

Cal State **Fullerton**

# **CPSC 349.02**

## **Introduction to HTML**

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# HTML Topics Outline

- Introduction
- Basic Tags
- Formatting Tags
- Attributes
- Styles
- Colors
- Links
- Forms
- Form Attributes

# INTRODUCTION

# Introduction

- **HTML** is an initialism for "**HyperText Markup Language**".
- It is the language of the web.
- It is used to create websites.
- It is used to define a page layout, meaning it is a barebone page structure.
- **HTML** is used for making pages of the website also called webpages that we see on the internet
- It consists of a set of tags.
- This set of tags is written in HTML Document.
- **".html"** or **".htm"** is the extension.
- There are so many versions of **HTML** but **HTML5** is the latest version.

# Features of HTML

- Platform-independent.
- Images, videos, and audio can be added to a web page.
- Markup language.
- It can be integrated with other languages like CSS, JavaScript etc.
- Semantic Structure.

Building a website is like constructing a car:

- **HTML** is the car's skeleton, forming the essential structure that holds everything together. Just as the frame and body shape the car, HTML defines the layout and content of the webpage.
- **CSS** is like painting and detailing the car, making it visually appealing. CSS styles the HTML structure, adding colors, layouts, and fonts to give the webpage a polished appearance, much like how paint and trim make a car look finished.
- **JavaScript** is like installing the car's engine and other functional parts, bringing the car to life. JavaScript adds dynamic behavior and interactivity to the webpage, allowing it to respond to user actions and perform tasks, similar to how an engine allows a car to move and operate.

Just as a car requires a solid structure, appealing design, and functional parts to be complete, a website needs HTML for structure, CSS for styling, and JavaScript for interactivity to be fully functional and user-friendly.

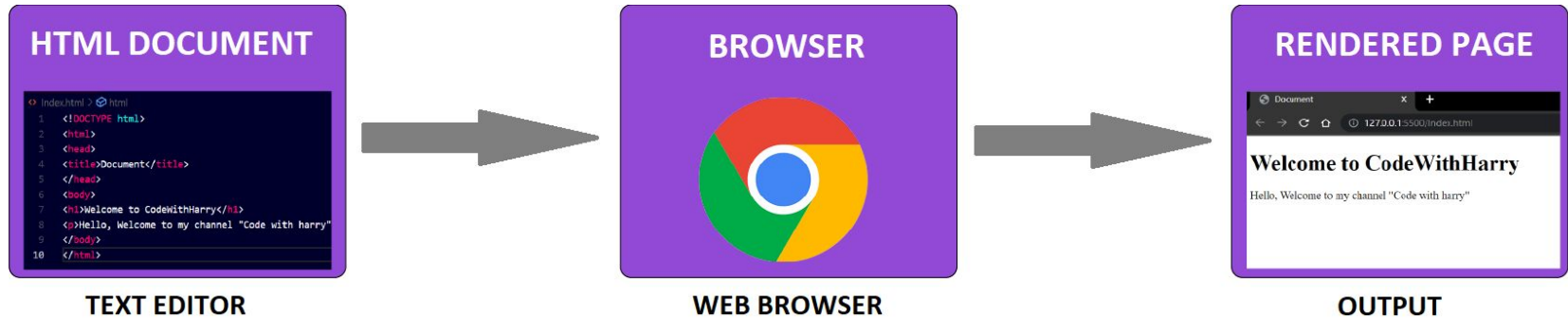


**Car Skeleton (only  
body) is HTML**

**Car Painted or  
Decorated is CSS**

**Car Engine and  
Internal logic is JS**

# How HTML Works?



In the above figure, we open a simple text editor, then the basic structure is to be written. Now, this file is to be saved with the "**index.html**" filename. After saving this file, open this file in your web browser. After opening our webpage will look like as the output.

# HTML Page Structure

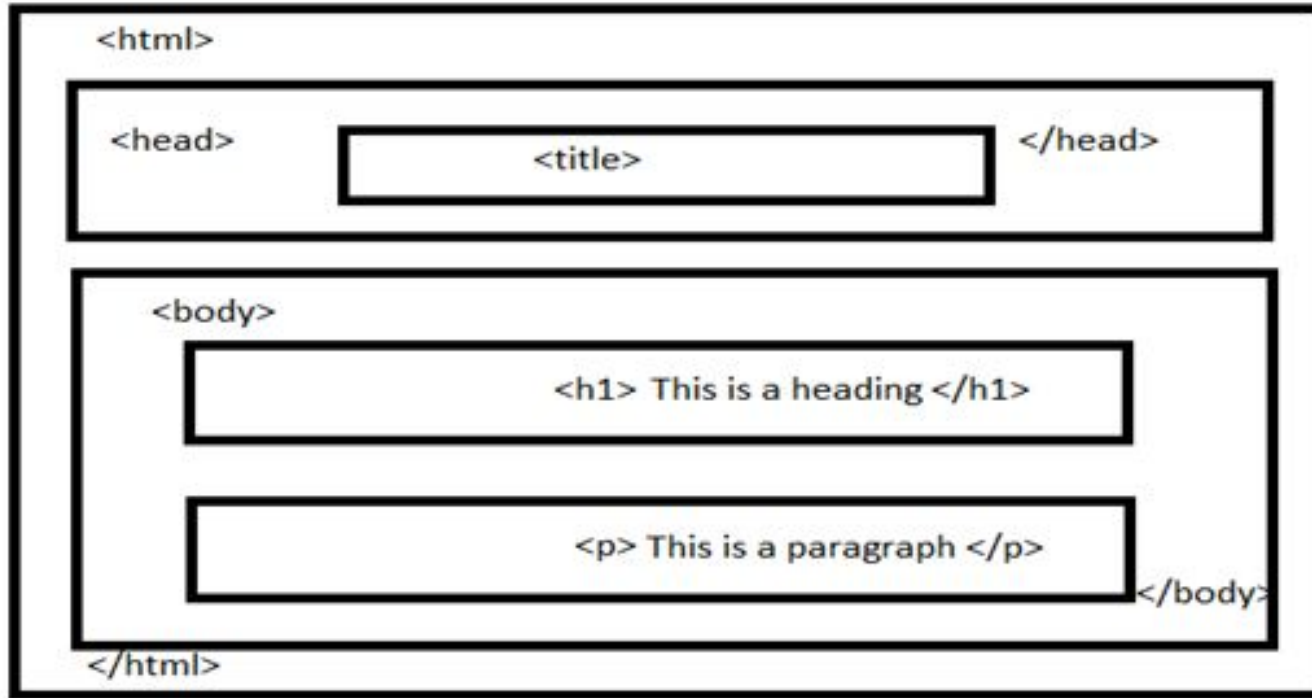
```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Document</title>
</head>
<body>
  <h1>This is our first heading</h1>
  <p>This is our latest paragraph</p>
</body>
</html>
```



# HTML Page Structure

- The `<!DOCTYPE>` declaration tag is used by the web browser to understand the version of the HTML used in the document. The current version is 5 i.e. HTML 5.
- The `<html>` tag is the root of an HTML page.
- The `<head></head>` tag contains page metadata.
- The `<title>` tag contains the title of a page and is shown in the browser title bar.
- The `</head>` tag is closing of `<head>` tag.
- `<body>` tag is the main tag of HTML. It contains the main body of the page and is shown in the white part of the browser.
- The `</body>` tag is closing of `<body>` tag.
- The `</html>` tag is closing of `<html>` tag.
- Every HTML page needs at least these 8 lines to define a layout of a page. We will learn more about HTML tags in the upcoming tutorial.

# Visualization of this HTML document



# HTML Tags

- If you want to build a beautiful website. Tags will help you to do so.
- A tag is like a container for either content or other HTML tags. Tags are words enclosed within `<` and `>` braces.
- They are like keywords which defines that how web browser will format and display the content
- Some of the tags are mentioned below,
- `<html>`, `<head>`, `<title>`, `<body>`
- These are also known as **“Starting tags”** or **“Opening tags”**.

# HTML Tags

- The following tags end with a closing tag i.e.
- `<html>` tag has its closing `</html>` tag
- `<head>` tag has its closing `</head>` tag
- `<title>` tag has its closing `</title>` tag
- `<body>` tag has its closing `</body>` tag

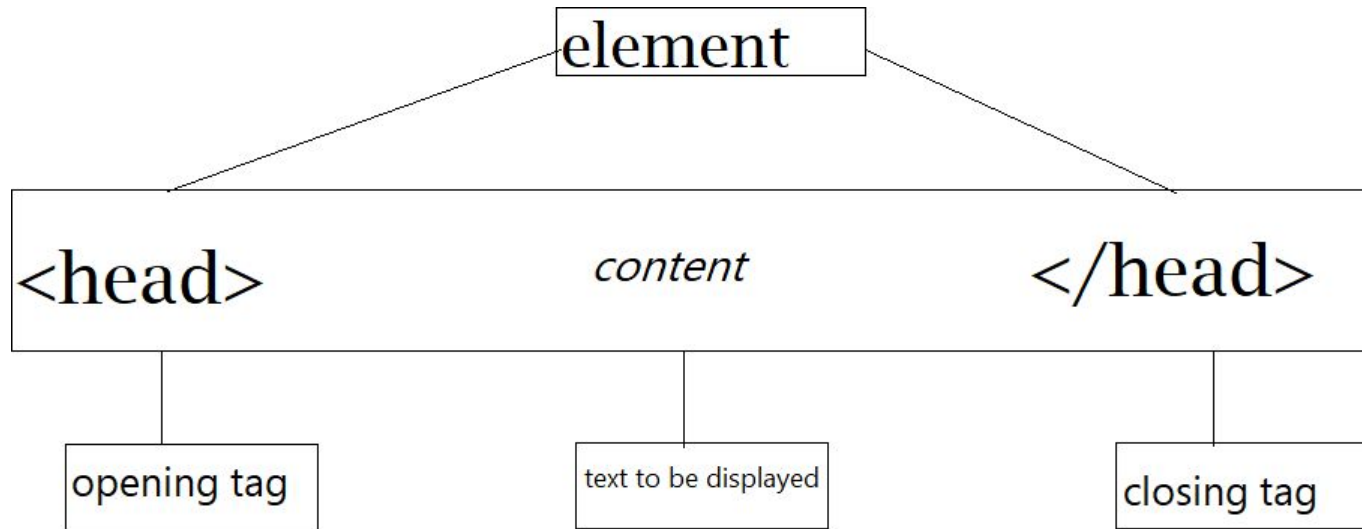
Closing tags are used to close the content in between them. These are the tags enclosed within angle braces `<,>` and a forward slash `/`. For example: `</html>`. These closing tags are also known as “Ending tags”.

# HTML Tags

Some tags don't have their corresponding closing tags and these are known as “Stand-Alone tags” / “Empty tags” / “Self-closing tags”. For example:

- `<br />` tag
- `<hr />` tag
- `<img>` tag

NOTE: In these Empty tags, they have a space between the characters and the forward-slash (/). This is because if you omit this space, older browsers will have trouble rendering that line break.



# HTML Elements

- HTML Element is a combination of the start tag, content, and end tag.
- **HTML Element = Start tag + Content + End tag**
- For example:
- `<h1>` This is our first heading `</h1>`
- This is a heading element.

# Nested HTML Element

- Nested HTML Element is the elements in which one HTML element are followed by another HTML element.
- Nested HTML Element = One HTML element inside another HTML element

For example:

```
<h1><b> This is our first heading </b></h1>
```

This is a bold tag inside the heading element.



# HTML BASIC TAGS

# Skeletal Tags

- Some basic tags and their meanings are discussed below:
- These three tags are known as “**skeletal tags**”.

<u>Opening Tag</u>	<u>Closing Tag</u>
<html>	</html>
<head>	</head>
<title>	</title>
<body>	</body>


↑  
Skeletal tags  
↑

# <html> tag

## What is the <html> Tag?

- The `<html>` tag is the root element of an HTML document.
- It encompasses all other HTML elements.
- Defines the start and end of an HTML document.

html

 Copy code

```
<!DOCTYPE html>
<html>
  <!-- All other HTML elements go here -->
</html>
```

# <head> tag

```
<head>
  <title>My First Webpage</title>
  <meta charset="UTF-8">
  <link rel="stylesheet" href="styles.css">
</head>
```

## What is the <head> Section?

- Contains meta-information about the webpage.
- Includes metadata, linked stylesheets, scripts, and more.

## Key Elements in <head>:


- **<title>**: Specifies the title of the webpage (shown in the browser tab).
- **Meta tags**: Provide metadata such as character set, author, and viewport settings.
- **Link tags**: Reference external resources like CSS stylesheets.
- **Script tags**: Include JavaScript for interactive features.

# <title> tag

## What is the <title> Tag?

- Defines the title of the webpage.
- Displayed in the browser's title bar or tab.
- Important for SEO as search engines use the <title> to understand the page content.

html

 Copy code

```
<head>
  <title>My Awesome Webpage</title>
</head>
```

# <body> tag

## What is the <body> Section?

- Contains all the content that is displayed to the user on the webpage.
- This includes text, images, links, forms, and other multimedia content.

## Purpose of the <body> Tag:

- Everything inside the <body> is what the user will see and interact with on the webpage.

```
<body>
  <h1>Welcome to My Webpage</h1>
  <p>This is a paragraph of text.</p>
  
</body>
```

# Heading Tags (<h1> to <h6>)

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1>This is heading 1</h1>
```

```
<h2>This is heading 2</h2>
```

```
<h3>This is heading 3</h3>
```

```
<h4>This is heading 4</h4>
```

```
<h5>This is heading 5</h5>
```

```
<h6>This is heading 6</h6>
```

```
</body>
```

```
</html>
```

```
<h1>This is heading 1</h1>
```

```
<h2>This is heading 2</h2>
```

```
<h3>This is heading 3</h3>
```

```
<h4>This is heading 4</h4>
```

```
<h5>This is heading 5</h5>
```

```
<h6>This is heading 6</h6>
```

# Paragraph Tag <p>

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<p>This is a paragraph.</p>
```

```
<p>This is a paragraph.</p>
```

```
<p>This is a paragraph.</p>
```

```
</body>
```

```
</html>
```

This is a paragraph.

This is a paragraph.

This is a paragraph.



# Paragraph Tag <p>

A new paragraph always starts on a new line, and browsers automatically include some white space above and below it.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<p>
```

Did you know Honey never spoils.

Archaeologists have found pots of honey in

ancient Egyptian tombs

that are over 3,000 years old

and still edible!

```
</p>
```

```
</body>
```

```
</html>
```

Did you know Honey never spoils. Archaeologists have found pots of honey in ancient Egyptian tombs that are over 3,000 years old and still edible!

# Additional tags

```
<!DOCTYPE html>
<html>
<body>
  <center>
    <h1>Welcome to My Page</h1>
    <p>This is a paragraph of text.</p>
    <pre>
```

Code snippet example:

```
function greet() {
  console.log("Hello, world!");
}
</pre>
<hr>
<p>Here's a line break below:</p>
<br>
<p>Thank you for visiting!</p>
</center>
```

```
</body>
```

```
</html>
```

## Welcome to My Page

This is a paragraph of text.

Code snippet example:

```
function greet() {
  console.log("Hello, world!");
}
```

Here's a line break below:

Thank you for visiting!

# HTML Attributes

# HTML Attributes

HTML attributes offer extra details about HTML elements and are essential for defining their properties. Here's a brief overview:

- All HTML elements can include attributes.
- Attributes provide additional information about elements, helping to control their behavior or appearance.
- Attributes are always specified in the opening tag of an element.
- Attributes generally come in name/value pairs, such as `name="value"`.

# The href Attribute

The `<a>` tag creates a hyperlink, allowing users to navigate to another page or resource. The `href` attribute specifies the URL of the destination page.

## Example

```
<a href="http://www.fullerton.edu/">Visit CSUF</a>
```

# The src Attribute

The <img> tag is used to embed an image in an HTML page. The src attribute specifies the path to the image to be displayed

## Example

```
<!DOCTYPE html>
<html>
<body>
<h2>The src Attribute</h2>
<p>HTML images are defined with the img tag, and the filename of the image source is specified in the src
attribute:</p>

</body>
</html>
```

# The width and height Attributes

The <img> tag should also contain the width and height attributes, which specify the width and height of the image (in pixels):

Example:

```

```

# The alt Attribute

The required alt attribute for the <img> tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to a slow connection, or an error in the src attribute, or if the user uses a screen reader.

## Example:

```

```

If there is an error in the src attribute, whatever the text in alt will be display on the screen.



# The style Attribute

The style attribute is used to add styles to an element, such as color, font, size, and more

## Example

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h2>The style Attribute</h2>
```

```
<p>The style attribute is used to add styles to an element, such as color:</p>
```

```
<p style="color:red;">This is a red paragraph.</p>
```

```
</body>
```

```
</html>
```

## The style Attribute

The style attribute is used to add styles to an element, such as color:

This is a red paragraph.

# The lang Attribute

You should always include the lang attribute inside the <html> tag, to declare the language of the Web page. This is meant to assist search engines and browsers.

The following example specifies English as the language:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<body>
```

```
...
```

```
</body>
```

```
</html>
```

# Attribute Summary

- All HTML elements can have attributes
- The href attribute of <a> specifies the URL of the page the link goes to
- The src attribute of <img> specifies the path to the image to be displayed
- The width and height attributes of <img> provide size information for images
- The alt attribute of <img> provides an alternate text for an image
- The style attribute is used to add styles to an element, such as color, font, size, and more
- The lang attribute of the <html> tag declares the language of the Web page

Cal State Fullerton

# CPSC 349.02 Advanced HTML Structure

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# HTML STYLES

# HTML Styles

The HTML **style** attribute is used to add styles to an element, such as color, font, size, and more.

## Example:

```
<!DOCTYPE html>  
<html>  
  <body>  
    <p>I am normal</p>  
    <p style="color:red;">I am red</p>  
    <p style="color:blue;">I am blue</p>  
    <p style="font-size:50px;">I am big</p>  
  </body>  
</html>
```

## Output:

I am normal

I am red

I am blue

I am big

# HTML Style Attribute

- Setting the style of an HTML element, can be done with the `style` attribute.
- The HTML `style` attribute has the following syntax: `<tagname style="property:value;">`
- The `property` is a CSS property. The `value` is a CSS value.

# HTML Background Color

The CSS `background-color` property defines the background color for an HTML element.

Example:

```
<!DOCTYPE html>
<html>
<body style="background-color:powderblue;">

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

**This is a heading**

This is a paragraph.



## Setting background color for 2 different elements:

Example:

```
<!DOCTYPE html>
<html>
<body>

<h1 style="background-color:powderblue;">This is a heading</h1>
<p style="background-color:tomato;">This is a paragraph.</p>

</body>
</html>
```

**This is a heading**

This is a paragraph.

## Text Color:

```
<!DOCTYPE html>
<html>
<body>

<h1 style="color:blue;">This is a heading</h1>
<p style="color:red;">This is a paragraph.</p>

</body>
</html>
```

**This is a heading**

This is a paragraph.

# HTML Text Format - HTML contains several elements for defining text with a special meaning.

Formatting elements were designed to display special types of text:

- `<b>` - Bold text
- `<strong>` - Important text
- `<i>` - Italic text
- `<em>` - Emphasized text
- `<mark>` - Marked text
- `<small>` - Smaller text
- `<del>` - Deleted text
- `<ins>` - Inserted text
- `<sub>` - Subscript text
- `<sup>` - Superscript text

Example:

```
<!DOCTYPE html>
<html>
<body>

<p><b>This text is bold</b></p>
<p><i>This text is italic</i></p>
<p>This is<sub> subscript</sub> and <sup>superscript</sup></p>

</body>
</html>
```

**This text is bold**

*This text is italic*

This is subscript and superscript

# HTML Colors

Color Names



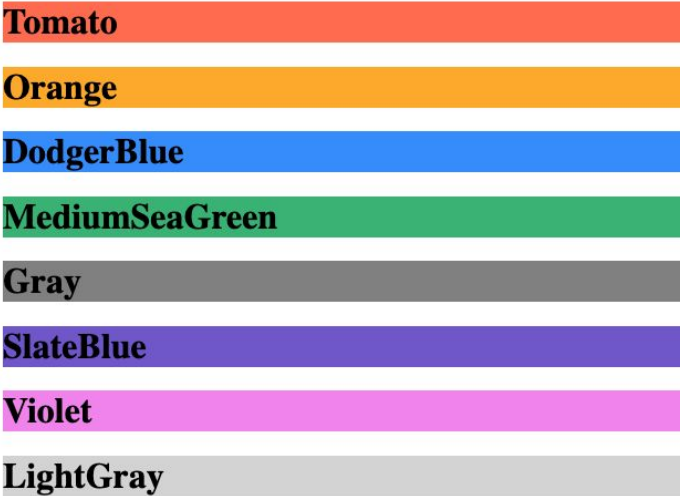
## Example:

```
<!DOCTYPE html>
<html>
<body>

<h1 style="background-color:Tomato;">Tomato</h1>
<h1 style="background-color:Orange;">Orange</h1>
<h1 style="background-color:DodgerBlue;">DodgerBlue</h1>
<h1 style="background-color:MediumSeaGreen;">MediumSeaGreen</h1>
<h1 style="background-color:Gray;">Gray</h1>
<h1 style="background-color:SlateBlue;">SlateBlue</h1>
<h1 style="background-color:Violet;">Violet</h1>
<h1 style="background-color:LightGray;">LightGray</h1>

</body>
</html>
```

## Output:



# HTML Color Values

- 1) In HTML, colors can also be specified using **RGB values, HEX values, HSL values, RGBA values, and HSLA values**. The following three <div> elements have their background color set with **RGB, HEX, and HSL values**:

## Example:

```
<h1 style="background-color:rgb(255, 99, 71);">rgb(255, 99, 71)</h1>
```

```
<h1 style="background-color:#ff6347;">#ff6347</h1>
```

```
<h1 style="background-color:hsl(9, 100%, 64%);">hsl(9, 100%, 64%)</h1>
```

## Output:

rgb(255, 99, 71)

#ff6347

hsl(9, 100%, 64%)

- 2) The following two <div> elements have their background color set with RGBA and HSLA values, which add an Alpha channel to the color (here we have 50% transparency):

## Example:

```
<h1 style="background-color:rgba(255, 99, 71, 0.5);">rgba(255, 99, 71, 0.5)</h1>
```

```
<h1 style="background-color:hsla(9, 100%, 64%, 0.5);">hsla(9, 100%, 64%, 0.5)</h1>
```

## Output:

rgba(255, 99, 71, 0.5)

hsla(9, 100%, 64%, 0.5)

# HTML Links

- The HTML `<a>` tag defines a hyperlink. It has the following syntax: `<a href="url">Link text</a>`

The most important attribute of the `<a>` element is the `href` attribute, which indicates the link's destination.

The **link text** is the part that will be visible to the reader.

## Example:

```
<!DOCTYPE html>

<html>

<body>

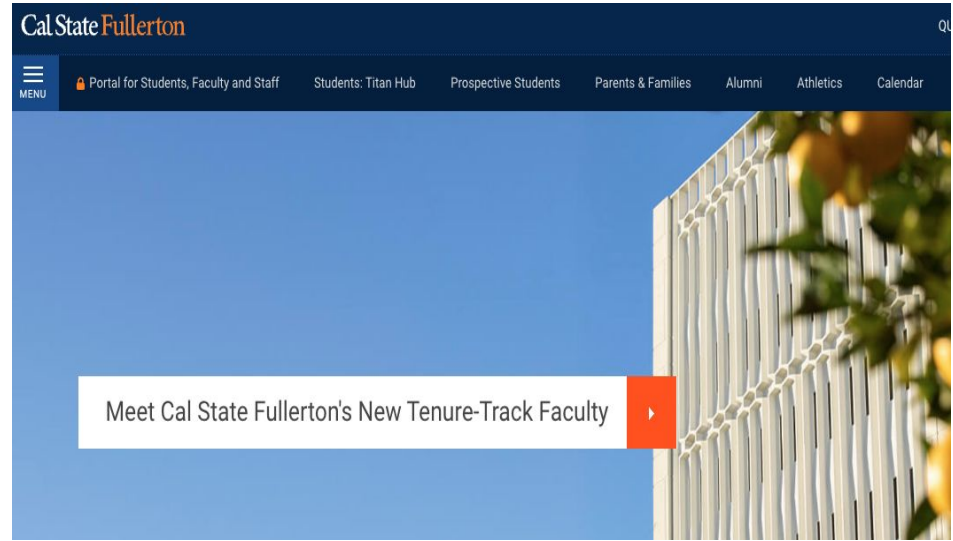
<h1>HTML Links</h1>

<p><a href="https://www.fullerton.edu/">Visit CSUF!</a></p>

</body>

</html>
```

## Output:



# HTML Link Attribute

By default, the linked page will be displayed in the current browser window. To change this, you must specify another target for the link.

The `target` attribute specifies where to open the linked document.

The `target` attribute can have one of the following values:

- `_self` - Default. Opens the document in the same window/tab as it was clicked
- `_blank` - Opens the document in a new window or tab
- `_parent` - Opens the document in the parent frame
- `_top` - Opens the document in the full body of the window

# Absolute URLs and Relative URLs

- An **Absolute URL** includes the full path to a resource, starting from the domain name (e.g., <https://www.example.com/page>).
- A **Relative URL** provides a path relative to the current page, omitting the domain (e.g., [/page](#)).

## Example:

```
<!DOCTYPE html>

<html>

<body>

<h2>Absolute URLs</h2>

<p><a href="https://www.w3.org/">W3C</a></p>

<p><a href="https://www.google.com/">Google</a></p>

<h2>Relative URLs</h2>

<p><a href="html_images.asp">HTML Images</a></p>

<p><a href="/css/default.asp">CSS Tutorial</a></p>
```

# HTML Link Usage as Image, Email ID, Button

## Image

```
<!DOCTYPE html>
<html>
<body>

<h2>Image as a Link</h2>

<p>The image below is a link. Try to click on it.</p>

<a href="default.asp"></a>

</body>
</html>
```

### Image as a Link

The image below is a link. Try to click on it.



## Email ID

```
<p><a href="mailto:someone@example.com">Send email</a></p>
```

[Send email](mailto:someone@example.com)

## Button

```
<button onclick="document.location='default.asp'">HTML Tutorial</button>
```

HTML Tutorial



# HTML Forms

A HTML form is used to collect user input. The user input is most often sent to a server for processing.

## Example:

```
<form action="/action_page.php">
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="Mikaella"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname" value="CPSC 349"><br><br>
  <input type="submit" value="Submit">
</form>
```

First name:

Last name:

The HTML `<form>` element is used to create an HTML form for user input. The `<form>` element is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.

# HTML Form input elements

The HTML `<input>` element is the most used form element.

An `<input>` element can be displayed in many ways, depending on the `type` attribute.

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

# Form input elements examples

## Checkboxes:

```
<p>The <strong>input type="checkbox"</strong> defines a checkbox:</p>
<form action="/action_page.php">
  <input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">
  <label for="vehicle1"> I have a bike</label><br>
  <input type="checkbox" id="vehicle2" name="vehicle2" value="Car">
  <label for="vehicle2"> I have a car</label><br>
  <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">
  <label for="vehicle3"> I have a boat</label><br><br>
  <input type="submit" value="Submit">
</form>
```

The **input type="checkbox"** defines a checkbox:

- ☐ I have a bike
- ☐ I have a car
- ☐ I have a boat

Submit

## Radiobutton:

```
<p>Choose your favorite Web language:</p>
<form>
  <input type="radio" id="html" name="fav_language" value="HTML">
  <label for="html">HTML</label><br>
  <input type="radio" id="css" name="fav_language" value="CSS">
  <label for="css">CSS</label><br>
  <input type="radio" id="javascript" name="fav_language"
value="JavaScript">
  <label for="javascript">JavaScript</label>
</form>
```

Choose your favorite Web language:

- ☐ HTML
- ☐ CSS
- ☐ JavaScript

# HTML Form Elements

The HTML `<form>` element can contain one or more of the following form elements:

- `<input>`
- `<label>`
- `<select>`
- `<textarea>`
- `<button>`
- `<fieldset>`
- `<legend>`
- `<datalist>`
- `<output>`
- `<option>`
- `<optgroup>`

Example of Dropdown `<select>`:

```
<h2>The select Element</h2>

<p>The select element defines a drop-down list:</p>

<form action="/action_page.php">
  <label for="cars">Choose a car:</label>
  <select id="cars" name="cars">
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
    <option value="fiat">Fiat</option>
    <option value="audi">Audi</option>
  </select>
  <input type="submit">
</form>
```

## The select Element

The select element defines a drop-down list:

Choose a car

✓ Volvo

Saab

Fiat

Audi

# Other HTML Form examples

## Text Area:

```
<p>The textarea element defines a multi-line input field.</p>

<form action="/action_page.php">
  <textarea name="message" rows="10" cols="30">Hello CPSC 349</textarea>
  <br><br>
  <input type="submit">
</form>
```

The textarea element defines a multi-line input field.

Hello CPSC 349

Submit

## Data List Element:

```
<p>The datalist element specifies a list of pre-defined options for an input element.</p>
```

```
<form action="/action_page.php">
  <input list="browsers" name="browser">
  <datalist id="browsers">
    <option value="Edge">
    <option value="Firefox">
    <option value="Chrome">
    <option value="Opera">
    <option value="Safari">
  </datalist>
  <input type="submit">
</form>
```

The datalist element specifies a list of pre-defined options for an input element.

Submit

- Edge
- Firefox
- Chrome
- Opera
- Safari

# HTML Form Attributes

The input **form** attribute specifies the form the `<input>` element belongs to.

The value of this attribute must be equal to the id attribute of the `<form>` element it belongs to.

```
<h1>The input form attribute</h1>
```

```
<p>The form attribute specifies the form an input element belongs to.</p>
```

```
<form action="/action_page.php" id="form1">
  <label for="fname">First name:</label>
  <input type="text" id="fname" name="fname"><br><br>
  <input type="submit" value="Submit">
</form>
```

```
<p>The "Last name" field below is outside the form element, but still
part of the form.</p>
```

```
<label for="lname">Last name:</label>
<input type="text" id="lname" name="lname" form="form1">
```

## The input form attribute

The form attribute specifies the form an input element belongs to.

First name:

The "Last name" field below is outside the form element, but still part of the form.

Last name:

**THANK YOU**