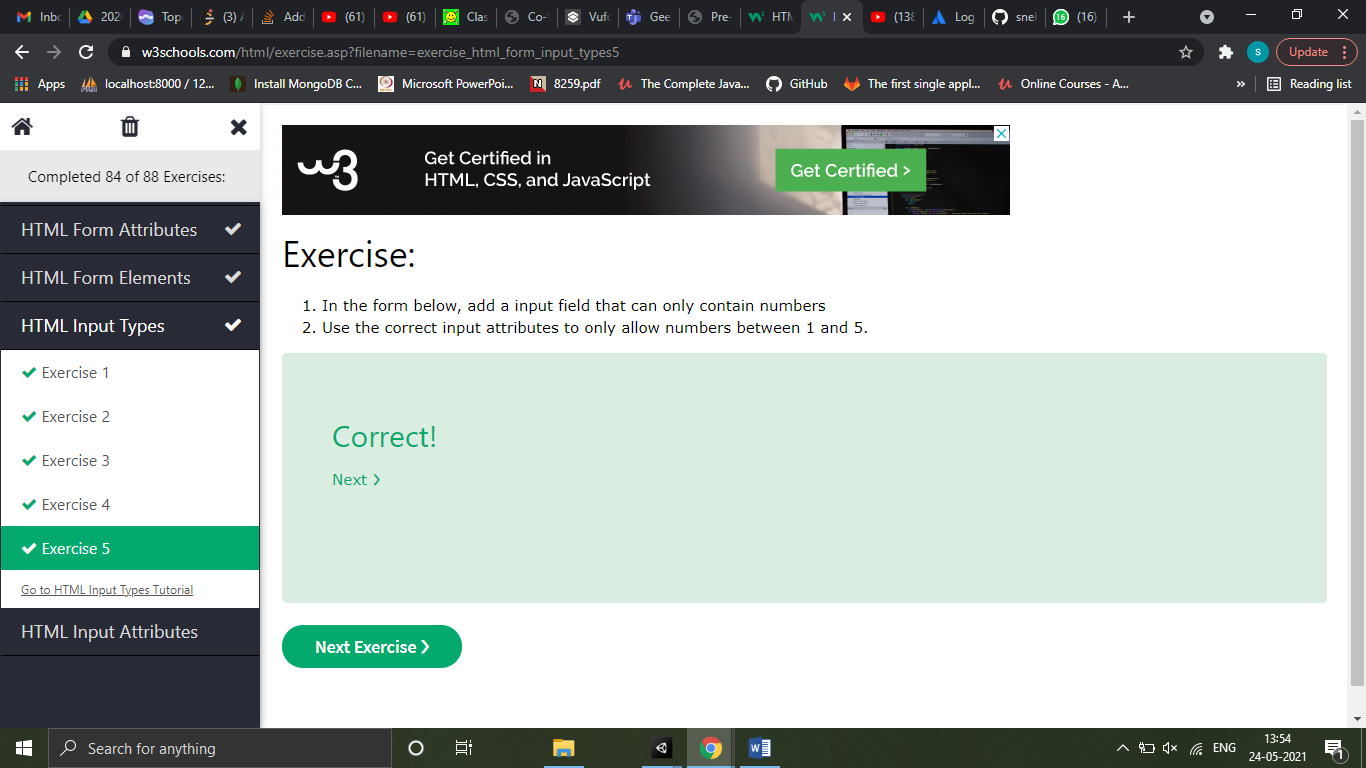
HTML form elements

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<form>](https://www.w3schools.com/tags/tag_form.asp) | Defines an HTML form for user input |
| [<input>](https://www.w3schools.com/tags/tag_input.asp) | Defines an input control |
| [<textarea>](https://www.w3schools.com/tags/tag_textarea.asp) | Defines a multiline input control (text area) |
| [<label>](https://www.w3schools.com/tags/tag_label.asp) | Defines a label for an <input> element |
| [<fieldset>](https://www.w3schools.com/tags/tag_fieldset.asp) | Groups related elements in a form |
| [<legend>](https://www.w3schools.com/tags/tag_legend.asp) | Defines a caption for a <fieldset> element |
| [<select>](https://www.w3schools.com/tags/tag_select.asp) | Defines a drop-down list |
| [<optgroup>](https://www.w3schools.com/tags/tag_optgroup.asp) | Defines a group of related options in a drop-down list |
| [<option>](https://www.w3schools.com/tags/tag_option.asp) | Defines an option in a drop-down list |
| [<button>](https://www.w3schools.com/tags/tag_button.asp) | Defines a clickable button |
| [<datalist>](https://www.w3schools.com/tags/tag_datalist.asp) | Specifies a list of pre-defined options for input controls |
| [<output>](https://www.w3schools.com/tags/tag_output.asp) | Defines the result of a calculation |



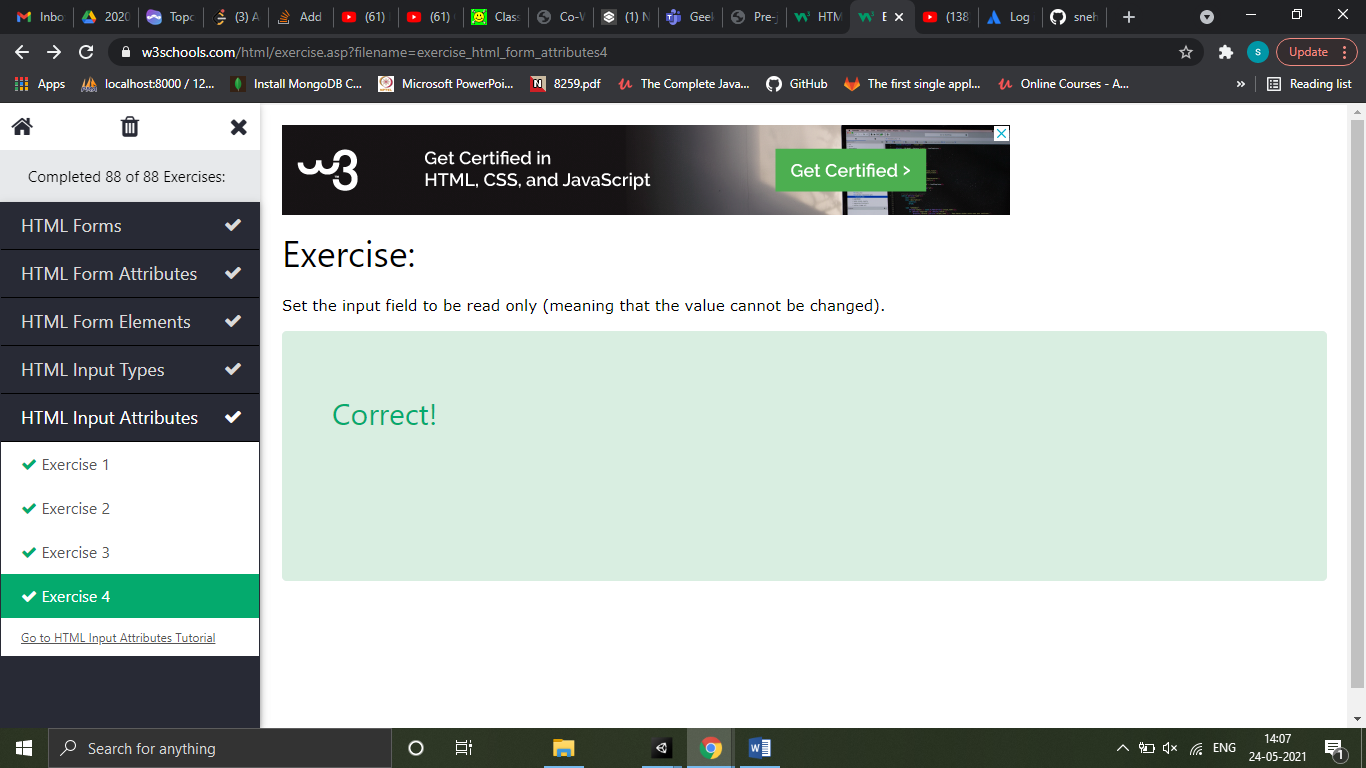
HTML Input types

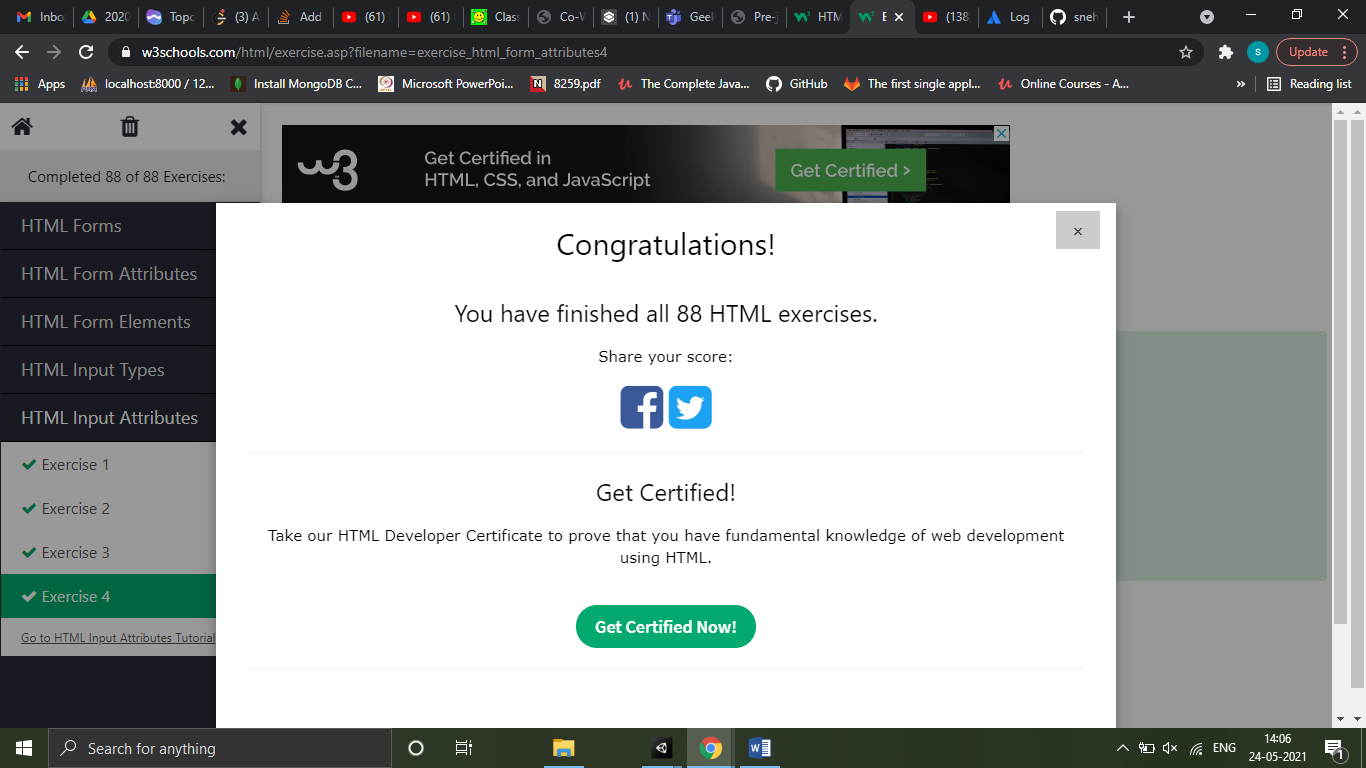
* <input type="button">
* <input type="checkbox">
* <input type="color">
* <input type="date">
* <input type="datetime-local">
* <input type="email">
* <input type="file">
* <input type="hidden">
* <input type="image">
* <input type="month">
* <input type="number">
* <input type="password">
* <input type="radio">
* <input type="range">
* <input type="reset">
* <input type="search">
* <input type="submit">
* <input type="tel">
* <input type="text">
* <input type="time">
* <input type="url">
* <input type="week">



HTML Input attributes

* Value
* Readonly
* Disabled
* Size => works with  the following input types: text, search, tel, url, email, and password
* Maxlength
* Min and max => work with the following input types: number, range, date, datetime-local, month, time and week
* Multiple => works with the following input types: email, and file
* Pattern => works with the following input types: text, date, search, url, tel, email, and password
* Placeholder => works with the following input types: text, search, url, tel, email, and password
* Required => works with the following input types: text, search, url, tel, email, password, date pickers, number, checkbox, radio, and file
* Step => works with the following input types: number, range, date, datetime-local, month, time and week
* Autofocus => specifies that an input field should automatically get focus when the page loads
* List => refers to a <datalist> element that contains pre-defined options for an <input> element
* Autocomplete => works with <form> and the following <input> types: text, search, url, tel, email, password, datepickers, range, and color





HTML Canvas

* Used to draw graphics on web page
* The HTML <canvas> element is used to draw graphics, on the fly, via JavaScript
* The <canvas> element is only a container for graphics. You must use JavaScript to actually draw the graphics

HTML SVG

* Defines vector based graphics in XML format
* Stands for scalable vector graphics
* Used to define graphics for the web
* Container for SVG graphics

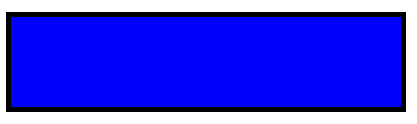
Circle

<svg width="100" height="100">  
  <circle cx="50" cy="50" r="40" stroke="green" stroke-width="4" fill="yellow" />  
</svg>



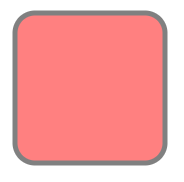
Rectangle

<svg width="400" height="100">  
  <rect width="400" height="100" style="fill:rgb(0,0,255);stroke-width:10;stroke:rgb(0,0,0)" />  
</svg>



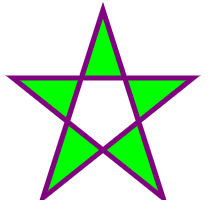
Rounded Rectangle

<svg width="400" height="180">  
  <rect x="50" y="20" rx="20" ry="20" width="150" height="150"  
  style="fill:red;stroke:black;stroke-width:5;opacity:0.5" />  
</svg>



Star

<svg width="300" height="200">  
  <polygon points="100,10 40,198 190,78 10,78 160,198"  
  style="fill:lime;stroke:purple;stroke-width:5;fill-rule:evenodd;" />  
</svg>



|  |  |
| --- | --- |
| **Canvas** | **SVG** |
| * Resolution dependent * No support for event handlers * Poor text rendering capabilities * You can save the resulting image as .png or .jpg * Well suited for graphic-intensive games * Rendered pixel by pixel * Once the graphic is drawn it is forgotten by browser * If its position needs to be changed the entire scene needs to be redrawn including any objects that might have been covered by the graphic | * Resolution independent * Support for event handlers * Best suited for applications with large rendering areas (Google Maps) * Slow rendering if complex (anything that uses the DOM a lot will be slow) * Not suited for game applications * XML based, which means that every element is available with SVG DOM * Each drawn shape is remembered as an object * If attributes of an SVG object are changed, the browser can automatically re-render the shape |

HTML Media

* Use <video> tag to embed video in html page
* There are three supported video formats => MP4, WebM, Ogg
* Different attributes for <video> tag are controls, muted, autoplay

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<video>](https://www.w3schools.com/tags/tag_video.asp) | Defines a video or movie |
| [<source>](https://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements, such as <video> and <audio> |
| [<track>](https://www.w3schools.com/tags/tag_track.asp) | Defines text tracks in media players |

* To play an audio file in HTML use <audio> tag

|  |  |
| --- | --- |
| **Tag** | **Description** |
| [<audio>](https://www.w3schools.com/tags/tag_audio.asp) | Defines sound content |
| [<source>](https://www.w3schools.com/tags/tag_source.asp) | Defines multiple media resources for media elements, such as <video> and <audio> |

* Plug-ins are computer programs that extend the standard functionality of the browser
* Plug-ins were designed to be used for many different purposes:
* To run Java applets
* To run Microsoft ActiveX controls
* To display Flash movies
* To display maps
* To scan for viruses
* To verify a bank id
* The <object> element defines an embedded object within an HTML document. It was designed to embed plug-ins (like java applets, PDF readers and flash players) in web pages, but can also be used to include HTML in HTML

HTML APIs

* The HTML geolocation API is used to get the geographical location of user
* Geolocation API is most accurate for devices with GPS
* Drag and Drop API
* Web storage => localStorage and sessionStorage object
* Web workers API => A web worker is a JavaScript running in the background, without affecting the performance of the page
* Since web workers are in external files, they do not have access to the following JavaScript objects
  + The window object
  + The document object
  + The parent object
* Server-Sent Events (SSE) allow a web page to get updates from a server
* A server-sent event is when a web page automatically gets updates from a server

HTML QUIZ

