

WEB SYSTEMS & TECHNOLOGIES

1. HTML Basics



```
1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD
2 "http://www.w3.org/TR/html4/str1
3 <html>
4 <head>
5 <title>Example</title>
6 <link rel="stylesheet" href="s
7 </head>
8 <body>
9 <div id="header">
10 <h1><a href="." title="Back
11 </div>
12 <div id="toolbar">
13 <span class="left">Today <sp
14 <span class="right">
15 <span id="time">&nbsp;</sp
16 <select id="timezone">
17 <option value="-12">(GMT
18 <option value="-11">(GMT
19
20 <option value="-10">(GMT
21 <option value="-9">(GMT
22 <option value="-8">(GMT
23 <option value="-7">(GMT
24 <option value="-6">(GMT
25 <option value="-5">(GMT
26 <option value="-4">(GMT
27 <option value="-3">(GMT
28 <option value="-2">(GMT
29 <option value="-1">(GMT
30 <option value="0">(GMT
31 <option value="1">(GMT
32 <option value="2">(GMT
33 <option value="3">(GMT
34 <option value="4">(GMT
35 <option value="5">(GMT
36 <option value="6">(GMT
37 <option value="7">(GMT
38 <option value="8">(GMT
39 <option value="9">(GMT
40 <option value="10">(GMT
41 <option value="11">(GMT
42 <option value="12">(GMT
43 </select>
44 </div>
45 </body>
46 </html>
```

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- HTML Basics
- HTML Tags:
 - ✓ Heading, Paragraph, Text,
 - ✓ Link
 - ✓ List
 - ✓ Image
 - ✓ Table
 - ✓ Forms
- HTML layout

Webpage

- Web pages are text files containing HTML
- HTML – Hyper Text Markup Language
 - ✓ A notation for describing
 - document structure (semantic markup)
 - formatting (presentation markup)
- The markup tags provide information about the page content structure
- A website is a collection web pages
- Web Editor: create a Webpage
- Web Browser: navigate a Website

Webpage

- A Webpage is an HTML file **.html** file
- HTML files can be created with text editors (Web Editor) - WYSIWYG:
 - ✓ Notepad, Notepad ++
 - ✓ Visual Code



HTML Basics

```
<!DOCTYPE html>
<html>
<head>
    <title>Page Title</title>
</head>
<body>
    <h1>This is a Heading</h1>
    <p>This is a paragraph.</p>
</body>
</html>
```

HTML Basics

- The `<!DOCTYPE>` DeclarationHTML documents must start with a document type definition (DTD)
- `<html>`
 - ✓ `<head>` Section
 - ✓ `<body>` Section
- `<head>` contains some other tags:
 - ✓ `<title>`
 - ✓ `<meta>`
 - ✓ `<script>`
 - ✓ `<style>`
 - ✓ `<!-- comments -->`

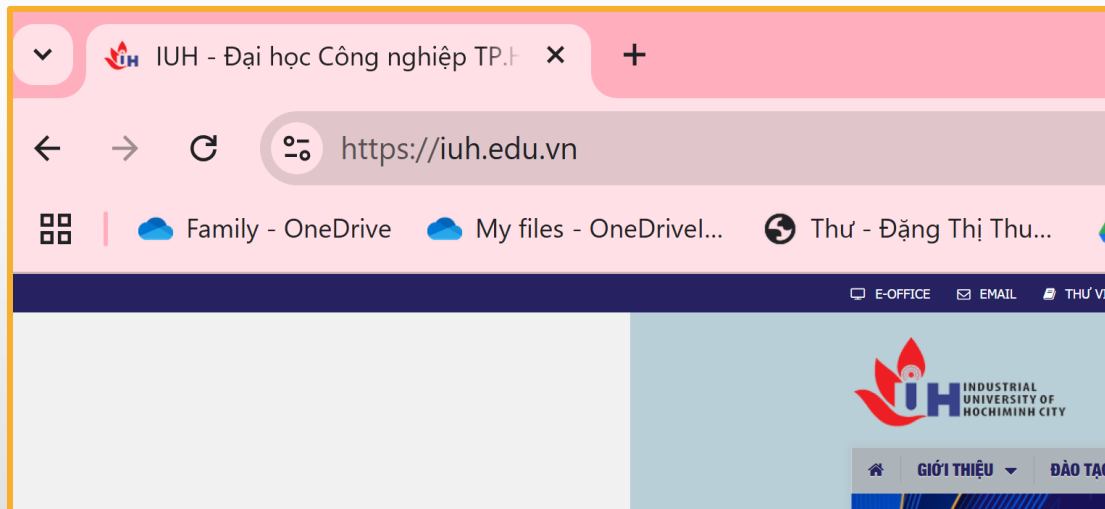
HTML Basics

- `<html> ... </html>` : start a HTML file
- `<head>...</head>`: The head part a HTML file
- `<body> ...</body>`: section describes the viewable portion of the HTML file

HTML Basics

<title>

- The title of a Webpage



HTML Basics

- `<meta>` SEO
- Meta tags additionally describe the content contained within the page
- The name attribute specifies the name for the metadata.
- The name attribute specifies a name for the information/value of the content attribute.

```
<meta name="description" content="Free Web tutorials">  
<meta name="keywords" content="HTML,CSS,JavaScript">  
<meta name="author" content="John Doe">  
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

HTML Basics

- `<script>` element is used to embed scripts into an HTML document
 - ✓ Script are executed in the client's Web browser
 - ✓ Scripts can live in the `<head>` and in the `<body>` sections
- Supported client-side scripting languages:
 - ✓ JavaScript (it is not Java!)
 - ✓ VBScript
 - ✓ JScript

HTML Basics

- Tags
 - ✓ Opening tag and closing tag
 - ✓ The smallest piece in HTML
- Attributes
 - ✓ Properties of the tag
 - ✓ Size, color, etc...
- Elements
 - ✓ Combination of opening, closing tag and attributes

HTML Tags

- Headings and Paragraphs
 - ✓ Heading Tags (h1 – h6)
 - ✓ Paragraph Tags
 - ✓ `
` new line `
`

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

Heading 1

Heading 2

Heading 3

Heading 4

Heading 5

Heading 6

HTML Tags

- Text formatting tags

<code></code>	bold
<code><i></i></code>	italicized
<code><u></u></code>	<u>underlined</u>
<code><sup></sup></code>	Sample ^{superscript}
<code><sub></sub></code>	Sample _{subscript}
<code></code>	strong
<code></code>	emphasized
<code><pre></pre></code>	Preformatted text
<code><blockquote></blockquote></code>	Quoted text block
<code></code>	Deleted text – strike through

HTML Tags: Links

- Link to a document called form.html on the same server in the same directory:

```
<a href="form.html">Fill Our Form</a>
```

- Link to a document called parent.html on the same server in the parent directory:

```
<a href=" ../parent.html">Parent</a>
```

- Link to a document called cat.html on the same server in the subdirectory stuff:

```
<a href="stuff/cat.html">Catalog</a>
```

HTML Tags: Links

- Link to an external Web site:

```
<a href="http://www.devbg.org">BASD</a>
```

- ✓ Always use a full URL, including "http://", not just "www.somesite.com"
- ✓ Using the target="_blank" attribute opens the link in a new window

- Link to an e-mail address:

```
<a href="mailto:bugs@example.com">  
Please report bugs here (by e-mail only)</a>
```

HTML Tags: Links

- Link to a document called apply-now.html
 - ✓ On the same server, in same directory
 - ✓ Using an image as a link button:

```
<a href="apply-now.html"></a>
```

- Link to a document called index.html
 - ✓ On the same server, in the subdirectory english of the parent directory:

```
<a href="../english/index.html">Switch to  
English version</a>
```


HTML Tags: Links

- Link to another location in the same document:

```
<a href="#section1">Go to Introduction</a>  
...  
<h2 id="section1">Introduction</h2>
```

- Link to a specific location in another document:

```
<a href="chapter3.html#section3.1.1">Go to Section  
3.1.1</a>  
  
<!-- In chapter3.html -->  
...  
<div id="section3.1.1">  
  <h3>3.1.1. Technical Background</h3>  
</div>
```

HTML Tags: Image

- ◆ Inserting an image with `` tag:

```

```

- ◆ Image attributes:

src	Location of image file (relative or absolute)
alt	Substitute text for display (e.g. in text mode)
height	Number of pixels of the height
width	Number of pixels of the width
border	Size of border, 0 for no border

- ◆ Example:

```

```

HTML Tags: Image map

- There are different areas that act as links in an image.
 - ✓ Map element
 - ✓ AREA element
 - ✓ Img
 - ✓ Property: usemap="#idmap"
- ```
<map id= "idmap">
 <area shape="{rect|circle|polygon}" coords="x1,y1,r,
 x2,y2,..." href="...">

</map>
```

# HTML tags: Image map

```

<map name="workmap">
 <area shape="rect" coords="34,44,270,350" alt="Computer"
href="computer.html">
 <area shape="rect" coords="290,172,333,250" alt="Phone"
href="phone.html">
 <area shape="circle" coords="337,300,44" alt="Cup of coffee"
href="coffee.html">
</map>
```

# OBJECT elements

---

- DATA: url of the resource
- WIDTH
- HEIGHT
- NAME
- TYPE: media type

# Audio & Video

---

- Media Tags

- ✓ <audio>

- Attributes: autoplay, controls, loop, src

- ✓ <video>

- Attributes: autoplay, controls, loop, height, width, src

```
<audio width="360" height="240" controls= "controls"
loop=-1>
```

```
<source src="someSong.mp3" type="audio/mp3">
```

```
</source>
```

```
Audio tag is not supported
```

```
</audio>
```

# Embed Tag – New Syntax

- `<embed>`
  - ✓ Defines embedded content, such as a plug-in
- Attributes
  - ✓ `src="url", type="type"`

```
<embed src="helloworld.swf" />
```

# Miscellaneous Tags

---

- `<hr />`: Draws a horizontal rule (line):

```
<hr size="5" width="70%" />
```

- `<center></center>`: Deprecated!

```
<center>Hello World!</center>
```

- `<font></font>`: Deprecated!

```
Font3
Font+4
```

- - size, color, face="Time New Roman, Arial,..."



# HTML Tags: Ordered Lists

- Create an **Ordered List** using `<ol></ol>`:

```
<ol type="1">
 Apple
 Orange
 Grapefruit

```

- Attribute values for `type` are **1, A, a, I, or i**

1. Apple
2. Orange
3. Grapefruit

- A. Apple
- B. Orange
- C. Grapefruit

- a. Apple
- b. Orange
- c. Grapefruit

- I. Apple
- II. Orange
- III. Grapefruit

- i. Apple
- ii. Orange
- iii. Grapefruit

# HTML Tags: Unordered Lists

---

- Create an Unordered List using `<ul></ul>`:

```
<ul type="disk">
 Apple
 Orange
 Grapefruit

```

- Attribute values for type are:
  - ✓ disc, circle or square

- Apple
- Orange
- Pear

- Apple
- Orange
- Pear

- Apple
- Orange
- Pear

# HTML Tags: Definition lists

---

- Create definition lists using `<dl>`
  - ✓ Pairs of text and associated definition; text is in `<dt>` tag, definition in `<dd>` tag

```
<dl>
 <dt>HTML</dt>
 <dd>A markup language ...</dd>
 <dt>CSS</dt>
 <dd>Language used to ...</dd>
</dl>
```

# Exercise

---

## I. Introduction HTML & Internet

- Intro
- Creating

## II. HTML

- a. Text
- b. Paragraph
- c. Font
- d. Link
- e. Image
- f. Table
- g. Form

## III. CSS

- 1. Font
- 2. Text
- 3. Padding - Margin
- 4. Border

## IV. Bootstrap

## V. jQuery

# HTML Tags: Special Characters

---

Symbol Name	HTML Entity	Symbol
Copyright Sign	&copy;	©
Registered Trademark Sign	&reg;	®
Trademark Sign	&trade;	™
Less Than	&lt;	<
Greater Than	&gt;	>
Ampersand	&amp;	&
Non-breaking Space	&nbsp;	
Em Dash	&mdash;	—
Quotation Mark	&quot;	"
Euro	&#8364;	€
British Pound	&pound;	£
Japanese Yen	&yen;	¥

# HTML layout

---

# HTML layout

---

- Block elements add a line break before and after them
  - ✓ `<div>` is a block element
  - ✓ Other block elements are `<table>`, `<hr>`, headings, lists, `<p>` and etc.
- Inline elements don't break the text before and after them
  - ✓ `<span>` is an inline element
  - ✓ Most HTML elements are inline, e.g. `<a>`

# <div> : Layout a Web Page

---





# The 'HTML 4 and Before' Way

---

- Using divs with IDs
  - ✓ The IDs are needed for styling

```
<html>
<head> ... </head>
<body>
 <div id="header"> ... </div>
 <div id="navigation"> ... </div>
 <div id="sidebar"> ... </div>
 <div id="content"> ... </div>
 <div id="footer"> ... </div>
</body>
</html>
```

# The HTML 5 Way

---

- In HTML 5 there are semantic tags for layout
  - ✓ <nav>, <header>, <footer>, <section>, <aside>, <article>

```
<html>
<head> ... </head>
<body>
 <header> ... </header>
 <nav> ... </nav>
 <aside> ... </aside>
 <section> ... </section>
 <footer> ... </footer>
</body>
</html>
```

# HTML Table

---

- Tables represent tabular data
  - ✓ A table consists of one or several rows
  - ✓ Each row has one or more columns that contain data
  - ✓ Table → row → data

`<table>`

`<tr>`

`<td>`

Title	Title	Title	Title	Title	Title
Data	Data	Data	Data	Data	Data
Data	Data	Data	Data	Data	Data
Data	Data	Data	Data	Data	Data
Data	Data	Data	Data	Data	Data
Data	Data	Data	Data	Data	Data

# HTML Table

---

- Table rows split into three semantic sections: header, body and footer
  - ✓ `<thead>` denotes table header and contains `<th>` elements, instead of `<td>` elements
  - ✓ `<tbody>` denotes collection of table rows that contain the very data
  - ✓ `<tfoot>` denotes table footer but comes BEFORE the `<tbody>` tag
  - ✓ `<colgroup>` and `<col>` define columns (most often used to set column widths)

```
<table>
 <thead>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 </thead>
 <tbody>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 </tbody>
 <tfoot>
 <tr>
 <td> </td>
 <td> </td>
 </tr>
 </tfoot>
</table>
```

# HTML Table

---

# HTML Table

---

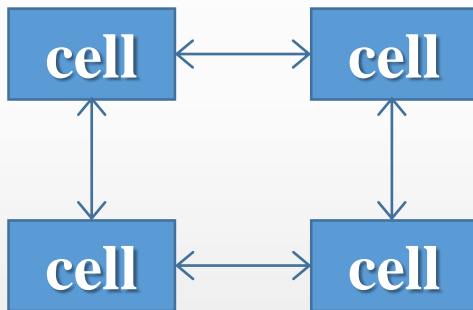
## Table/row/cell properties

- border:
- Width:
- Height: {default}
- Align: horizontal [left, right]
- Valign: vertical [top, bottom, middle]
- Bgcolor:
- Cellspacing: distance of cells
- Cellpadding: distance from cells to data

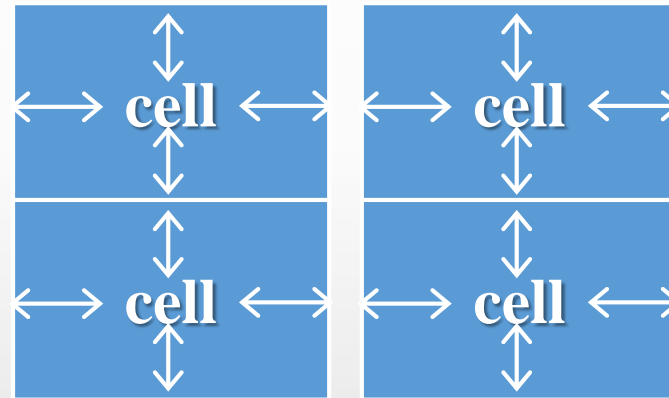
# HTML Table

---

- cellspacing



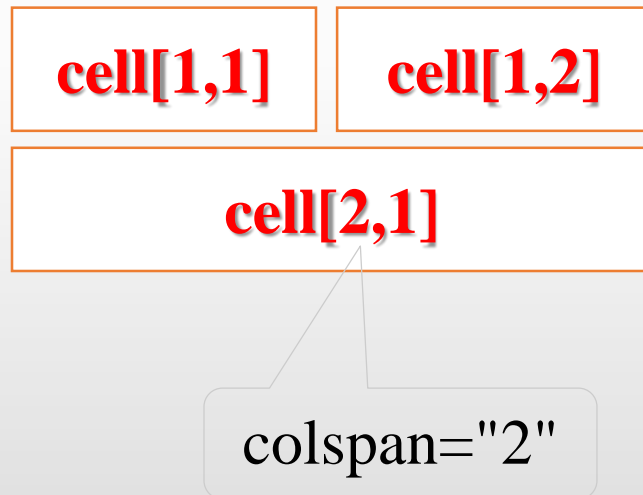
- cellpadding



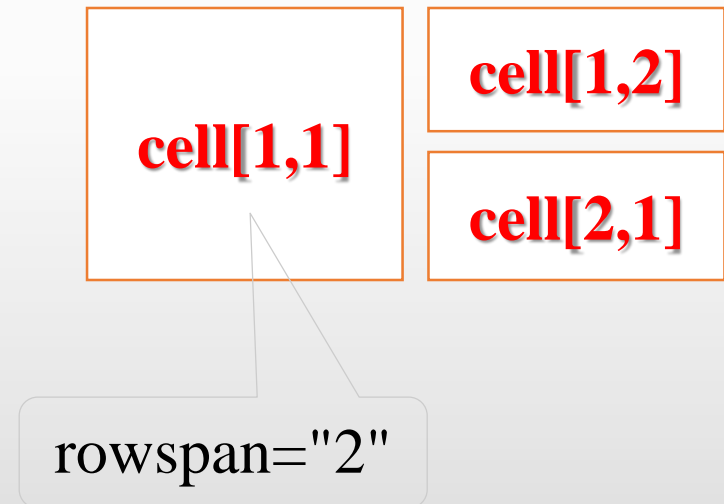
# HTML Table

---

- colspan



- rowspan





# HTML Table

---

Cell[1,1]	Cell[2,1]	
Cell[1,2]	Cell[2,2]	Cell[3,2]
Cell[1,3]		Cell[2,3]

# HTML Form

---

- The primary method for gathering data from site visitors
- HTML Forms can contain
  - ✓ Text fields for the user to type
  - ✓ Buttons for interactions like "Register", "Login", "Search"
  - ✓ Menus, Sliders, etc...
- Check Google, Yahoo, Facebook
  - ✓ Google search field is a simple Text field



# HTML Form

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>`

The image shows a web form titled "Application Form" in green text. The form contains several input fields and controls:

- Name:** A text input field.
- Email:** A text input field.
- Date of birth:** A text input field with a placeholder "mm / dd / yyyy" and a calendar icon.
- Image:** A file upload control with a "Choose File" button and "No file chosen" text.
- Position:** A text input field.
- Application for the post of:** A text input field.
- Working experience (between 0 and 20):** A range slider with a blue handle.
- Sex:** Radio buttons for "Male" and "Female".
- Educational Qualifications:** Radio buttons for "Graduate" and "Postgraduate".
- Language:** Checkboxes for "English", "French", and "German".
- Comment:** A large text area with a placeholder "Write here ...".
- Buttons:** "Register" and "Cancel" buttons at the bottom.

# HTML Form

---

- Create a form block with

```
<form name="myForm" method="post" action= "...">
 ...
 ...
</form>
```

The "action" attribute tells where the form data should be sent

The "method" attribute tells how the form data should be sent – via GET or POST request

# HTML Form: Input

---

```
<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

---

- The input **value** attribute specifies an initial value
- The input **readonly** attribute specifies that an input field is **read-only**
- The input **disabled** attribute specifies that an input field should be disabled
- The input **size** attribute specifies the visible width, in characters, of an input field
- The input **maxlength** attribute specifies the maximum number of characters allowed in an input field

# HTML Form: Input Text

- Single-line text input fields:
- Password input – a text field which masks the entered text with \* signs

```
<h2>Login</h2>

<form>
 <label for="username">User Name:</label>

 <input type="text" id="txtname">

 <label for="password">Password:</label>

 <input type="text" id="txtpass">

 <input type="button" value="Login">
</form>
```

## Login

User Name:

Password:

# HTML Form: Buttons

---

- Button – no default action, used with JS
- Submit button – Action onsubmit <form>
- Reset button – brings the form to its initial state

```
<h2>Button</h2>

<form>

<input type="button" value="Login">
<input type="Submit" value="Submit">
<input type="reset" value="Cancel">

</form>
```

## Button



# HTMLForm: Checkboxes-Radio Buttons

- Checkboxes: let a user select ZERO or MORE

```
<h2>Checkboxes</h2>
<form>
 <input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">
 <label for="vehicle1"> I have a bike</label>

 <input type="checkbox" id="vehicle2" name="vehicle2" value="Car">
 <label for="vehicle2"> I have a car</label>

 <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">
 <label for="vehicle3"> I have a boat</label>

 <input type="submit" value="Submit">
</form>
```

## Checkboxes

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

Submit

- Radio buttons: let a user select ONLY ONE of a limited number of choices

```
<h2>Radio Buttons</h2>
<p>Choose your favorite Web language:</p>
<form>
 <input type="radio" id="html" name="fav_language" value="HTML">
 <label for="html">HTML</label>

 <input type="radio" id="css" name="fav_language" value="CSS">
 <label for="css">CSS</label>

 <input type="radio" id="javascript" name="fav_language" value="JavaScript">
 <label for="javascript">JavaScript</label>

 <input type="submit" value="Submit">
</form>
```

## Radio Buttons

Choose your favorite Web language:

- ☐ HTML  
☐ CSS  
☐ JavaScript

Submit

# HTML Form: Selection List

---

- Create a drop-down list with four options:

```
<h2>Selection List</h2>
<form>
 <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="button" value="Choose">
</form>
```

**Selection List**

Choose a car:

- Volvo
- Saab
- Fiat
- Audi

# HTML Form: Data List

---

- A datalist with pre-defined options

```
<h1>The datalist element</h1>
```

```
<form>
 <label for="browser">Choose your browser from the list:</label>
 <input list="browsers" name="browser" id="browser">
 <datalist id="browsers">
 <option value="Edge">
 <option value="Firefox">
 <option value="Chrome">
 <option value="Opera">
 <option value="Safari">
 </datalist>
 <input type="submit" value="Send">
</form>
```

## The datalist element

Choose your browser from the list:

Edge  
Firefox  
Chrome  
Opera  
Safari

# HTML Form: Hidden Fields

---

- Hidden fields contain invisible data
  - ✓ Not shown to the user
  - ✓ Used by JavaScript and server-side code
    - ViewState, SessionState, etc..

```
<form>
 <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname">

 <input type="hidden" id="custId" name="custId" value="3487">
 <input type="submit" value="Submit">
</form>
```



First name:

# HTML Form: File input

- File input – a field used for uploading files

```
<form>
 <label for="myfile">Select a file:</label>
 <input type="file" id="myfile" name="myfile">
</form>
```

Select a file:  Không có tệp nào được chọn

# Labels

---

- Labels are used to associate an explanatory text to a form field using the field's ID.
- Clicking on a label focuses its associated field (checkboxes are toggled, radio buttons are checked)
- Labels are both a usability and accessibility feature and are required in order to pass accessibility validation.

# Fieldsets

- Fieldsets are used to enclose a group of related form fields:
- The `<legend>` is the fieldset's title.

```
<form>
<fieldset>
 <legend>Personalia:</legend>
 <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname">

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

 <label for="email">Email:</label>
 <input type="email" id="email" name="email">

 <label for="birthday">Birthday:</label>
 <input type="date" id="birthday" name="birthday">

 <input type="submit" value="Submit">
</fieldset>
</form>
```

## The fieldset element

Personalia:

First name:

Last name:

Email:

Birthday:  ☐

Academic information	
Degree	<input type="text" value="Master of Business Administration"/>
Student ID	<input type="text"/>
Classes attended	<div>Geography Mathematics English</div>
Personal Details	
First Name	<input type="text"/>
Last Name	<input type="text"/>
Gender:	<input type="radio"/> Male <input checked="" type="radio"/> Female
Email	<input type="text"/>
TERMS AND CONDITIONS...	
<div>Send Form</div> <div>Clear Form</div>	