



503073

# **WEB PROGRAMMING & APPLICATIONS**

## **LESSON 2: HTML & CSS**

Instructor: Mai Van Manh



# HTML INTRODUCTION

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# What is HTML?

- ▶ HTML stands for **Hyper Text Markup Language**.
- ▶ HTML is the standard markup language for creating Web pages.
- ▶ HTML describes the structure of a Web page.
- ▶ HTML consists of a series of **elements**.
- ▶ HTML elements tell the browser how to display the content.
- ▶ HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

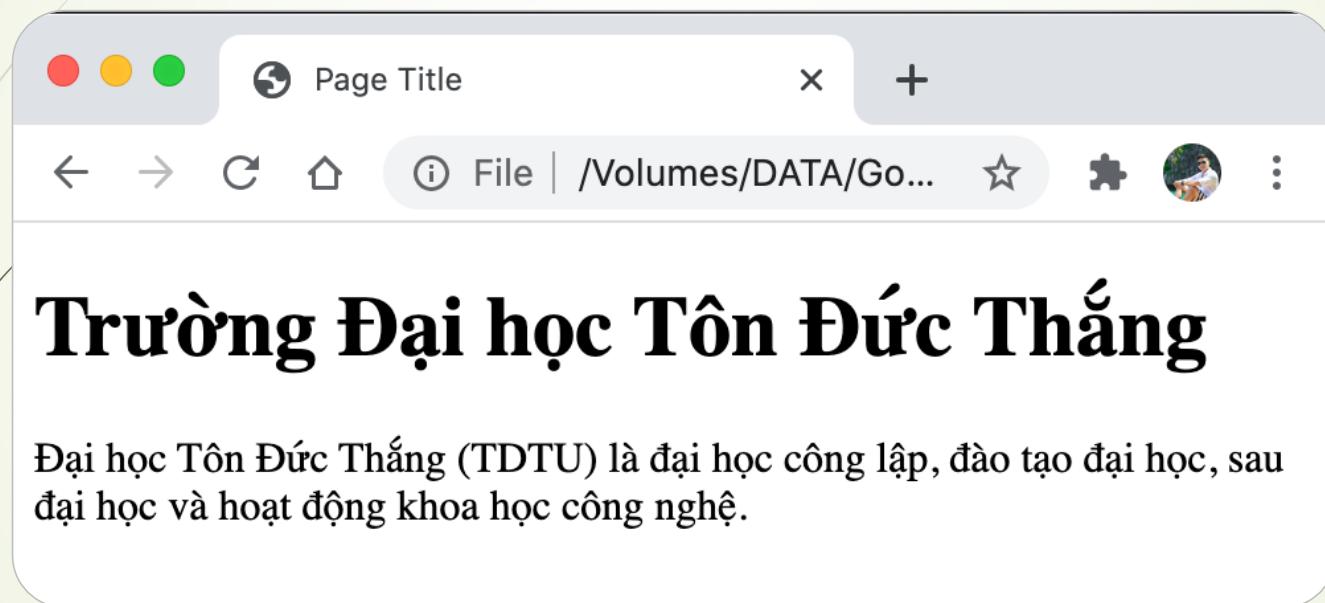
# Simple HTML Document



The image shows a screenshot of a code editor window titled "web.html". The code is a simple HTML document with the following structure:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Page Title</title>
</head>
<body>
    <h1>Trường Đại học Tôn Đức Thắng</h1>
    <p>Đại học Tôn Đức Thắng (TDTU) là đại học công lập,
       đào tạo đại học,
       sau đại học và hoạt động khoa học công nghệ.</p>
</body>
</html>
```

# Simple HTML Document



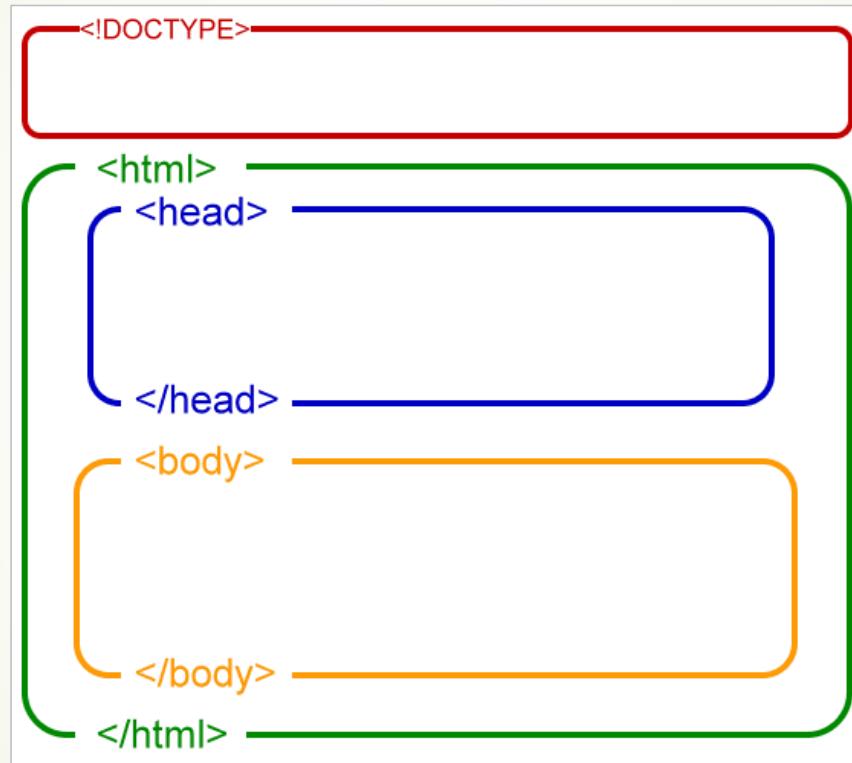
# HTML Element

- ▶ An HTML element is defined by a start tag, some content, and an end tag.
- ▶ A tag is a keyword enclosed by angle brackets: `<table>`
- ▶ There are opening and closing tags for many but not all tags.  
The affected text is between the two tags:
  - ▶ `<b>Hello</b>`
  - ▶ `<i>Hello</i>`
  - ▶ `<br>`

# Nested Tags

- Whenever you have HTML tags within other HTML tags, you must close the nearest tag first.
  - `<p>Hello <b>this</b> is a <i>sample</i> text</p>`

# HTML Page Structure



# The HTML Head Tag

- ▶ The `<head>` element is a container for metadata.
- ▶ 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.
- ▶ The following elements can go inside the `<head>` element:  
`<title>`, `<style>`, `<link>`, `<meta>`, `<script>`

# The HTML Body Tag

- ▶ The `<body>` tag defines the document's body.
- ▶ The `<body>` element contains all the contents of an HTML document, such as **headings**, **paragraphs**, **images**, **hyperlinks**, **tables**, **lists**, etc.
- ▶ There can only be one `<body>` element in an HTML document.

# HTML Attributes

- ▶ All HTML elements can have attributes.
- ▶ Attributes provide additional information about elements.
- ▶ Attributes are always specified in the start tag.
- ▶ Attributes usually come in name/value pairs like: **name="value"**.

```
<video width="600px" height="400px">
```

```

```

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

# BASIC HTML TAGS

# HTML Headings

- ▶ HTML headings are titles or subtitles that you want to display on a webpage.

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

<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>

</body>
</html>
```

# Heading 1

## Heading 2

### Heading 3

#### Heading 4

##### Heading 5

###### Heading 6

# HTML Paragraphs

- A paragraph always starts on a new line, and is usually a block of text.
- The HTML `<p>` element defines a paragraph.
- A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.

# HTML Paragraphs

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

<p>
This paragraph contains a lot of lines
in the source code, but the browser
ignores it.
</p>

<p>
This paragraph contains      a lot of
spaces in the source      code,
but the      browser
ignores it.
</p>

<p>
The number of lines in a paragraph
depends on the size of the browser
window. If you resize the browser
window, the number of lines in this
paragraph will change.
</p>

</body>
</html>
```

This paragraph contains a lot of lines in the source code, but the browser ignores it.

This paragraph contains a lot of spaces in the source code, but the browser ignores it.

The number of lines in a paragraph depends on the size of the browser window. If you resize the browser window, the number of lines in this paragraph will change.

# HTML Paragraphs

## Biden đứng trước 'ngưỡng cửa lịch sử' tại Georgia

Nhiệm kỳ của Biden được cho là phụ thuộc lớn vào việc đảng Dân chủ có thắng hai ghế thượng nghị sĩ tại "thành trì Cộng hòa" Georgia hay không.

Do các ứng viên ở Georgia đều không đạt tối thiểu 50% số phiếu trong ngày bầu cử 3/11, cuộc bỏ phiếu vào Thượng viện vòng hai được tổ chức vào ngày 5/1. Đây là màn đồi đầu giữa hai thượng nghị sĩ Cộng hòa đương nhiệm là David Perdue và Kelly Loeffler trước hai ứng viên Dân chủ Jon Ossoff và Raphael Warnock.

Perdue, cựu CEO của tập đoàn Reebok, đã giữ chức thượng nghị sĩ bang Georgia từ năm 2015 và là đồng minh trung thành với Tổng thống Donald Trump. Ông hiện bị dò xét về những giao dịch cổ phiếu trị giá hàng triệu USD trong các công ty mà ông chịu trách nhiệm giám sát khi làm việc tại thượng viện. Thượng nghị sĩ 70 tuổi này phủ nhận mọi hành vi sai trái.

# HTML Styles

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

```
<!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>
```

I am normal

I am red

I am blue

I am big

# HTML Styles: Background color

```
<!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.

# HTML Styles: Background color

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

<h1 style="background-color:#FF6347">A</h1>
<p style="background-color:gold;">B</p>

</body>
</html>
```

A

B

# HTML Styles: Text color

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

<h1 style="color:blue;">Sample Text</h1>
<p style="color:red">This text is red</p>

</body>
</html>
```

## Sample Text

This text is red

# HTML Styles: Text Size

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

<p style="font-size:100%;">Normal Text</p>
<p style="font-size:30px;">30px Text</p>
<h1 style="font-size:300%;">300% Zoom</h1>

</body>
</html>
```

Normal Text

30px Text

**300% Zoom**

# HTML Styles: Text Alignment

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

<h1 style="text-align:center;background-
color:gold">Center</h1>
<p style="background-color:gold">Default
(left)</p>

</body>
</html>
```

Center

Default (left)

# HTML Color

- ▶ HTML colors are specified with predefined color names, or with **RGB**, **HEX**, **HSL**, **RGBA**, or **HSLA** values.
- ▶ Color names: red, green, blue, tomato, orange ...
- ▶ RGB values:
  - ▶ `rgb(66, 99, 245)`
  - ▶ `rgba(66, 99, 245, 0.5)`
  - ▶ `rgb(245, 108, 66)`
- ▶ HEX color: `#ff0000`, `#000000`, `#00ff00`

# HTML Color

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

<h3 style="background-color:lightblue;">Name</h1>
<h3 style="background-color:#80ff80;">Hex</h1>
<h3 style="background-color:rgb(251, 173, 255); ">RGB</h1>
<h3 style="background-color:rgba(251, 173, 255, 0.5); ">RGB-A</h1>
</body>
</html>
```

Name

Hex

RGB

RGB-A

# HTML Image

- Images can improve the design and the appearance of a web page.

```

```

```

```

```

```

```

```

```

```

# HTML Link

- ▶ Links allow users to click their way from page to page.
- ▶ A link does not have to be text. A link can be an image or any other HTML element.

```
<a href="https://tdtu.edu.vn/">Visit TDTU Website</a>
```

```
<a href="https://tdtu.edu.vn/"></a>
```

# HTML Link – Target Attribute

- ▶ By default, the linked page will be displayed in the current browser window.
- ▶ 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.

# HTML LIST

# HTML List

- ▶ There are two types of HTML list:
  - ▶ Ordered list: represented by `<ol>` tag
  - ▶ Unordered list: represented by `<ul>` tag
- ▶ List items:
  - ▶ The items inside a list
  - ▶ Represented by `<li>` tag

# Unordered HTML List

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

<h2>An unordered HTML list</h2>

<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>

</body>
</html>
```

## An unordered HTML list

- Coffee
- Tea
- Milk

# Unordered HTML List

- The CSS `list-style-type` property is used to define the style of the list item marker. It can have one of the following values:

| Value  | Description                                     |
|--------|---|
| disc   | Sets the list item marker to a bullet (default) |
| circle | Sets the list item marker to a circle           |
| square | Sets the list item marker to a square           |
| none   | The list items will not be marked               |

# Unordered HTML List

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

<h2>Unordered List with Square Bullets</h2>

<ul style="list-style-type:square;">
    <li>Coffee</li>
    <li>Tea</li>
    <li>Milk</li>
</ul>

</body>
</html>
```

## Unordered List with Square Bullets

- Coffee
- Tea
- Milk

# Ordered HTML List

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

<h2>An ordered HTML list</h2>

<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

## An ordered HTML list

1. Coffee
2. Tea
3. Milk

# Ordered HTML List

- The **type** attribute of the `<ol>` tag, defines the type of the list item marker:

| Type     | Description  |
|----------|--|
| type="1" | The list items will be numbered with numbers (default)       |
| type="A" | The list items will be numbered with uppercase letters       |
| type="a" | The list items will be numbered with lowercase letters       |
| type="I" | The list items will be numbered with uppercase roman numbers |
| type="i" | The list items will be numbered with lowercase roman numbers |

# Ordered HTML List

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

<h2>Ordered List with Letters</h2>

<ol type="A">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

## Ordered List with Letters

- A. Coffee
- B. Tea
- C. Milk

# HTML TABLE

# HTML Table

- ▶ The **<table>** tag defines an HTML table.
- ▶ Each table row is defined with a **<tr>** tag.
- ▶ Each table header is defined with a **<th>** tag.
- ▶ Each table data/cell is defined with a **<td>** tag.

# HTML Table

```
<table border="1" width="30%>
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
    <td>Doe</td>
    <td>80</td>
  </tr>
</table>
```

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## Basic HTML Table

| Firstname | Lastname | Age |
|-----------|----------|-----|
| Jill      | Smith    | 50  |
| Eve       | Jackson  | 94  |
| John      | Doe      | 80  |

# HTML Table - Collapsed Borders

```
<table border="1" style="width:30%;  
border-collapse:collapse">  
  <tr>  
    <th>Firstname</th>  
    <th>Lastname</th>  
    <th>Age</th>  
  </tr>  
  <tr>  
    <td>Jill</td>  
    <td>Smith</td>  
    <td>50</td>  
  </tr>  
  <tr>  
    <td>Eve</td>  
    <td>Jackson</td>  
    <td>94</td>  
  </tr>  
  <tr>  
    <td>John</td>  
    <td>Doe</td>  
    <td>80</td>  
  </tr>  
</table>
```

May 20, 2023

## Basic HTML Table

| Firstname | Lastname | Age |
|-----------|----------|-----|
| Jill      | Smith    | 50  |
| Eve       | Jackson  | 94  |
| John      | Doe      | 80  |

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# HTML Table – Cell Padding

```
<!DOCTYPE html>
<html>
<head>
<style>
td, th{
    padding: 20px;
}
</style>
</head>
<body>

<table border="1"
style="width:100%">
<tr>
<th>Firstname</th>
<th>Lastname</th>
<th>Age</th>
</tr>
<tr>
<td>Jill</td>
<td>Smith</td>
<td>50</td>
</tr>

</table>
```

| Firstname | Lastname | Age |
|-----------|----------|-----|
| Jill      | Smith    | 50  |

# HTML Table – Column Span

```
<!DOCTYPE html>
<html>
<head>
</head>
<body>

<table border="1" style="width:100%">

    <tr>
        <td>A</td>
        <td>B</td>
        <td>C</td>
    </tr>
    <tr>
        <td>D</td>
        <td>E</td>
        <td>F</td>
    </tr>
    <tr>
        <td>G</td>
        <td>H</td>
        <td>I</td>
    </tr>
</table>
```

|   |   |   |
|---|---|---|
| A | B | C |
| D | E | F |
| G | H | I |

# HTML Table – Column Span

```
<!DOCTYPE html>
<html>
<head>
</head>
<body>



|   |    |   |
|---|----|---|
| A | B  | C |
| D | EF |   |
| G |    |   |


```

|   |    |   |
|---|----|---|
| A | B  | C |
| D | EF |   |
| G |    |   |

# HTML Table – Column Span

```
<!DOCTYPE html>
<html>
<head>
</head>
<body>

<table border="1" style="width:100%;
text-align:center">

<tr>
  <td>A</td>
  <td>B</td>
  <td>C</td>
</tr>
<tr>
  <td>D</td>
  <td colspan="2">EF</td>
</tr>
<tr>
  <td colspan="3">G</td>
</tr>
</table>
```

|   |    |   |
|---|----|---|
| A | B  | C |
| D | EF |   |
| G |    |   |

# HTML Table – Row Span

```
<!DOCTYPE html>
<html>
<head>
</head>
<body>

<table border="1" style="width:100%">

    <tr>
        <td>A</td>
        <td>B</td>
        <td>C</td>
    </tr>
    <tr>
        <td>D</td>
        <td>E</td>
        <td>F</td>
    </tr>
    <tr>
        <td>G</td>
        <td>H</td>
        <td>I</td>
    </tr>
</table>
```

|   |   |   |
|---|---|---|
| A | B | C |
| D | E | F |
| G | H | I |

# HTML Table – Row Span

```
<!DOCTYPE html>
<html>
<head>
</head>
<body>



||
||
||


```

|    |   |   |
|----|---|---|
| AD | B | C |
| E  |   |   |
| G  | H |   |

# BLOCK vs INLINE ELEMENTS

# Block and Inline Elements

- Every HTML element has a default display value, depending on what type of element it is.
- There are two display values: **block** and **inline**.

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

<div>
  <p style="background-color:orange">This is a block item</p>

  <p>This is <span style="background-color:lightblue">a
line</span> with <b style="background-
color:lightgreen">many</b> inline item</p>

</div>

</body>
</html>
```

This is a block item

This is a line with many inline item

# Block Elements

- ▶ A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).
- ▶ Here are some block elements:
  - ▶ `<table>`
  - ▶ `<p>`
  - ▶ `<form>`
  - ▶ `<div>`
  - ▶ `<ul>`
  - ▶ `<li>`
  - ▶ `<h1>-<h6>`

# Inline Elements

- ▶ An inline element does not start on a new line and it only takes up as much width as necessary.
- ▶ Here are some inline elements:
  - ▶ <a>
  - ▶ <img>
  - ▶ <b>, <u>, <i>
  - ▶ <span>
  - ▶ <input>, <select>, <textarea>, <button>

# HTML iFrame

- ▶ An HTML iframe is used to display a web page within a web page.

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

<h2>HTML Iframes</h2>

<iframe width="320" height="200"
src="https://www.youtube.com/embed/Yr2GhwSpMRo?
controls=0"></iframe>

</body>
</html>
```

## HTML Iframes



# HTML Responsive

- ▶ Responsive web design is about creating web pages that look good on all devices!
- ▶ A responsive web design will automatically adjust for different screen sizes and viewports.
- ▶ Responsive Web Design is about using HTML and CSS to automatically **resize**, **hide**, **shrink**, or **enlarge**, a website, to make it look good on all devices (desktops, tablets, and phones)

# HTML Responsive



# HTML Responsive - Setting The Viewport

- ▶ To create a responsive website, add the following <meta> tag to all your web pages.
- ▶ This will give the browser instructions on how to control the page's dimensions and scaling.

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

# HTML Responsive - Setting The Viewport

To understand this example, you should open this page on a phone or a tablet.



*Latin placeholder text:*  
Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum. Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum.

To understand this example, you should open this page on a phone or a tablet.



*Latin placeholder text:*  
Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et

# HTML Semantic Elements

- ▶ A semantic element clearly describes its meaning to both the browser and the developer.
- ▶ A semantic element clearly describes its meaning to both the browser and the developer.
- ▶ Many web sites contain HTML code like: `<div id="nav"> <div class="header"> <div id="footer">` to indicate navigation, header, and footer.
- ▶ Examples of semantic elements: `<form>`, `<table>`, and `<article>` - Clearly defines its content.

# HTML Semantic Elements

- In HTML there are some semantic elements that can be used to define different parts of a web page:
  - <article>, <aside>, <details>, <figcaption>
  - <figure>, <footer>, <header>, <main>, <mark>
  - <nav>, <section>, <summary>, <time>





# HTML FORMS

# HTML Form

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

Sign Up'." data-bbox="358 400 632 799"/>

Log in to your account

Email address

Password

Log In

New to Heroku? [Sign Up](#)

# The <form> element

- ▶ 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.**
- ▶ The **action** attribute defines the action to be performed when the form is submitted.
- ▶ The **method** attribute specifies the HTTP method to use when submitting the form data.

# The <form> element



Username

Password

# The <form> element

```
<form action="login.php" method="post">  
  
    Username  
  
    <input type="text" name="username" value="Mai Van Manh"><br>  
  
    Password  
  
    <input type="password" name="pass" value="123456"><br>  
  
    <button type="submit">Login</button>  
  
</form>
```

# Form Elements

- ▶ The HTML <form> element can contain one or more of the following form elements:
  - ▶ <label>, <input>
  - ▶ <select>, <option>
  - ▶ <textarea>, <button>, <datalist>

# The <input> elements

- One of the most used form element is the `<input>` element.
- The `<input>` element can be displayed in several ways, depending on the `type` attribute.
- Each input element must have a `name`.

# The <input> element: Text boxes & Buttons

Username

Email

Password

# The <input> element: Text boxes & Buttons

```
<form action="login.php" method="post">  
    Username  
    <input type="text" name="username" value="Mai Van Manh"><br>  
    Email  
    <input type="email" name="email" value="mvmanh@gmail.com"><br>  
    Password  
    <input type="password" name="pass" value="123456"><br>  
  
    <input type="submit" value="Login">  
    <input type="reset" value="Again">  
    <input type="button" value="Button">  
</form>
```

# The <input> element: Checkboxes & Radio

## Gender

Male  Female

## Nationality

Vietnames  Foreigner

## Favorite heroes

Ironman  Spyderman  Batman  Superman

Register

Again

# The <input> element: Checkboxes & Radio

```
<form action="register.php" method="post">
    <p>Gender</p>
    Male <input type="radio" name="gender" value="male">
    Female <input type="radio" name="gender" value="female">

    <p>Nationality</p>
    Vietnamese <input type="radio" name="nationality" value="vn" checked>
    Foreigner <input type="radio" name="nationality" value="foreigner">

    <p>Favorite heroes</p>
    Ironman <input type="checkbox" name="heroes[]" value="0">
    Spyderman <input disabled type="checkbox" name="heroes[]" value="1">
    Batman <input type="checkbox" name="heroes[]" value="2">
    Superman <input type="checkbox" name="heroes[]" value="3">

    <button type="submit">Register</button>
    <button type="reset">Again</button>
</form>
```

# The <select> and <textarea> elements

Country

Message

# The <select> and <textarea> elements

```
<form action="register.php" method="post">

    Country
    <select name="country">
        <option value="0">Vietnam</option>
        <option value="1">Laps</option>
        <option value="2">Cambodia</option>
        <option value="3">Thailand</option>
    </select>

    Message
    <textarea name="message" cols="20" rows="5"></textarea>

    <button type="submit">Register</button>
</form>
```