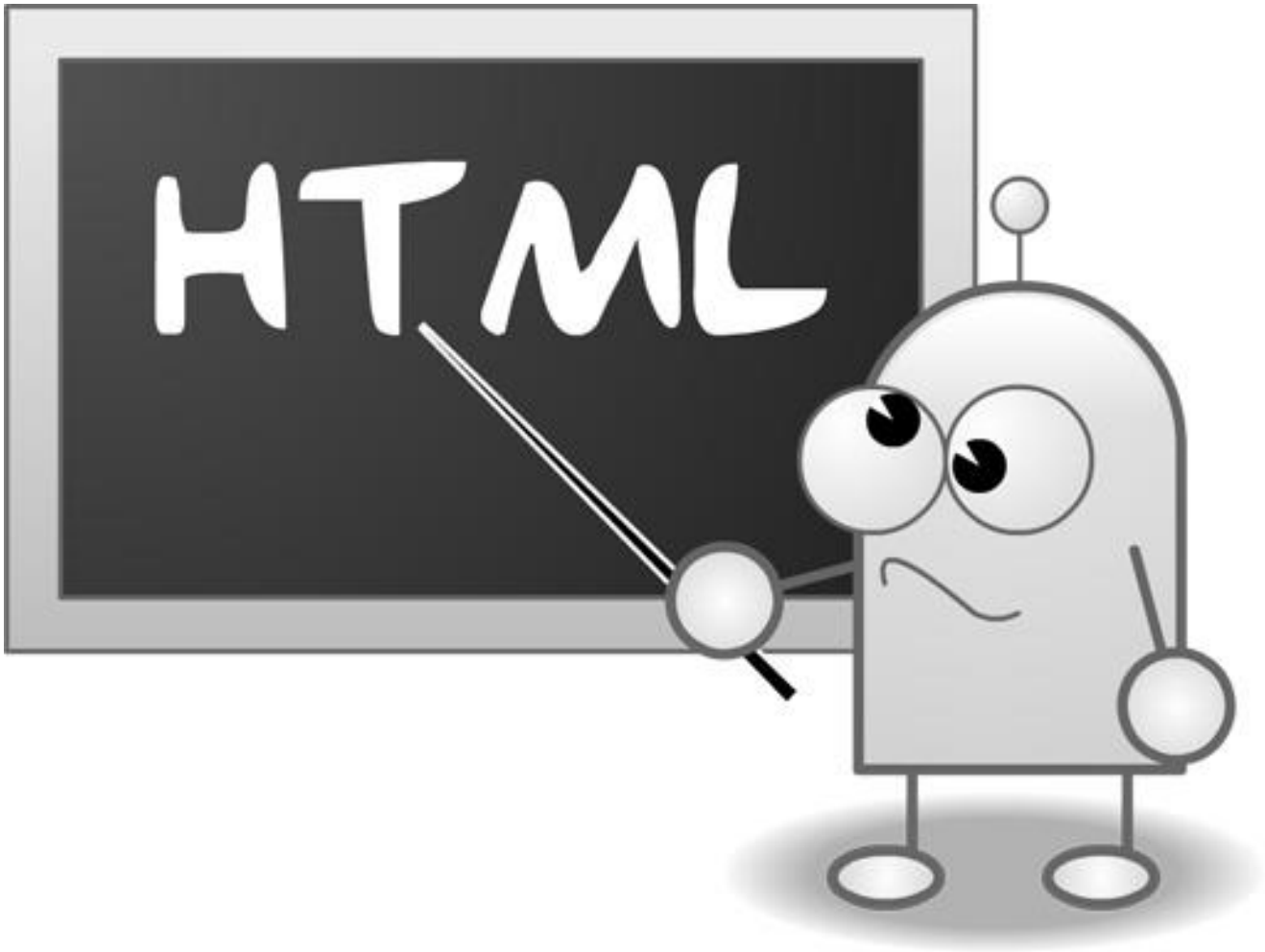
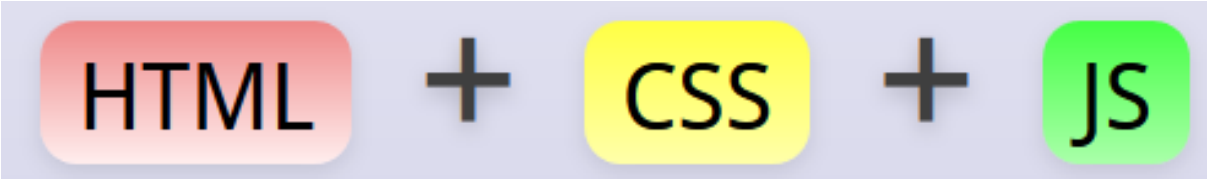

HTML

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>
```

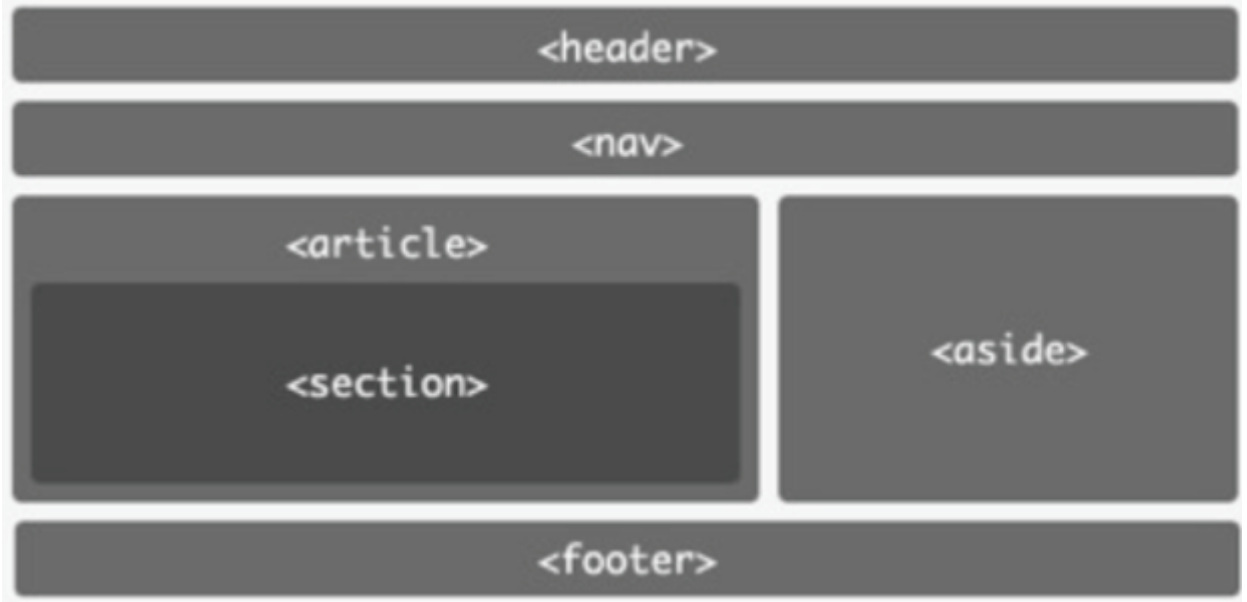
HTML key capabilities

- 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.

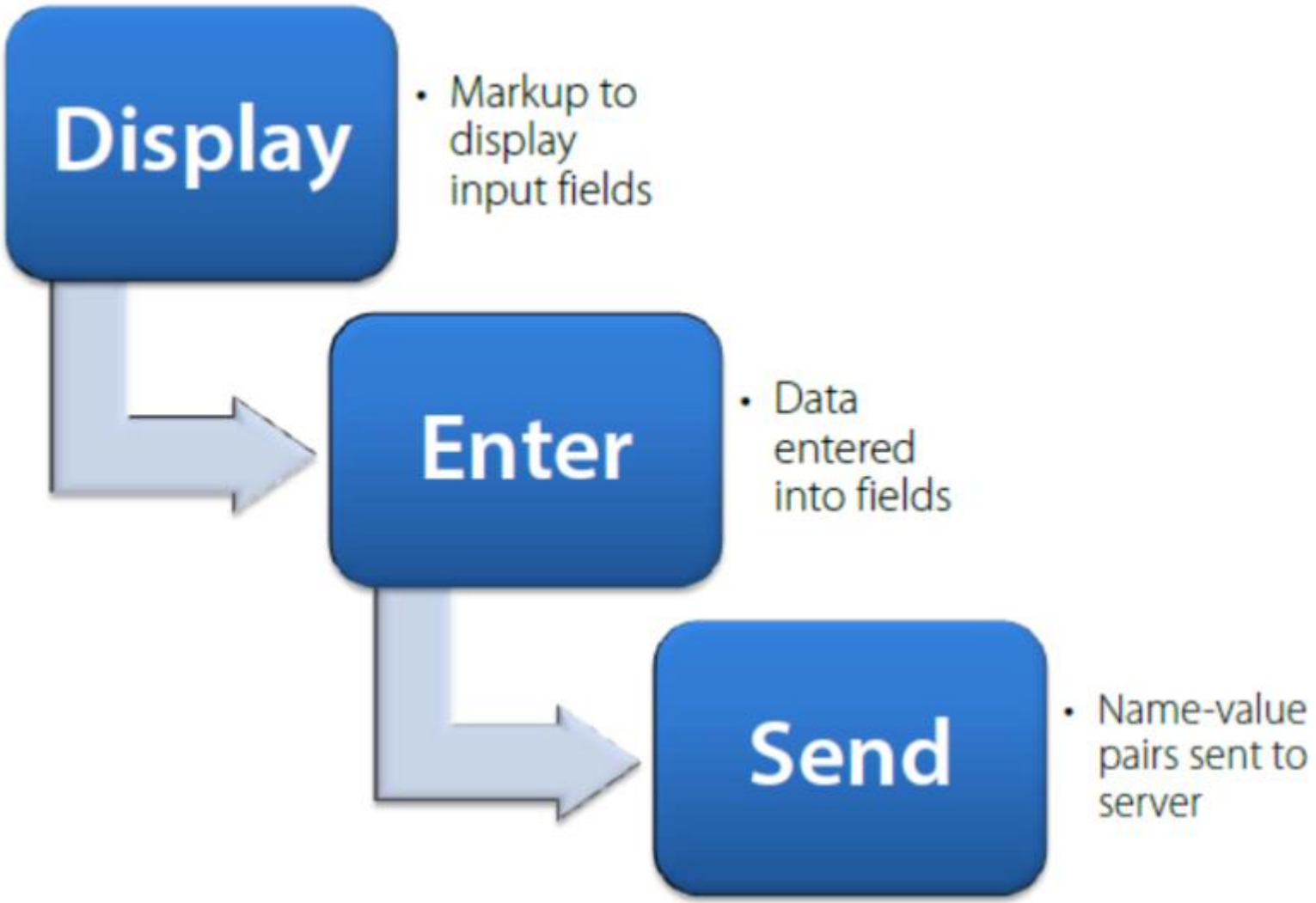
- They have ***semantic* difference** between **<p>** and ** **
  - a ** ** element is designed to describe a container of data
  - a **<p>** element is designed to describe a paragraph of content
- HTML is a markup language designed to **"mark up" content in a meaningful way**
  - The elements that 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 ** **
  - 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


Display
• Markup to display input fields
Enter
• Data entered into fields
Send
• Name-value pairs sent to server

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" />

HTML 5 input fields

- Input element enables multiple input types

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

Selections

- Select, checkbox and radio enable pre-defined input

Select list

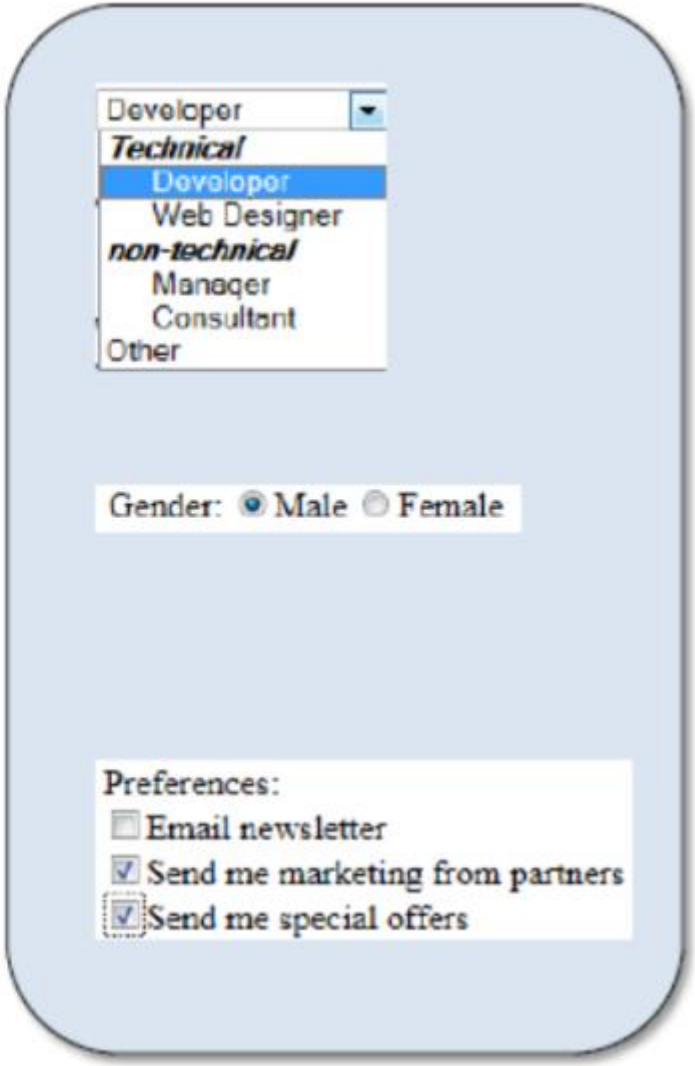
- Single/multi select

Radio buttons

- Grouped by name

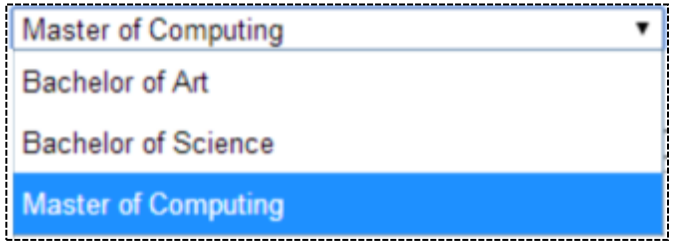
Check boxes

- Multiple allowed



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>
```

- **Multi selections list**

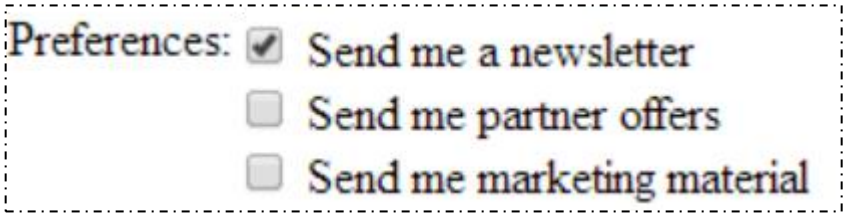

```
<label for="occupation">Occupation:</label>
<select id="occupation" name="occupation" multiple size="4">
    <optgroup label="Technical">
        <option label="Developer" value="developer"></option>
        <option label="Web Designer" value="designer"></option>
    </optgroup>
    <optgroup label="Non-technical">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

Radio button and Checkbox Examples

- **Radio button**


```
<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>
```

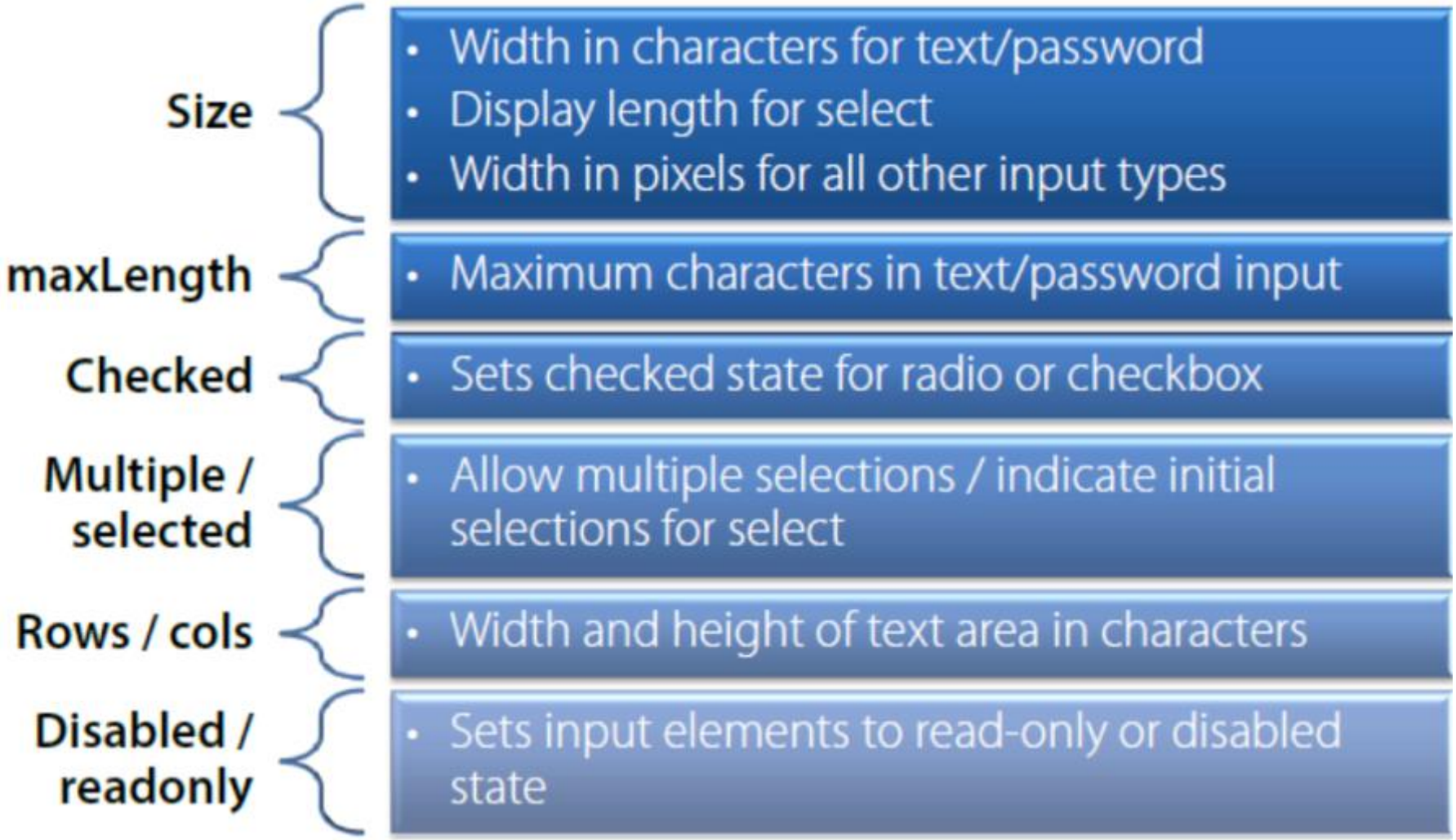
- **Checkbox**




```
<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**



Input commands

Reset

- Set inputs to original values

reset

Submit

- Submits the form to the server

submit

Button

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

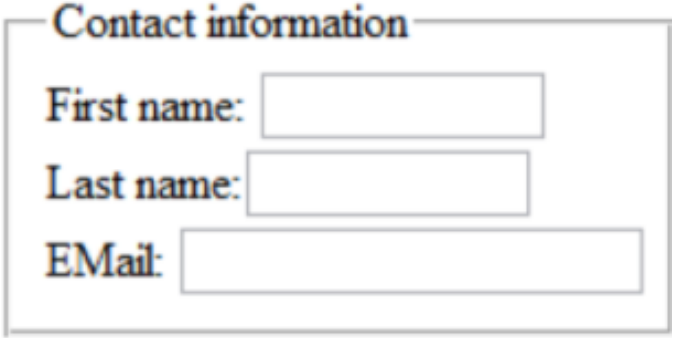
Button with content

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



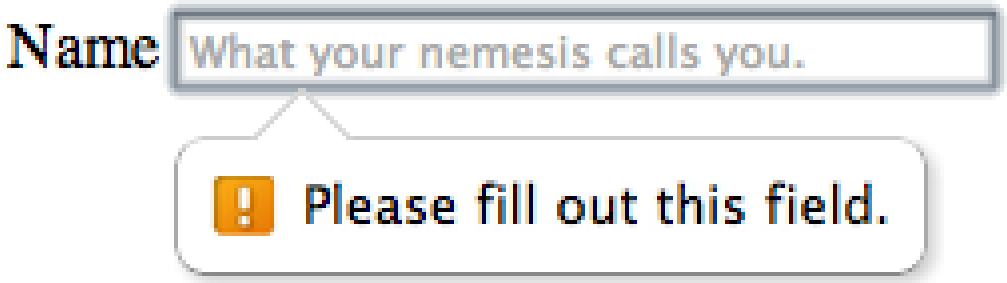
HTML 5 Input Fields

<input placeholder="Full Name">

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

<input required>

- Validated by the browser

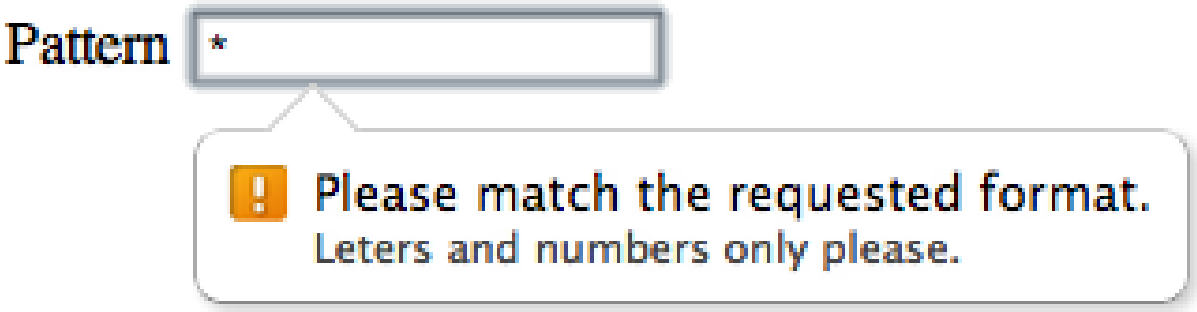


<input autofocus>

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

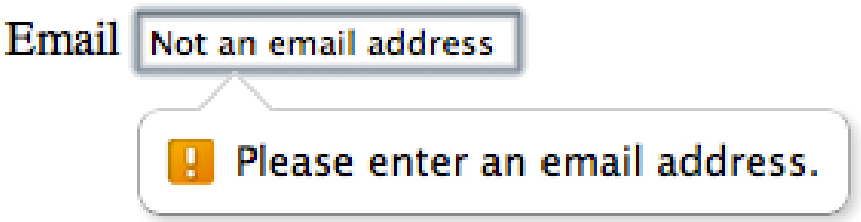
<input pattern="[a-zA-Z0-9]+" title="Letters and numbers only please">

- 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



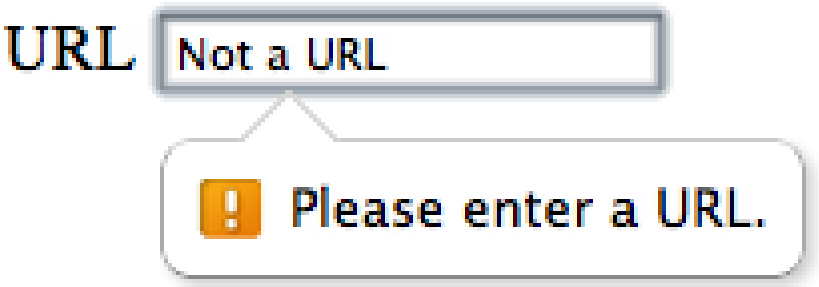
<input type="email">

- 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

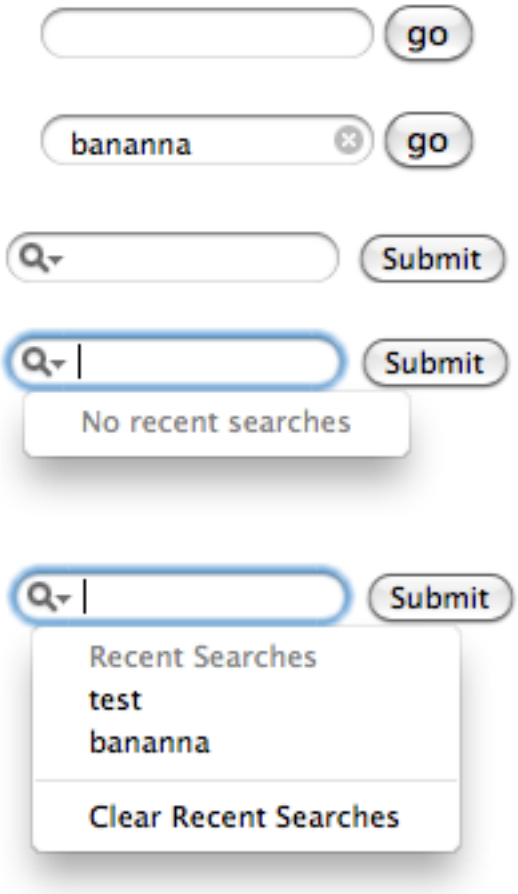


<input type="tel">

- 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.



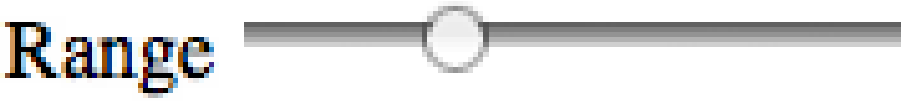
<input type="number">

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

Number 42

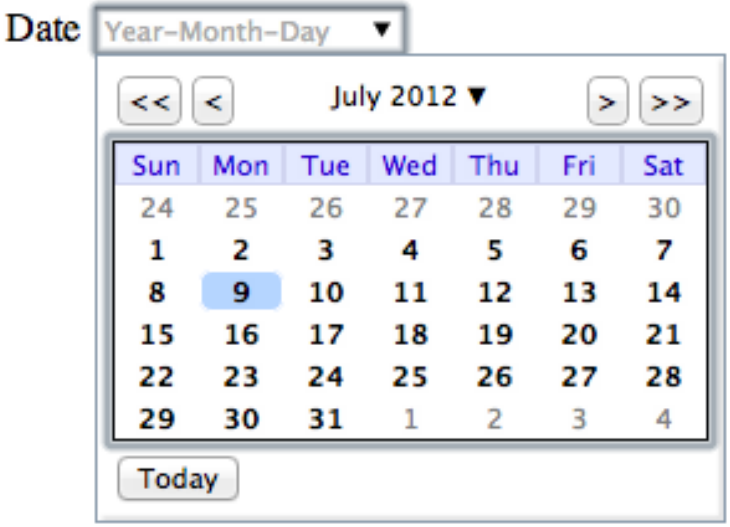
<input type="range">

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



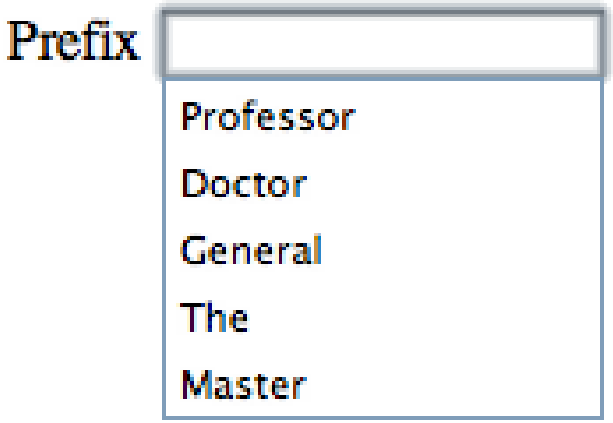
<input type="date">

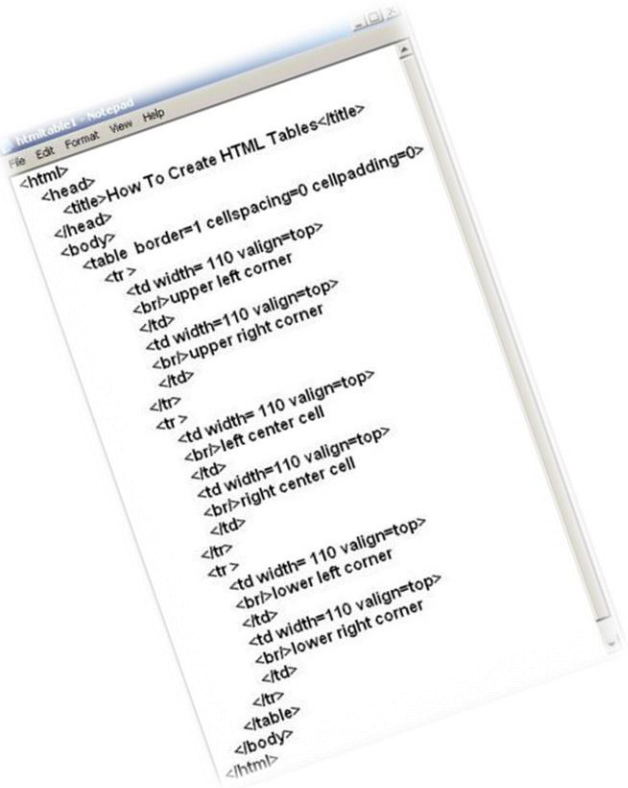
- Displays a date picker
- Configurable formats:
  - type="date"
  - type="datetime"
  - type="datetime-local"
  - type="month"
  - type="week"
  - type="time"



```
<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





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 cellspacing="0" cellpadding="5">
  <tr>
    <td><img src="ppt.gif"></td>
    <td><a href="lecture1.ppt">Lecture 1</a></td>
  </tr>
  <tr>
    <td><img src="ppt.gif"></td>
    <td><a href="lecture2.ppt">Lecture 2</a></td>
  </tr>
  <tr>
    <td><img src="zip.gif"></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

Complete HTML Table: Example

```
<table>

    <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>
```

header

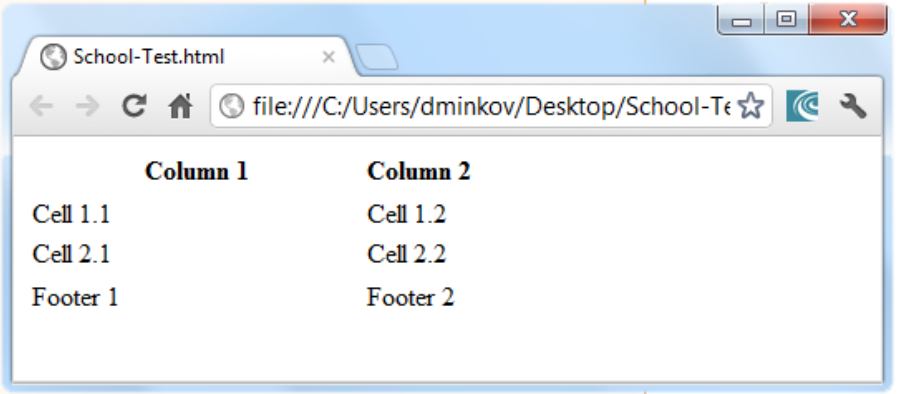
th

footer

Last comes the body (data)

Complete HTML Table: Example (2)

```
<table>
    <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>
```



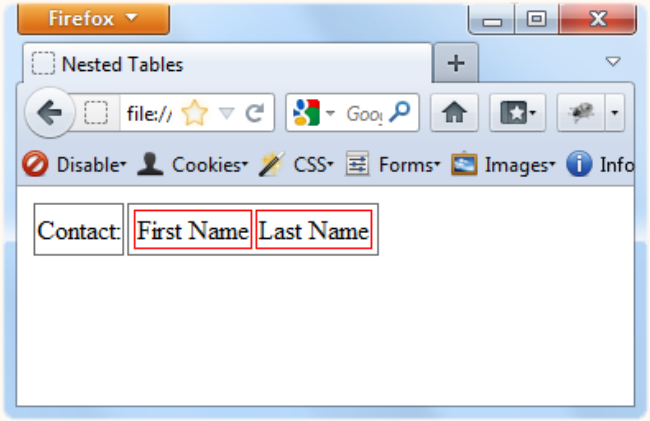
Although the footer is before the data in the code, it is displayed last

Nested Tables

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

nested-tables.html

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



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/