



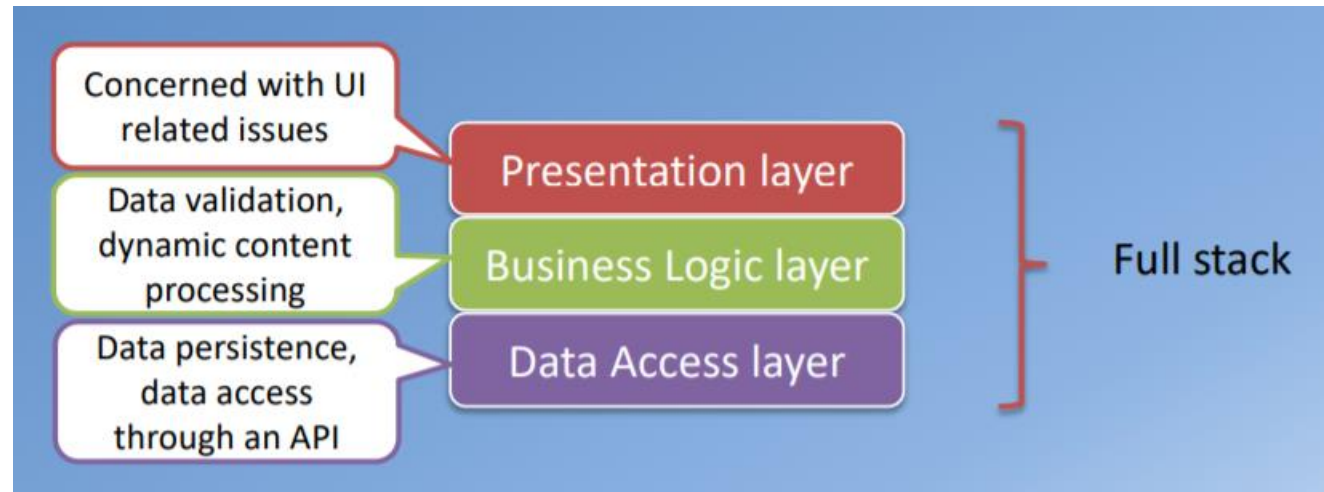
# WHAT IS FULL STACK WEB DEVELOPMENT?



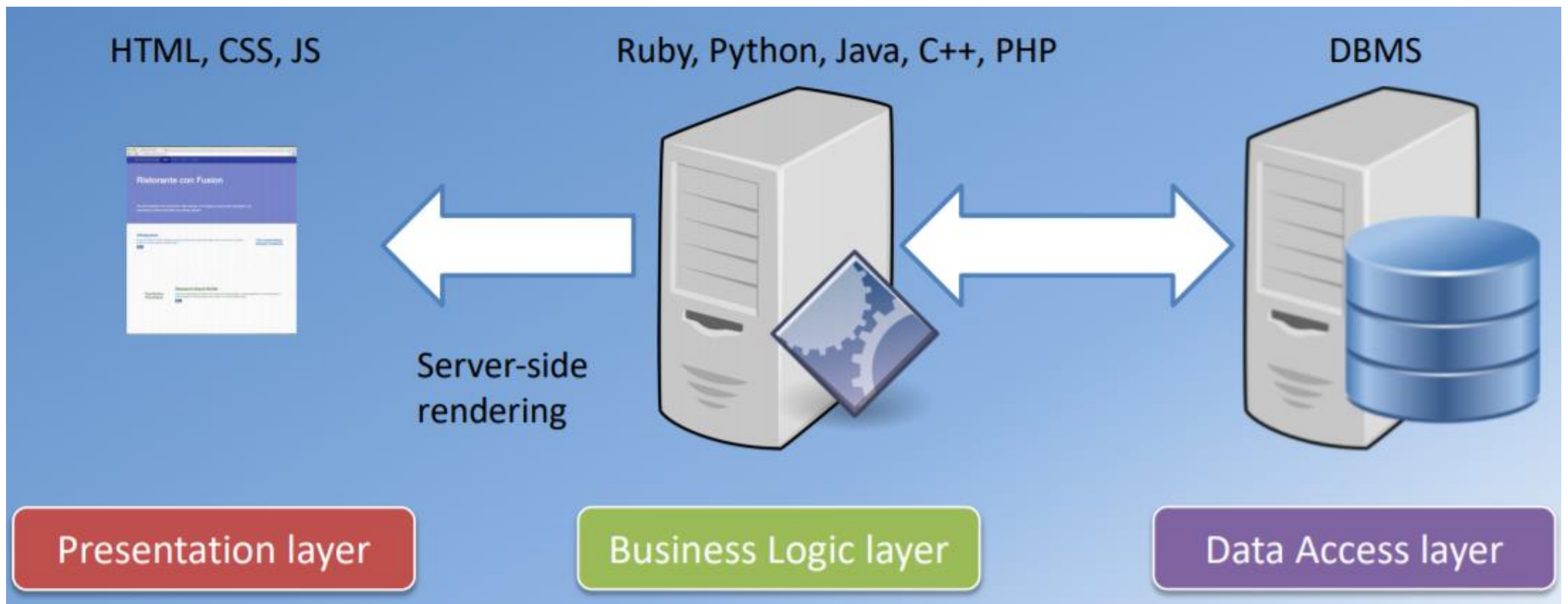
# FRONT END AND BACK END

- Front end / Client-side
  - HTML, CSS and Javascript
- Back end / Server-side
  - Various technologies and approaches – PHP, Java, ASP.NET, Ruby, Python, NodeJS

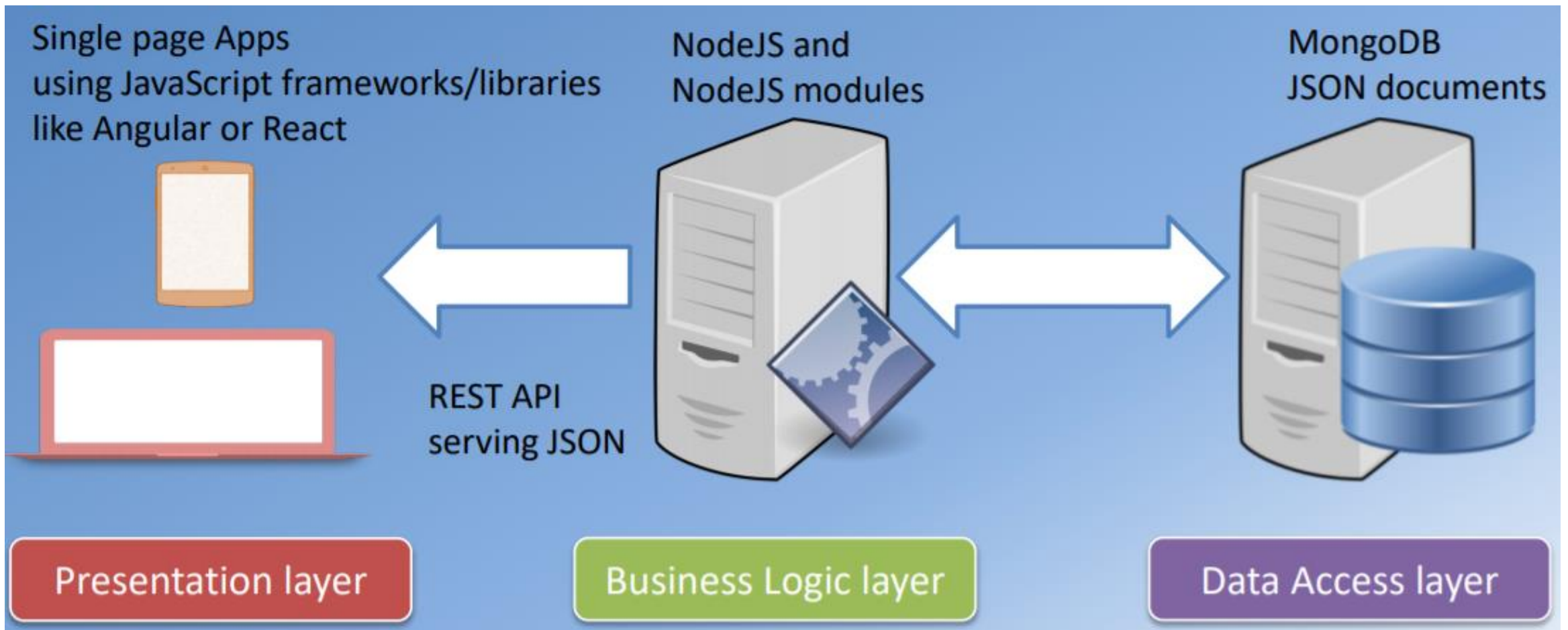
# THREETIER ARCHITECTURE



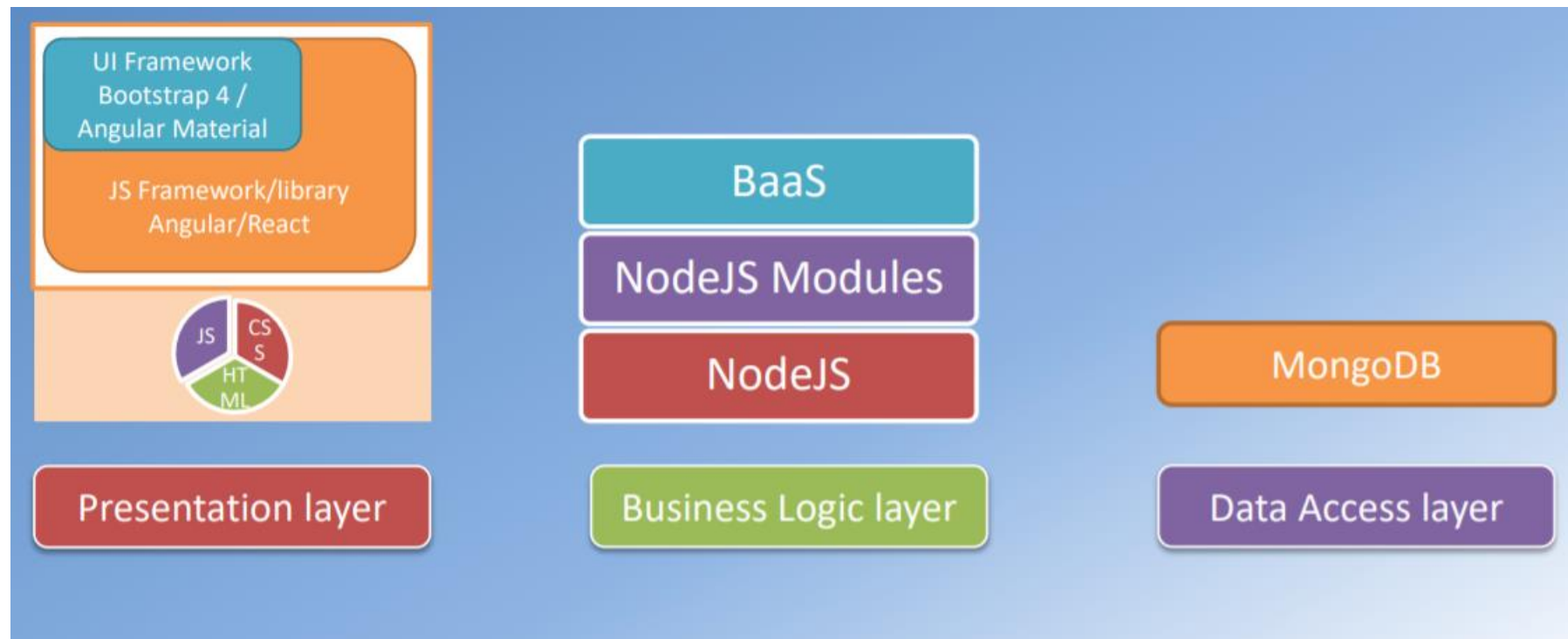
# TRADITIONAL WEB DEVELOPMENT



# FULL STACK JAVASCRIPT DEVELOPMENT



# FULL STACK WEB DEVELOPMENT



# SOURCE-CODE EDITOR

A **source-code editor** is a text editor program designed specifically for editing source code of computer programs. It may be a standalone application or it may be built into an integrated development environment (IDE) or web browser. Source-code editors are a fundamental programming tool, as the fundamental job of programmers is to write and edit source code.

## Popular Code Editors

- Atom
- Sublime
- Notepad++
- Visual Studio Code

# INSTALLING VSCODE

The image shows the Visual Studio Code website in a browser window. The website has a dark theme and features the text "Code editing. Redefined." and "Free. Built on open source. Runs everywhere." Below this is a blue button labeled "Download for Windows" with "Stable Build" underneath. To the right of the button is a dropdown arrow. Below the button is a link for "Other platforms and Insiders Edition". At the bottom of the website section, there is a small text: "By using VS Code, you agree to its license and privacy statement."

Overlaid on the bottom right of the website is a preview of the Visual Studio Code IDE interface. The interface shows the "EXTENSIONS: MARKETPLACE" sidebar on the left with a list of extensions including Python, GitLens, C/C++, ESLint, Debugger for Chrome, Language Support, vscode-icons, Vetur, and C#. The main editor area displays a JavaScript file named "serviceWorker.js" with code for registering a service worker. The terminal at the bottom shows the command "node" and the output "You can now view create-react-app in the browser." followed by local and network URLs. The status bar at the very bottom indicates "Ln 43, Col 19" and "Spaces: 2 UTF-8 LF JavaScript".

Activate Windows  
Go to Settings to activate Windows.



# HTML...? CSS...? JAVASCRIPT...?

- HTML is the markup language that we use to structure and give meaning to our web content, for example defining paragraphs, headings, and data tables, or embedding images and videos in the page.
- CSS is a language of style rules that we use to apply styling to our HTML content, for example setting background colors and fonts, and laying out our content in multiple columns.
- JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else. (Okay, not everything, but it is amazing what you can achieve with a few lines of JavaScript code.)

# WHAT IS HTML

The diagram illustrates the acronym HTML. At the top, the letters 'H T M L' are displayed in orange. Four orange lines extend downwards from each letter to the corresponding word in the phrase 'HyperText Markup Language' below. The words are color-coded: 'Hyper' is blue, 'Text' is blue, 'Markup' is blue, and 'Language' is blue. The first letter of each word is orange, matching the letters in the acronym above: 'H' for Hyper, 'T' for Text, 'M' for Markup, and 'L' for Language.

**H**yper**T**ext **M**arkup **L**anguage

# Hypertext Markup Language

## Hypermedia



# HTML STRUCTURE

`<html>`

`<body>`

`<h1>This is the Main Heading</h1>`

`<p>This text might be an introduction to the rest of the page. And if the page is a long one it might be split up into several sub-headings.</p>`

`<h2>This is a Sub-Heading</h2>`

`<p>Many long articles have sub-headings so to help you follow the structure of what is being written. There may even be sub-sub-headings (or lower-level headings).</p>`

`<h2>Another Sub-Heading</h2>`

`<p>Here you can see another sub-heading.</p>`

`</body>`

`</html>`

# DESCRIPTION

## DESCRIPTION

The opening `<html>` tag indicates that anything between it and a closing `</html>` tag is HTML code.

The `<body>` tag indicates that anything between it and the closing `</body>` tag should be shown inside the main browser window.

Words between `<h1>` and `</h1>` are a main heading.

A paragraph of text appears between these `<p>` and `</p>` tags.

Words between `<h2>` and `</h2>` form a sub-heading.

Here is another paragraph between opening `<p>` and closing `</p>` tags.

Another sub-heading inside `<h2>` and `</h2>` tags.

Another paragraph inside `<p>` and `</p>` tags.

The closing `</body>` tag indicates the end of what should appear in the main browser window.

The closing `</html>` tag indicates that it is the end of the HTML code.

# TAGS/ELEMENTS/ATTRIBUTES

HTML Tags	HTML Elements	HTML Attributes
HTML tags are used to hold the HTML element.	HTML element holds the content.	HTML attributes are used to describe the characteristic of an HTML element in detail.
HTML tag starts with < and ends with >	Whatever written within a HTML tag are HTML elements.	HTML attributes are found only in the starting tag.
HTML tags are almost like keywords where every single tag has unique meaning.	HTML elements specifies the general content.	HTML attributes specify various additional properties to the existing HTML element.

# BODY, HEAD & TITLE

/chapter-01/body-head-title.html

HTML

```
<html>
  <head>
    <title>This is the Title of the Page</title>
  </head>
  <body>
    <h1>This is the Body of the Page</h1>
    <p>Anything within the body of a web page is
      displayed in the main browser window.</p>
  </body>
</html>
```

RESULT

## This is the Body of the Page

Anything within the body of a web page is displayed in the main browser window.

# HEADINGS

- HTML has six "levels" of headings:
- `<h1>`
- `<h2>`
- `<h3>`
- `<h4>`
- `<h5>`
- `<h6>`

chapter-02/headings.html

HTML

```
<h1>This is a Main Heading</h1>  
<h2>This is a Level 2 Heading</h2>  
<h3>This is a Level 3 Heading</h3>  
<h4>This is a Level 4 Heading</h4>  
<h5>This is a Level 5 Heading</h5>  
<h6>This is a Level 6 Heading</h6>
```

RESULT

**This is a Main Heading**

**This is a Level 2 Heading**

**This is a Level 3 Heading**

**This is a Level 4 Heading**

**This is a Level 5 Heading**

**This is a Level 6 Heading**



# PARAGRAPHS



To create a paragraph, surround the words that make up the paragraph with an opening `<p>` tag and closing `</p>` tag.

## HTML

chapter-02/paragraphs.html

```
<p>A paragraph consists of one or more sentences  
that form a self-contained unit of discourse. The  
start of a paragraph is indicated by a new  
line.</p>  
<p>Text is easier to understand when it is split up  
into units of text. For example, a book may have  
chapters. Chapters can have subheadings. Under  
each heading there will be one or more  
paragraphs.</p>
```

## RESULT

A paragraph consists of one or more sentences that form a self-contained unit of discourse. The start of a paragraph is indicated by a new line.

Text is easier to understand when it is split up into units of text. For example, a book may have chapters. Chapters can have subheadings. Under each heading there will be one or more paragraphs.

# SUPERSCRIPT & SUBSCRIPT

## HTML

chapter-02/superscript-and-subscript.html

```
<p>On the 4<sup>th</sup> of September you will learn  
about E=MC<sup>2</sup>.</p>  
<p>The amount of CO<sub>2</sub> in the atmosphere  
grew by 2ppm in 2009<sub>1</sub>.</p>
```

## RESULT

On the 4<sup>th</sup> of September you will learn about E=MC<sup>2</sup>.  
The amount of CO<sub>2</sub> in the atmosphere grew by 2ppm in 2009<sub>1</sub>.

<sup>

The <sup> element is used to contain characters that should be superscript such as the suffixes of dates or mathematical concepts like raising a number to a power such as 2<sup>2</sup>.

<sub>

The <sub> element is used to contain characters that should be subscript. It is commonly used with foot notes or chemical formulas such as H<sub>2</sub>O.

# LINE BREAKS & HORIZONTAL RULES

## HTML

chapter-02/line-breaks.html

```
<p>The Earth<br />gets one hundred tons heavier  
every day<br />due to falling space dust.</p>
```

## RESULT

The Earth  
gets one hundred tons heavier every day  
due to falling space dust.

## HTML

chapter-02/horizontal-rules.html

```
<p>Venus is the only planet that rotates  
clockwise.</p>  
<hr />  
<p>Jupiter is bigger than all the other planets  
combined.</p>
```

## RESULT

Venus is the only planet that rotates clockwise.

---

Jupiter is bigger than all the other planets combined.

<br />

As you have already seen, the browser will automatically show each new paragraph or heading on a new line. But if you wanted to add a line break inside the middle of a paragraph you can use the line break tag `<br />`.

<hr />

To create a break between themes — such as a change of topic in a book or a new scene in a play — you can add a horizontal rule between sections using the `<hr />` tag.

There are a few elements that do not have any words between an opening and closing tag. They are known as **empty elements** and they are written differently.

An empty element usually has only one tag. Before the closing angled bracket of an empty element there will often be a space and a forward slash character. Some web page authors miss this out but it is a good habit to get into.

# STRONG & EMPHASIS

## <strong>

The use of the <strong> element indicates that its content has strong importance. For example, the words contained in this element might be said with strong emphasis.

By default, browsers will show the contents of a <strong> element in bold.

chapter-02/strong.html

HTML

```
<p><strong>Beware:</strong> Pickpockets operate in  
this area.</p>  
<p>This toy has many small pieces and is <strong>not  
suitable for children under five years old.  
</strong></p>
```

**Beware:** Pickpockets operate in this area.

RESULT

This toy has many small pieces and is **not  
suitable for children under five years old.**

## <em>

The <em> element indicates emphasis that subtly changes the meaning of a sentence.

By default browsers will show the contents of an <em> element in italic.

chapter-02/emphasis.html

HTML

```
<p>I <em>think</em> Ivy was the first.</p>  
<p>I think <em>Ivy</em> was the first.</p>  
<p>I think Ivy was the <em>first</em>.</p>
```

I *think* Ivy was the first.

RESULT

I think *Ivy* was the first.

I think Ivy was the *first*.

# QUOTATIONS

## HTML

chapter-02/quotations.html

```
<blockquote cite="http://en.wikipedia.org/wiki/
Winnie-the-Pooh">
  <p>Did you ever stop to think, and forget to start
  again?</p>
</blockquote>
<p>As A.A. Milne said, <q>Some people talk to
animals. Not many listen though. That's the
problem.</q></p>
```

## RESULT

Did you ever stop to think, and forget  
to start again?

As A.A. Milne said, "Some people talk to animals.  
Not many listen though. That's the problem."

There are two elements  
commonly used for marking up  
quotations:

## <blockquote>

The `<blockquote>` element is  
used for longer quotes that take  
up an entire paragraph. Note  
how the `<p>` element is still  
used inside the `<blockquote>`  
element.

Browsers tend to indent the  
contents of the `<blockquote>`  
element, however you should not  
use this element just to indent a  
piece of text — rather you should  
achieve this effect using CSS.

## <q>

The `<q>` element is used for  
shorter quotes that sit within  
a paragraph. Browsers are  
supposed to put quotes around  
the `<q>` element, however  
Internet Explorer does not —  
therefore many people avoid  
using the `<q>` element.

Both elements may use the `cite`  
attribute to indicate where the  
quote is from. Its value should  
be a URL that will have more  
information about the source of  
the quotation.

# ABBREVIATIONS & ACRONYMS

## <abbr>

If you use an abbreviation or an acronym, then the <abbr> element can be used. A title attribute on the opening tag is used to specify the full term.

In HTML 4 there was a separate <acronym> element for acronyms. To spell out the full form of the acronym, the title attribute was used (as with the <abbr> element above). HTML5 just uses the <abbr> element for both abbreviations and acronyms.

chapter-02/abbreviations.html

HTML

```
<p><abbr title="Professor">Prof</abbr> Stephen  
Hawking is a theoretical physicist and  
cosmologist.</p>  
<p><acronym title="National Aeronautics and Space  
Administration">NASA</acronym> do some crazy  
space stuff.</p>
```

RESULT

Prof Stephen Hawking is a theoretical physicist and cosmologist.  
NASA do some crazy space stuff.

National Aeronautics and Space  
Administration

# ORDERED LISTS

## <ol>

The ordered list is created with the <ol> element.

## <li>

Each item in the list is placed between an opening <li> tag and a closing </li> tag. (The li stands for list item.)

Browsers indent lists by default.

Sometimes you may see a type attribute used with the <ol> element to specify the type of numbering (numbers, letters, roman numerals and so on). It is better to use the CSS list-style-type property covered on pages 333-335.

chapter-03/ordered-lists.html

HTML

```
<ol>
  <li>Chop potatoes into quarters</li>
  <li>Simmer in salted water for 15-20
    minutes until tender</li>
  <li>Heat milk, butter and nutmeg</li>
  <li>Drain potatoes and mash</li>
  <li>Mix in the milk mixture</li>
</ol>
```

RESULT

1. Chop potatoes into quarters
2. Simmer in salted water for 15-20 minutes until tender
3. Heat milk, butter and nutmeg
4. Drain potatoes and mash
5. Mix in the milk mixture

# UNORDERED LISTS

## HTML

chapter-03/unordered-lists.html

```
<ul>
  <li>1kg King Edward potatoes</li>
  <li>100ml milk</li>
  <li>50g salted butter</li>
  <li>Freshly grated nutmeg</li>
  <li>Salt and pepper to taste</li>
</ul>
```

## RESULT

- 1kg King Edward potatoes
- 100ml milk
- 50g salted butter
- Freshly grated nutmeg
- Salt and pepper to taste

<ul>

The unordered list is created with the <ul> element.

<li>

Each item in the list is placed between an opening <li> tag and a closing </li> tag. (The li stands for list item.)

Browsers indent lists by default.

Sometimes you may see a type attribute used with the <ul> element to specify the type of bullet point (circles, squares, diamonds and so on). It is better to use the CSS list-style-type property covered on pages 333-335.



# NESTED LISTS

## HTML

chapter-03/nested-lists.html

```
<ul>
  <li>Mousses</li>
  <li>Pastries
    <ul>
      <li>Croissant</li>
      <li>Mille-feuille</li>
      <li>Palmier</li>
      <li>Profiterole</li>
    </ul>
  </li>
  <li>Tarts</li>
</ul>
```

## RESULT

- Mousses
- Pastries
  - Croissant
  - Mille-feuille
  - Palmier
  - Profiterole
- Tarts

You can put a second list inside an `<li>` element to create a sub-list or nested list.

Browsers display nested lists indented further than the parent list. In nested unordered lists, the browser will usually change the style of the bullet point too.

# LINKS

Links are the defining feature of the web because they allow you to move from one web page to another — enabling the very idea of browsing or surfing.



# LINKING TO OTHER SITES

## <a>

Links are created using the <a> element which has an attribute called href. The value of the href attribute is the page that you want people to go to when they click on the link.

Users can click on anything that appears between the opening <a> tag and the closing </a> tag and will be taken to the page specified in the href attribute.

When you link to a different website, the value of the href attribute will be the full web address for the site, which is known as an **absolute** URL.

Browsers show links in blue with an underline by default.

chapter-04/linking-to-other-sites.html

HTML

```
<p>Movie Reviews:
  <ul>
    <li><a href="http://www.empireonline.com">
      Empire</a></li>
    <li><a href="http://www.metacritic.com">
      Metacritic</a></li>
    <li><a href="http://www.rottentomatoes.com">
      Rotten Tomatoes</a></li>
    <li><a href="http://www.variety.com">
      Variety</a></li>
  </ul>
</p>
```

RESULT

Movie Reviews:

- [Empire](http://www.empireonline.com)
- [Metacritic](http://www.metacritic.com)
- [Rotten Tomatoes](http://www.rottentomatoes.com)
- [Variety](http://www.variety.com)

# LINKING TO OTHER PAGES ON THE SAME SITE

**HTML**chapter-04/linking-to-other-pages.html

```
<p>
  <ul>
    <li><a href="index.html">Home</a></li>
    <li><a href="about-us.html">About</a></li>
    <li><a href="movies.html">Movies</a></li>
    <li><a href="contact.html">Contact</a></li>
  </ul>
</p>
```

**RESULT**

- [Home](#)
- [About](#)
- [Movies](#)
- [Contact](#)

# OPENING LINKS IN A NEW WINDOW

## target

If you want a link to open in a new window, you can use the `target` attribute on the opening `<a>` tag. The value of this attribute should be `_blank`.

One of the most common reasons a web page author might want a link to be opened in a new window is if it points to another website. In such cases, they hope the user will return to the window containing their site after finishing looking at the other one.

Generally you should avoid opening links in a new window, but if you do, it is considered good practice to inform users that the link will open a new window before they click on it.

## HTML

chapter-04/opening-links-in-a-new-window.html

```
<a href="http://www.imdb.com" target="_blank">  
Internet Movie Database</a> (opens in new window)
```

## RESULT

[Internet Movie Database](http://www.imdb.com) (opens in new window)

# LINKING TO A SPECIFIC PART OF THE SAME PAGE

chapter-05/linking-to-a-specific-part.html

HTML

```
<h1 id="top">Film-Making Terms</h1>
<a href="#arc_shot">Arc Shot</a><br />
<a href="#interlude">Interlude</a><br />
<a href="#prologue">Prologue</a><br /><br />
<h2 id="arc_shot">Arc Shot</h2>
<p>A shot in which the subject is photographed by an
  encircling or moving camera</p>
<h2 id="interlude">Interlude</h2>
<p>A brief, intervening film scene or sequence, not
  specifically tied to the plot, that appears
  within a film</p>
<h2 id="prologue">Prologue</h2>
<p>A speech, preface, introduction, or brief scene
  preceding the the main action or plot of a film;
  contrast to epilogue</p>
<p><a href="#top">Top</a></p>
```

RESULT

## Film-Making Terms

[Arc Shot](#)  
[Interlude](#)  
[Prologue](#)

### Arc Shot

A shot in which the subject is photographed by an encircling or moving camera

### Interlude

A brief, intervening film scene or sequence, not specifically tied to the plot, that appears within a film

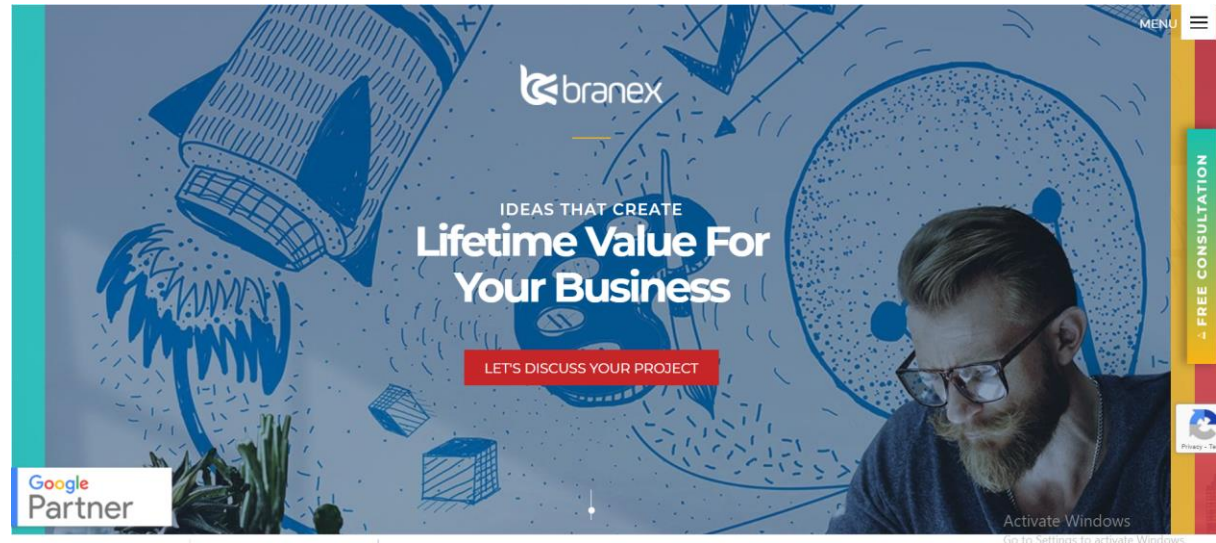
### Prologue

A speech, preface, introduction, or brief scene preceding the the main action or plot of a film; contrast to epilogue

[Top](#)

# IMAGES

There are many reasons why you might want to add an image to a web page: you might want to include a logo, photograph, illustration, diagram, or chart.



## <img>

To add an image into the page you need to use an <img> element. This is an empty element (which means there is no closing tag). It must carry the following two attributes:

### src

This tells the browser where it can find the image file. This will usually be a relative URL pointing to an image on your own site. (Here you can see that the images are in a child folder called *Images* — relative URLs were covered on pages 83-84).

### alt

This provides a text description of the image which describes the image if you cannot see it.

### title

You can also use the title attribute with the <img> element to provide additional information about the image. Most browsers will display the content of this attribute in a tooltip when the user hovers over the image.

chapter-05/adding-images.html

HTML

```

```


RESULT





# TABLES

There are several types of information that need to be displayed in a grid or table. For example: sports results, stock reports, train timetables.



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U.S.

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& Markets

Sectors  
& Industries

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## Commodities

Related Topics: [MARKETS](#) [BUSINESS](#) [ECONOMY](#) [GREEN BUSINESS](#) [HOT STOCKS](#) [MORE TOPICS](#)

THOMSON REUTERS/JEFFERIES CRB INDEX(TRAJ CRB)

▼ 359.42	Change -3.36	Open 360.92	High 361.19	Low 357.99	Times 04/18 14:58
----------	-----------------	----------------	----------------	---------------	----------------------

Data as of 04:58pm EDT (Delayed at least 20 minutes)

COMMODITY FUTURES

Energy: [Oil, Natural Gas, Electricity](#)

Metals: [Base Metals, Precious Metals](#)

Grains: [Corn/Maize, Wheat, Barley, Rice](#)

Oilseeds: [Soybeans, Rapeseed, Palm Oil](#)

Softs: [Sugar, Coffee, Cocoa, Rubber, Citrus, Cotton](#)

Livestock: [Lean Hogs, Live Cattle](#)

THOMSON REUTERS EQUAL WEIGHT CONTINUOUS COMMODITIES INDEX (CCI)

Position of price in relation to its moving average. This chart is devised to identify cyclical turns. CCI works well in ranging markets and typically fluctuates between + 100 and - 100.

Commodity	Currency	Last	Change	% Change	Trade Date/Time
Hogs, Lean Pk CME Jun11	USD	101.28	+0.20	+0.20%	04/18 14:13
Oil, Heating New York No. 2 NYMEX May11	USD	3.18	-0.04	-1.18%	04/18 15:14
Crude Oil Light Sweet May11	USD	107.21	-2.45	-2.29%	04/18 15:14

MARKETS

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Market Indices [All Indices](#)

Enter company name or Symbol [SEARCH](#)

DOW	12,189.14	▼ -152.69	-1.24%
S&P 500	1,305.75	▼ -13.93	-1.06%
NASDAQ	2,731.64	▼ -33.01	-1.19%
TR US INDEX	119.44	▼ -1.47	-1.22%

Currencies [All Currencies](#)

EUR/USD	1.4234	-1.35%
GBP/USD	1.6262	-0.40%
USD/JPY	82.600	-0.63%

Commodities [All Commodities](#)

GOLD	1,496.20	+13.20	+0.88%
------	----------	--------	--------

# BASIC TABLE STRUCTURE

## <table>

The <table> element is used to create a table. The contents of the table are written out row by row.

## <tr>

You indicate the start of each row using the opening <tr> tag. (The tr stands for table row.)

It is followed by one or more <td> elements (one for each cell in that row).

At the end of the row you use a closing </tr> tag.

## <td>

Each cell of a table is represented using a <td> element. (The td stands for table data.)

At the end of each cell you use a closing </td> tag.

Some browsers automatically draw lines around the table and/or the individual cells. You will learn how to control the borders of tables using CSS on pages 309-312 and 337-340.

chapter-06/basic-table-structure.html

HTML

```
<table>
  <tr>
    <td>15</td>
    <td>15</td>
    <td>30</td>
  </tr>
  <tr>
    <td>45</td>
    <td>60</td>
    <td>45</td>
  </tr>
  <tr>
    <td>60</td>
    <td>90</td>
    <td>90</td>
  </tr>
</table>
```

RESULT

15	15	30
45	60	45
60	90	90

# TABLE HEADINGS

## HTML

chapter-06/table-headings.html

```
<table>
  <tr>
    <th></th>
    <th scope="col">Saturday</th>
    <th scope="col">Sunday</th>
  </tr>
  <tr>
    <th scope="row">Tickets sold:</th>
    <td>120</td>
    <td>135</td>
  </tr>
  <tr>
    <th scope="row">Total sales:</th>
    <td>$600</td>
    <td>$675</td>
  </tr>
</table>
```

## RESULT

	Saturday	Sunday
Tickets sold:	120	135
Total sales:	\$600	\$675

# FORM

Traditionally, the term 'form' has referred to a printed document that contains spaces for you to fill in information.

# WHY FORMS?

facebook

Facebook helps you connect  
with the people in your life.

## Sign Up

It's quick and easy.

Date of birth ?

Gender ?

☐☐☐

By clicking Sign Up, you agree to our [Terms](#), [Data Policy](#) and [Cookie Policy](#). You may receive SMS notifications from us and can opt out at any time.

Sign Up

Log In

[Forgotten password?](#)

Create New Account

Sign up for a celebrity, band or business.



## POST YOUR AD

### SELECTED CATEGORY

Mobiles / Tablets [Change](#)

### INCLUDE SOME DETAILS

Ad title

Mention the key features of your item (e.g. brand, model, age, type)

0/70

Description

Include condition, features and reason for selling

0/4096

Type

Apple

Danny Tabs

Q Tabs

Samsung

Other Tablets

Condition

New

Used

### SET A PRICE

Price

Activate Windows  
Go to Settings to activate Windows.

# HOW FORMS WORK

## HOW FORMS WORK

A user fills in a form and then presses a button to submit the information to the server.



# THE <FORM> ELEMENT

```
<form>
  •
  form elements
  •
</form>
```

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



# THE <INPUT> ELEMENT

- The HTML `<input>` element is the most used form element. An `<input>` element can be displayed in many ways, depending on the `type` attribute. Here are some examples:

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

# HTML FORMS

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

<h2>HTML Forms</h2>

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

<p>If you click the "Submit" button, the form-data will be sent to a page called
"/action_page.php".</p>

</body>
</html>
```

## HTML Forms

First name:

Last name:

If you click the "Submit" button, the form-data will be sent to a page called "/action\_page.php".

# THE <LABEL> ELEMENT

Notice the use of the `<label>` element in the example above.

The `<label>` tag defines a label for many form elements.

The `<label>` element is useful for screen-reader users, because the screen-reader will read out loud the label when the user focus on the input element.

The `<label>` element also help users who have difficulty clicking on very small regions (such as radio buttons or checkboxes) - because when the user clicks the text within the `<label>` element, it toggles the radio button/checkbox.

The `for` attribute of the `<label>` tag should be equal to the `id` attribute of the `<input>` element to bind them together.

# RADIO BUTTONS

The `<input type="radio">` defines a radio button.

Radio buttons let a user select ONE of a limited number of choices.

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

<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><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>

</body>
</html>
```

## Radio Buttons

Choose your favorite Web language:

- ☐ HTML
- ☒ CSS
- ☐ JavaScript

# CHECKBOXES

The `<input type="checkbox">` defines a **checkbox**.

Checkboxes let a user select ZERO or MORE options of a limited number of choices.

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

<h2>Checkboxes</h2>
<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>

</body>
</html>
```

## Checkboxes

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

- ☒ I have a bike
- ☒ I have a car
- ☒ I have a boat

# THE SUBMIT BUTTON

The `<input type="submit">` defines a button for submitting the form data to a form-handler.

The form-handler is typically a file on the server with a script for processing input data.

The form-handler is specified in the form's `action` attribute.

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

<h2>HTML Forms</h2>

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

<p>If you click the "Submit" button, the form-data will be sent to a page called
"/action_page.php".</p>

</body>
</html>
```

## Submitted Form Data

Your input was received as:

fname=John&lname=Doe

The server has processed your input and returned this answer.

# THE NAME ATTRIBUTE FOR <INPUT>

Notice that each input field must have a `name` attribute to be submitted.

If the `name` attribute is omitted, the value of the input field will not be sent at all.

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

<h2>The name Attribute</h2>

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

<p>If you click the "Submit" button, the form-data will be sent to a page called
"/action_page.php".</p>

<p>Notice that the value of the "First name" field will not be submitted,
because the input element does not have a name attribute.</p>

</body>
</html>
```

## Submitted Form Data

Your input was received as:

The server has processed your input and returned this answer.

**Note:** This tutorial will not teach you how servers are processing input. Processing input is explained in our [PHP tutorial](#).

# THE SELECT ELEMENT

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

<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>

</body>
</html>
```

## The select Element

The select element defines a drop-down list:

Choose a car:

Volvo

Saab

Fiat

Audi



# SELECTED ATTRIBUTE

The `<option>` element defines an option that can be selected.

By default, the first item in the drop-down list is selected.

To define a pre-selected option, add the `selected` attribute to the option:

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

<h2>Pre-selected Option</h2>

<p>You can preselect an option with the selected attribute:</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" selected>Fiat</option>
    <option value="audi">Audi</option>
  </select>
  <input type="submit">
</form>

</body>
</html>
```

## Pre-selected Option

You can preselect an option with the selected attribute:

Choose a car:

# SIZE ATTRIBUTE

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

<h2>Visible Option Values</h2>

<p>Use the size attribute to specify the number of visible values.</p>

<form action="/action_page.php">
  <label for="cars">Choose a car:</label>
  <select id="cars" name="cars" size="1">
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
    <option value="fiat">Fiat</option>
    <option value="audi">Audi</option>
    <option value="kia">KIA</option>
    <option value="hyundai">Hyundai</option>
  </select><br><br>
  <input type="submit">
</form>

</body>
</html>
```

## Visible Option Values

Use the size attribute to specify the number of visible values.

Choose a car:

# ALLOW MULTIPLE SELECTIONS:

Use the `multiple` attribute to allow the user to select more than one value:

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

<h2>Allow Multiple Selections</h2>

<p>Use the multiple attribute to allow the user to select more than one value.
</p>

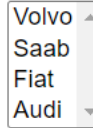
<form action="/action_page.php">
  <label for="cars">Choose a car:</label>
  <select id="cars" name="cars" size="4" multiple>
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
    <option value="fiat">Fiat</option>
    <option value="audi">Audi</option>
  </select><br><br>
  <input type="submit">
</form>

<p>Hold down the Ctrl (windows) / Command (Mac) button to select multiple
options.</p>

</body>
</html>
```

## Allow Multiple Selections

Use the multiple attribute to allow the user to select more than one value.

Choose a car: 

Hold down the Ctrl (windows) / Command (Mac) button to select multiple options.

# HTML INPUT TYPES

Here are the different input types you can use in HTML:

- `<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">`

# COMMENTS IN HTML<!-- -->

HTML

chapter-08/comments-in-html.html

```
<!-- start of introduction -->
<h1>Current Exhibitions</h1>
<h2>Olafur Eliasson</h2>
<!-- end of introduction -->
<!-- start of main text -->
<p>Olafur Eliasson was born in Copenhagen, Denmark
    in 1967 to Icelandic parents.</p>
<p>He is known for sculptures and large-scale
    installation art employing elemental materials
    such as light, water, and air temperature to
    enhance the viewer's experience.</p>
<!-- end of main text -->
<!--
    <a href="mailto:info@example.org">Contact</a>
-->
```

RESULT

## Current Exhibitions

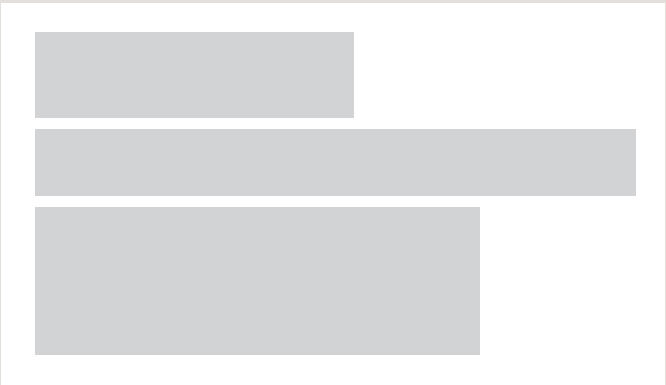
### Olafur Eliasson

Olafur Eliasson was born in Copenhagen, Denmark in 1967 to Icelandic parents.

He is known for sculptures and large-scale installation art employing elemental materials such as light, water, and air temperature to enhance the viewer's experience.

# BLOCK ELEMENTS

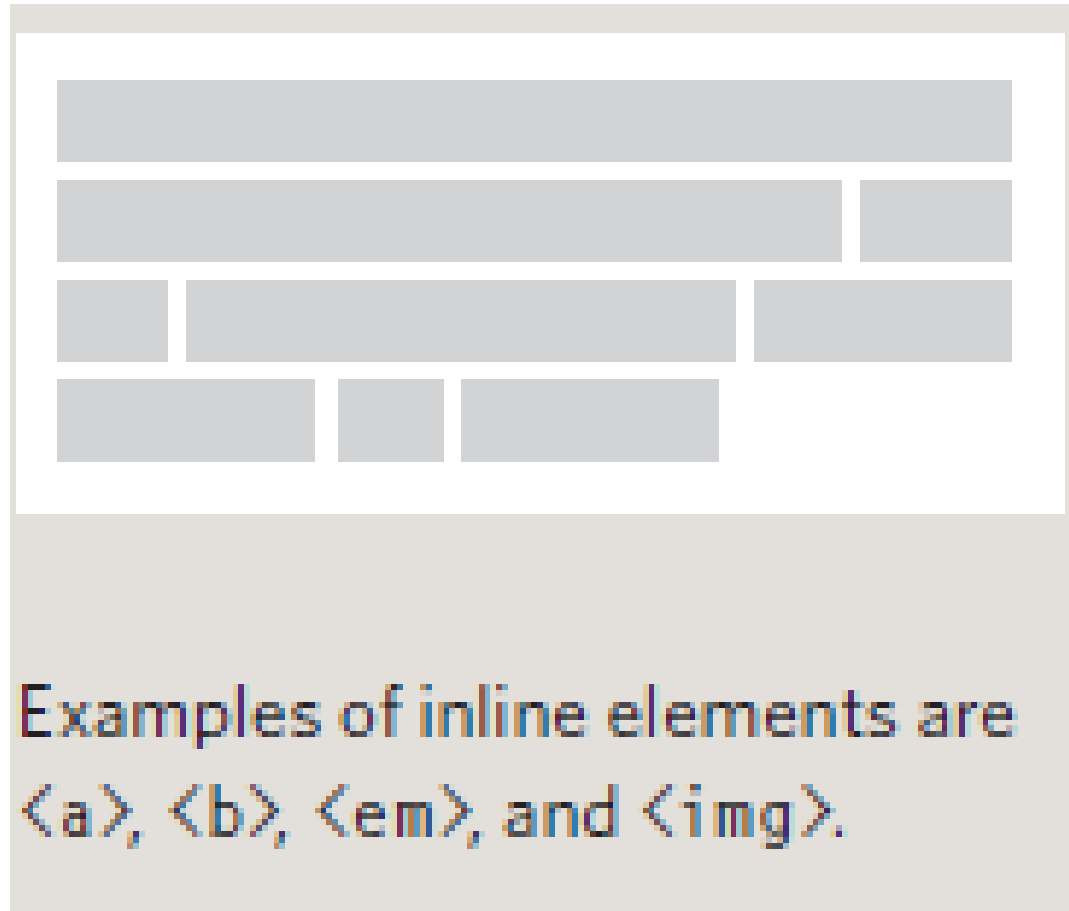
Some elements will always appear to start on a new line in the browser window. These are known as **block level** elements.



Examples of block elements are  
`<h1>`, `<p>`, `<ul>`, and `<li>`.

# INLINE ELEMENTS

Some elements will always appear to continue on the same line as their neighbouring elements. These are known as **inline** elements.



## LIST BLOCK LEVEL ELEMENTS

<code>&lt;address&gt;</code>	<code>&lt;article&gt;</code>	<code>&lt;aside&gt;</code>	<code>&lt;blockquote&gt;</code>
<code>&lt;dt&gt;</code>	<code>&lt;fieldset&gt;</code>	<code>&lt;figcaption&gt;</code>	<code>&lt;figure&gt;</code>
<code>&lt;hr&gt;</code>	<code>&lt;li&gt;</code>	<code>&lt;main&gt;</code>	<code>&lt;nav&gt;</code>
<code>&lt;section&gt;</code>	<code>&lt;table&gt;</code>	<code>&lt;tfoot&gt;</code>	<code>&lt;ul&gt;</code>

<code>&lt;canvas&gt;</code>	<code>&lt;dd&gt;</code>	<code>&lt;div&gt;</code>	<code>&lt;dl&gt;</code>
<code>&lt;footer&gt;</code>	<code>&lt;form&gt;</code>	<code>&lt;h1&gt;-&lt;h6&gt;</code>	<code>&lt;header&gt;</code>
<code>&lt;noscript&gt;</code>	<code>&lt;ol&gt;</code>	<code>&lt;p&gt;</code>	<code>&lt;pre&gt;</code>
<code>&lt;video&gt;</code>			



# LIST OF INLINE ELEMENTS

<code>&lt;a&gt;</code>	<code>&lt;abbr&gt;</code>	<code>&lt;acronym&gt;</code>	<code>&lt;b&gt;</code>
<code>&lt;cite&gt;</code>	<code>&lt;code&gt;</code>	<code>&lt;dfn&gt;</code>	<code>&lt;em&gt;</code>
<code>&lt;label&gt;</code>	<code>&lt;map&gt;</code>	<code>&lt;object&gt;</code>	<code>&lt;output&gt;</code>
<code>&lt;small&gt;</code>	<code>&lt;span&gt;</code>	<code>&lt;strong&gt;</code>	<code>&lt;sub&gt;</code>
<code>&lt;var&gt;</code>			

<code>&lt;bdo&gt;</code>	<code>&lt;big&gt;</code>	<code>&lt;br&gt;</code>	<code>&lt;button&gt;</code>
<code>&lt;i&gt;</code>	<code>&lt;img&gt;</code>	<code>&lt;input&gt;</code>	<code>&lt;kbd&gt;</code>
<code>&lt;q&gt;</code>	<code>&lt;samp&gt;</code>	<code>&lt;script&gt;</code>	<code>&lt;select&gt;</code>
<code>&lt;sup&gt;</code>	<code>&lt;textarea&gt;</code>	<code>&lt;time&gt;</code>	<code>&lt;tt&gt;</code>