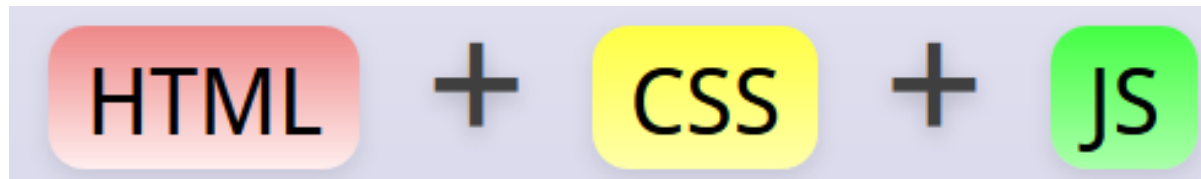


Outline

- **Introduction to HTML**
- **Page Layout**
- **Forms**
- **Tables**
- **Media tags**

Introduction to HTML



HTML, CSS & JavaScript

- **HTML**
 - HTML stands for Hyper Text Markup Language
 - An HTML file is a text file containing markup tags
 - The tags tell the web browser how to **structure** the text and how to **present it**
- HTML page consists of a *base HTML-file* which may includes *several referenced resources* such as:
 - **CSS** is a style sheet language used to control the presentation and formatting of an HTML document
 - **JavaScript** used for client side scripting such as validation, animation and partial page refresh (by asynchronously getting content from the server)
 - Images, audio files, etc.

Html page has **head** and **body**

```
<html>  
  <head>...</head>  
  <body>...</body>  
</html>
```

Page metadata

```
<head>  
  <title>Page Title</title>  
  <meta name="description"  
    content="This is an  
    example.">  
</head>
```

Page Content

```
<body>  
  <h1>Heading 1</h1>  
  <h2>Sub heading 2</h2>  
  <h3>Sub heading 3</h3>  
  <p>First paragraph</p>  
  <p>Second paragraph</p>  
</body>
```

HTML – Example

```
<!DOCTYPE html>
<html>
  <head>
    <title>HTML Example</title>
    <meta charset="UTF-8">
    <script src="script.js"></script>
    <link rel="stylesheet" href="style.css">
  </head>
  <body>
    <h1>Heading 1</h1>
    <h2>Sub heading 2</h2>
    <p>This is a paragraph</p>
    <div>This is a div</div>
  </body>
</html>
```

HTML key capabilities

- Define the page layout
- Collect input from users using Forms
- Display data using tables
- Embed media (e.g., audio and video) into HTML documents
- Other capabilities such offline data storage in the browser, [draw graphics in canvas](#), etc.

Page Layout

Page Layout

<header>

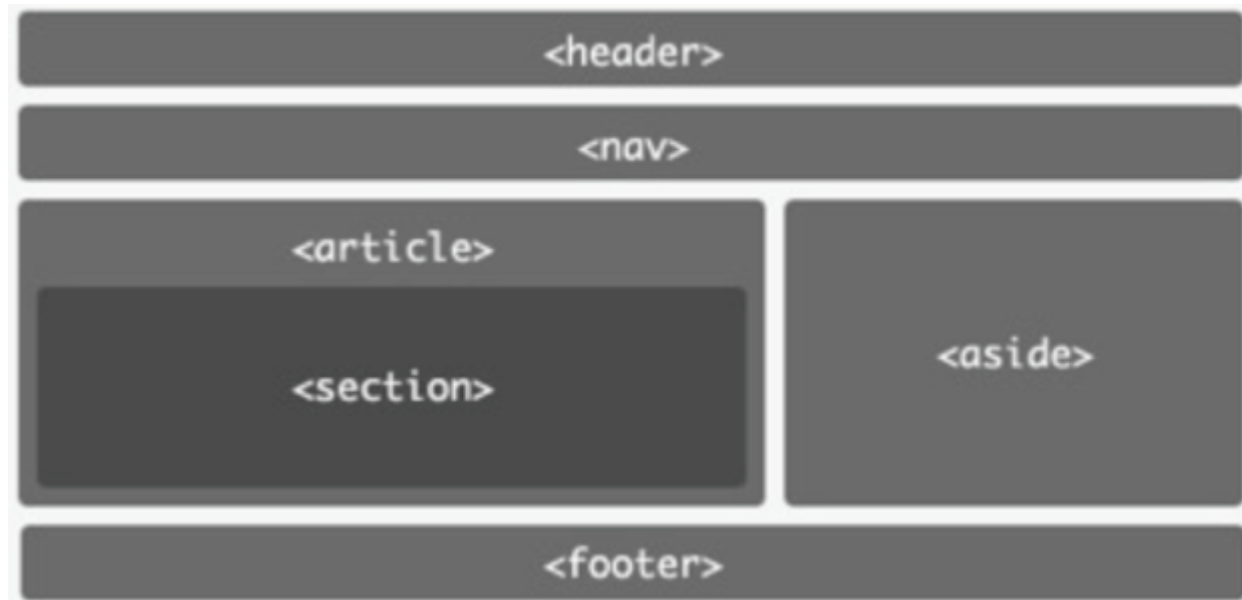
<nav>

<section>

<aside>

<article>

<footer>



- We can use **<header>** **<nav>** **<aside>** tags to **divide a page into a logical structure**
- We can use the **float** and **display** properties to arrange elements into sophisticated layouts

Header & Footer

- **<header>**

represents a group of introductory or navigational aids (headline, logo, etc.)

- **<footer>**

contains information about copyright, author, contact info, facebook/twitter links etc.

Nav & Aside

- `<nav>`

contains primary navigation (frequently inside a header)

- `<aside>`

contains related content (sidebars, pullquotes, ads, etc)

Article & Section

- `<article>`

defines self-contained content that could exist independently of the rest of the content (e.g., blog post)

- `<section>`

a thematic grouping of content, typically with a heading

<p> vs. <div>

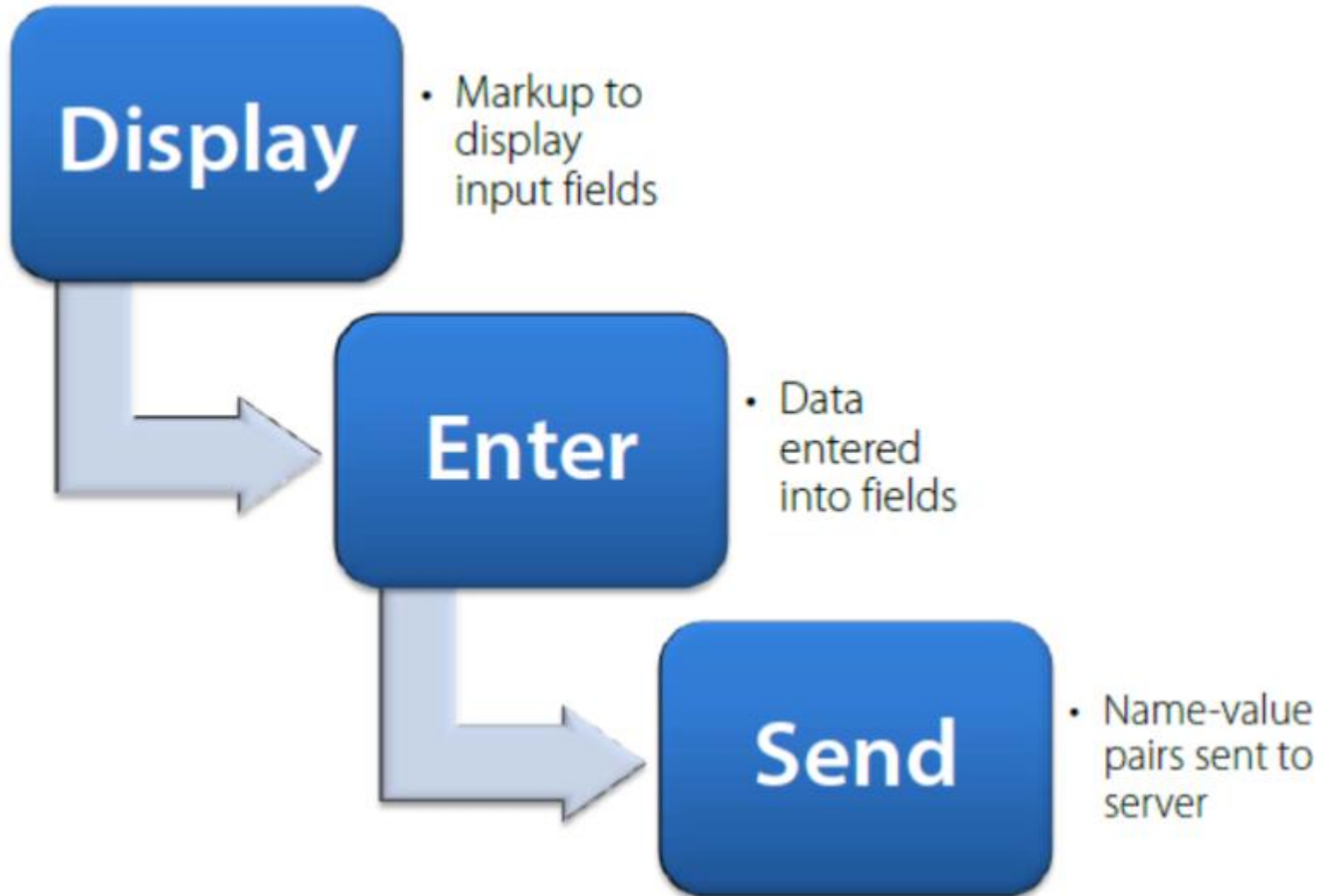
- They have *semantic difference* between **<p>** and **<div>**
 - a **<div>** element is designed to describe a container of data
 - a **<p>** element is designed to describe a paragraph of content
- HTML is a markup language designed to **"mark up" content in a meaningful way**
 - The elements that you choose to mark up your content should *describe* the content
- **Don't mark up your document based on how it should look but mark it up based on what it is**
 - If you need a **generic container** then use a **<div>**
 - If you need an element to describe a **paragraph of content** then use a **<p>**

Forms

Forms

- Forms are used to collect input from the user and submitting it to a Web server
- A form can have many input elements each has a name and id
 - Name identifies the input when the form is submitted
 - Id is used to access the element from JavaScript or CSS
- A form has an action attribute to specify the Uri that will handle processing the form when it is submitted
- The method attribute controls how values are sent
 - Get will append the input names and values to the Url
 - Post will place the input names and values in the request body

Form Basics



Form settings

Action

- The URI to which data is sent

Method

- The HTTP method (GET/POST) to use

Text input

Textbox

- `<input type="text" />`

Password

- `<input type="password" />`

Text Area

- `<textarea />`

Hidden

- `<input type="hidden" />`



Hello forms

.....

Text areas can have
more than one line.

HTML 5 input fields

- Input element enables multiple input types

<code><input type="search"></code>	search box
<code><input type="number"></code>	spinbox
<code><input type="range"></code>	slider
<code><input type="color"></code>	color picker
<code><input type="tel"></code>	telephone number
<code><input type="url"></code>	web address
<code><input type="email"></code>	email address
<code><input type="date"></code>	calendar date picker
<code><input type="month"></code>	month
<code><input type="week"></code>	week
<code><input type="time"></code>	time
<code><input type="datetime"></code>	date time
<code><input type="datetime-local"></code>	local date and time

Selections

- Select, checkbox and radio enable pre-defined input

Select list

- Single/multi select

Radio buttons

- Grouped by name

Check boxes

- Multiple allowed

Developer ▼

Technical

Developer

Web Designer

non-technical

Manager

Consultant

Other

Gender: ☒ Male ☐ Female

Preferences:

☐ Email newsletter

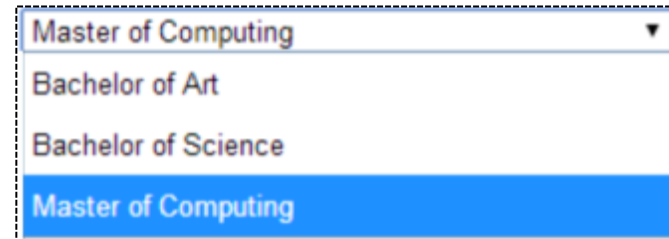
☒ Send me marketing from partners

☒ Send me special offers

Dropdown and List Examples

- Dropdown

```
<select name="degree" id="degree">  
  <option value="BA">Bachelor of Art</option>  
  <option value="BS">Bachelor of Science</option>  
  <option value="MC" selected="selected">Master of Computing</option>  
</select>
```



Master of Computing
Bachelor of Art
Bachelor of Science
Master of Computing

- Multi selections list

```
<label for="occupation">Occupation:</label>  
<select id="occupation" name="occupation" multiple size="4">  
  <optgroup label="Technical">  
    <option label="Developer" value="developer"></option>  
    <option label="Web Designer" value="designer"></option>  
  </optgroup>  
  <optgroup label="Non-technical">  
    <option label="Consultant" value="consultant" selected></option>  
    <option label="Manager" value="manager"></option>  
  </optgroup>  
  <option label="Other" value="other"></option>  
</select>
```



Occupation: Developer
Web Designer
Non-technical
Consultant

Radio button and Checkbox Examples

- Radio button

Gender: ☐ Male ☒ Female

```
<label style="text-align: left">
  <input type="radio" id="male" name="gender" value="male">Male
</label>
<label style="text-align: left">
  <input type="radio" id="female" name="gender" value="female" checked>Female
</label>
```

- Checkbox

Preferences: ☒ Send me a newsletter
☐ Send me partner offers
☐ Send me marketing material

```
<label>
  <input type="checkbox" id="newsletter" name="prefs" value="newsletter" checked>
  Send me a newsletter
</label><br/>
<label>
  <input type="checkbox" id="partners" name="prefs" value="partners">
  Send me partner offers
</label><br/>
<label>
  <input type="checkbox" id="marketing" name="prefs" value="marketing">
  Send me marketing material
</label><br/>
```

Input attributes


- Apply attributes to control **rendering**

Size	<ul style="list-style-type: none">• Width in characters for text/password• Display length for select• Width in pixels for all other input types
maxLength	<ul style="list-style-type: none">• Maximum characters in text/password input
Checked	<ul style="list-style-type: none">• Sets checked state for radio or checkbox
Multiple / selected	<ul style="list-style-type: none">• Allow multiple selections / indicate initial selections for select
Rows / cols	<ul style="list-style-type: none">• Width and height of text area in characters
Disabled / readonly	<ul style="list-style-type: none">• Sets input elements to read-only or disabled state

Input commands


Reset

- Set inputs to original values

A rectangular button with a light gray background and a thin black border, containing the text "reset" in a lowercase, sans-serif font.

Submit

- Submits the form to the server

A rectangular button with a light gray background and a thin black border, containing the text "submit" in a lowercase, sans-serif font.

Button

- `<input type="button">` = push button
- `<button type="submit">`

A rectangular button with a light gray background and a thin black border, containing the text "Button with content" in a green, sans-serif font.

Image

- Image button



Form organization

- **Labels**

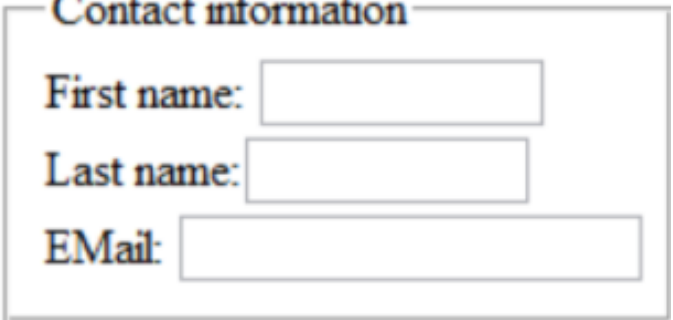
- Text explicitly associated with an input
- Interaction with label moves focus to input

- **Fieldsets**

- Groups form input fields
- Optionally label the group

- **Tabbing** through input fields

- Default = document order
- Use tabindex attribute to control order



The image shows a form titled "Contact information" in a blue font. The form is enclosed in a thin grey border. It contains three input fields, each preceded by a label in a blue font: "First name:", "Last name:", and "EMail:". The input fields are white rectangles with thin grey borders. The labels and input fields are stacked vertically.

HTML 5 Input Fields

<input placeholder="Full Name">

- Disappears as the user types.
- NOT a replacement for a proper label

Name

<input required>

- Validated by the browser

Name

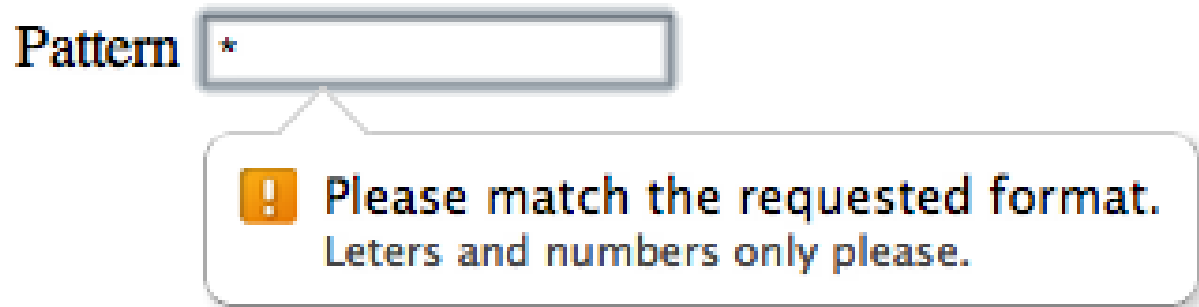
! Please fill out this field.

<input autofocus>

- Auto selects the first input field with autofocus
- Will scroll the page to give it focus.

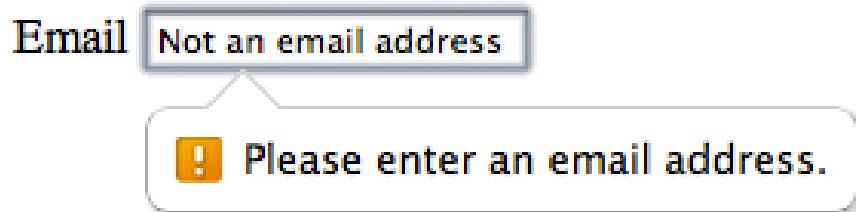
```
<input pattern="[a-zA-Z0-9]+"  
title="Letters and numbers only please">
```

- Matches a regular expression
- Only validates if something has been entered
- Error message is non-specific. Some browsers will use title attribute to explain
- Use the title attribute to add additional help text
 - This works with all the input types



<input type="email">

- For email addresses
- Is validated as an email address
- Gives email keyboard



<input type="url">

- For urls
- Gives url keyboard
- Is loosely validated as a url
 - Use in combination with pattern if you want something specific

URL

Not a URL



Please enter a URL.



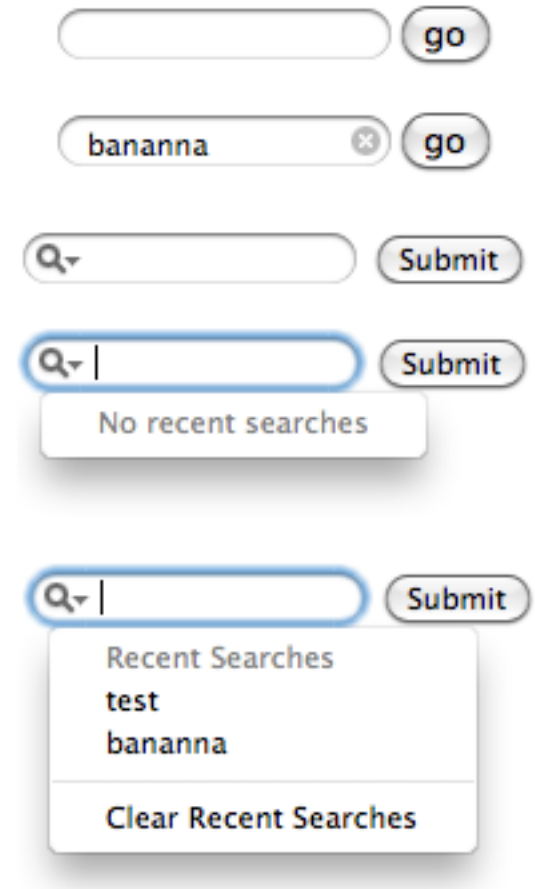
<input type="tel">

- For phone numbers
- Gives number pad
- Very loosely validated
 - Handy since the nice big number pad is handy for inputting any number so you can use it for anything else you like
 - Use with pattern if you have something specific in mind



<input type="search">

- No standard functionality
- Remembered search terms on some browsers
- Rounded corners on some browsers
- Little grey clear field “x” on some.



<input type="number">

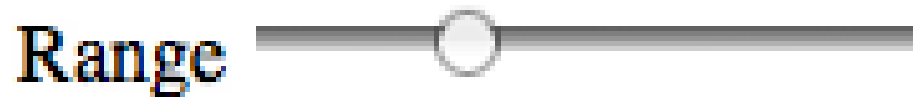
- For numbers. Also called a “spinbox”
- Gives number keypad
- Special attributes:
 - min
 - max
 - step

Number



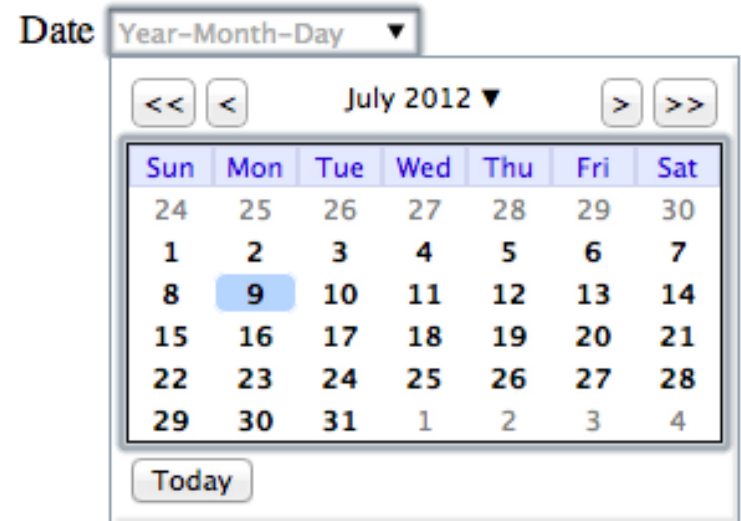
<input type="range">

- For numbers. Also called a “slider”
- Exact number not displayed to user
- Special attributes:
 - min
 - max
 - step



<input type="date">

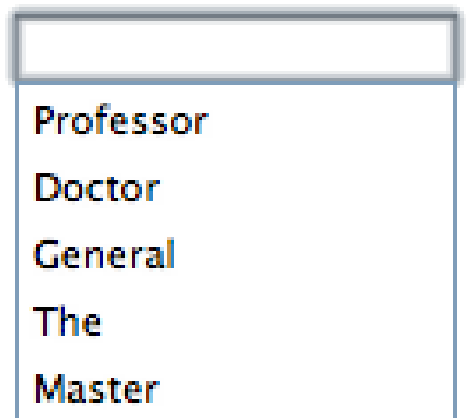
- Displays a date picker
- Configurable formats:
 - type="date"
 - type="datetime"
 - type="datetime-local"
 - type="month"
 - type="week"
 - type="time"



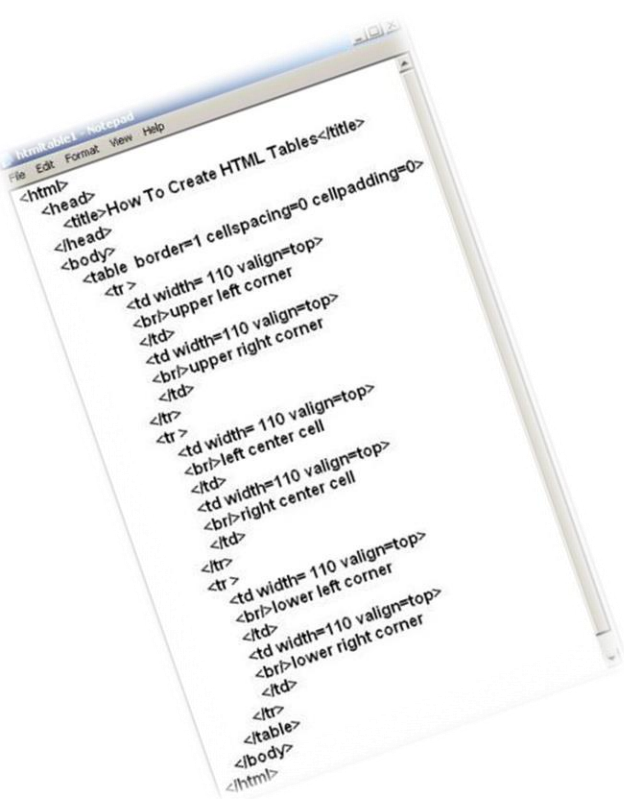
```
<input type="text"
list="sources">
<datalist id="sources">
    <option>Professor</option>
    <option>Master</option>
</datalist>
```

- Text box with filtered list of suggestions
- Entire list isn't usually visible, appears as user types, filtered by what they've entered

Prefix



Prefix
Professor
Doctor
General
The
Master



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 Tables

HTML Tables

- Tables represent tabular data
 - A table consists of one or several rows
 - Each row has one or more columns
- Tables comprised of several core tags:
 - `<table></table>`: begin / end the table
 - `<tr></tr>`: create a table row
 - `<td></td>`: create tabular data (cell)
- Tables should not be used for layout. Use CSS floats and positioning styles instead

Simple HTML Tables – Example

```
<table cellpadding="0" cellspacing="5">
  <tr>
    <td></td>
    <td><a href="lecture1.ppt">Lecture 1</a></td>
  </tr>
  <tr>
    <td></td>
    <td><a href="lecture2.ppt">Lecture 2</a></td>
  </tr>
  <tr>
    <td></td>
    <td><a href="lecturedemos.zip">
      Lecture 2 - Demos</a></td>
  </tr>
</table>
```

Data Cells and Header Cells

- Two kinds of cells in HTML 5 tables
 - **Data** cells – containing the table data
 - **Header** cells – used for the column names or some more important cells in a table
- Why two kinds of cells?
 - Used to **semantically** separate the cells

```
<tr>
  <th>Full name</th> <th> Mark </th>
</tr>
<tr>
  <td>Ali Faleh</td> <td>Very good 5</td>
</tr>
<tr>
  <td>Fatima Saleh</td> <td>Exellent 6</td>
</tr>
```


Complete HTML Tables

- 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 (used to set column widths)

Complete HTML Table: Example

`<table>`

`<colgroup>`

columns

`<col style="width:100px" /><col />`

`</colgroup>`

`<thead>`

header

th

`<tr><th>Column 1</th><th>Column 2</th></tr>`

`</thead>`

footer

`<tfoot>`

`<tr><td>Footer 1</td><td>Footer 2</td></tr>`

`</tfoot>`

Last comes the body (data)

`<tbody>`

`<tr><td>Cell 1.1</td><td>Cell 1.2</td></tr>`

`<tr><td>Cell 2.1</td><td>Cell 2.2</td></tr>`

`</tbody>`

`</table>`

Complete HTML Table: Example (2)

```
<table>

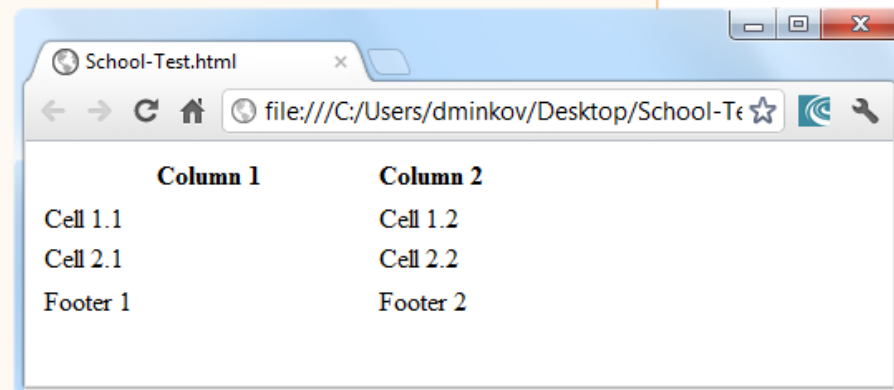
  <colgroup>
    <col style="width:200px" /><col />
  </colgroup>

  <thead>
    <tr><th>Column 1</th><th>Column 2</th></tr>
  </thead>

  <tfoot>
    <tr><td>Footer 1</td><td>Footer 2</td></tr>
  </tfoot>

  <tbody>
    <tr><td>Cell 1.1</td><td>Cell 1.2</td></tr>
    <tr><td>Cell 2.1</td><td>Cell 2.2</td></tr>
  </tbody>

</table>
```



A screenshot of a web browser window titled 'School-Test.html'. The address bar shows the file path 'file:///C:/Users/dminkov/Desktop/School-Te...'. The browser displays a table with two columns, 'Column 1' and 'Column 2'. The table has three rows: a header row with 'Column 1' and 'Column 2', a body row with 'Cell 1.1' and 'Cell 1.2', and a footer row with 'Footer 1' and 'Footer 2'.

Column 1	Column 2
Cell 1.1	Cell 1.2
Cell 2.1	Cell 2.2
Footer 1	Footer 2

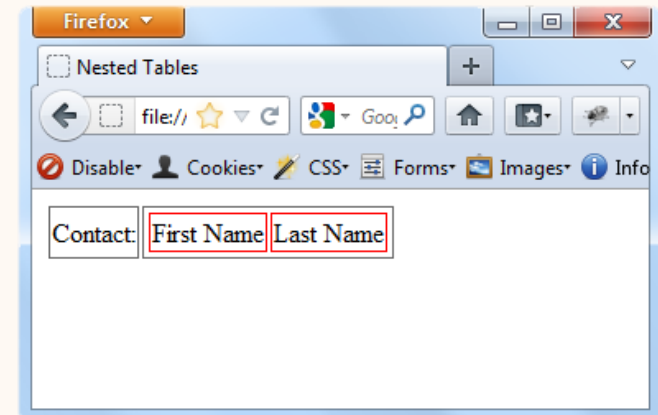
Although the footer is before the data in the code, it is displayed last

Nested Tables

- Table "cells" (<td>) can contain **nested** tables (tables within tables):

```
<table>
  <tr>
    <td>Contact:</td>
    <td>
      <table>
        <tr>
          <td>First Name</td>
          <td>Last Name</td>
        </tr>
      </table>
    </td>
  </tr>
</table>
```

nested-tables.html



Media Tags

Audio / Video Tag

```
<audio controls>  
  <source src="file1.ogg">  
  <source src="file1.mp3">  
</audio>
```

First supported codec will be played and rest will be ignored

References

- Mozilla Development Center HTML5 Reference

<https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/HTML5>

- HTML tutorial

<http://www.w3schools.com/html/>

- Cheat sheet

<http://overapi.com/html/>