HTML Overview

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- Jennifer Robbins, Learning Web Design (Chapter 4), O'Reilly, 5th edition, May 2018, ISBN 978-1-491-96020-2.

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Overview

▶ **How markup works: Elements and attributes**

▶ **Minimal HTML document structure**

▶ **Identifying text elements: Block and inline**

▶ **Troubleshooting and validating HTML**

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Content Without Markup

Without HTML markup to describe content structure, text runs together; line breaks are ignored:

```
Black Goose Bistro

The Restaurant
The Black Goose Bistro offers casual lunch
and dinner fare in a relaxed atmosphere. The
menu changes regularly to highlight the
freshest local ingredients.

Catering
You have fun. We'll handle the cooking. Black
Goose Catering can handle events from snacks
for a meetup to elegant corporate
fundraisers.

Location and Hours
Seekonk, Massachusetts;
Monday through Thursday 11am to 9pm; Friday
and Saturday, 11am to midnight
```
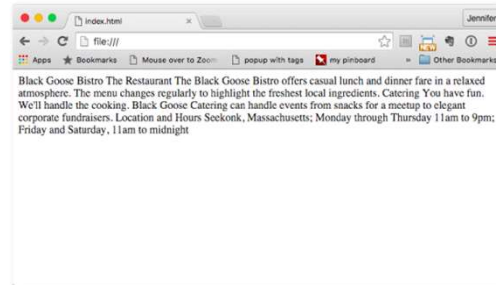

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What Browsers Ignore

- ▶ Multiple character spaces (white space)
- ▶ Line breaks (carriage returns)
- ▶ Tabs
- ▶ Unrecognized markup

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Markup Basics

Text must be marked up meaningfully and accurately (**semantically**) with HTML tags:

▶ Browsers need markup to display content correctly.

▶ Markup makes content elements available to scripts and style rules.

▶ Markup aids search engines.

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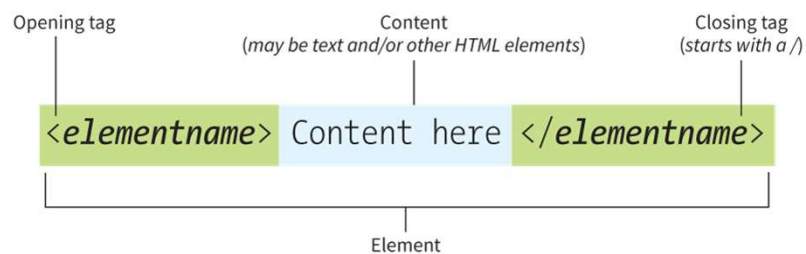# Anatomy of an HTML Element

tag
The element name in angle brackets

element
The content and its markup (start and end tags)

Opening tag

Content
(may be text and/or other HTML elements)

Closing tag
(starts with a /)

`<elementname>` Content here `</elementname>`

Element

Example: `<h1>`Black Goose Bistro`</h1>`

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Some Elements Are Empty

Some elements have no content and provide a simple directive. They are called **empty elements**:

`<element-name>`

Example: The **br** element inserts a line break.

```
<p>1005 Gravenstein Highway North<br>Sebastopol, CA 95472</p>
```

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Attributes

Attributes are instructions that clarify or modify an element. They appear in the opening tag after the element name:
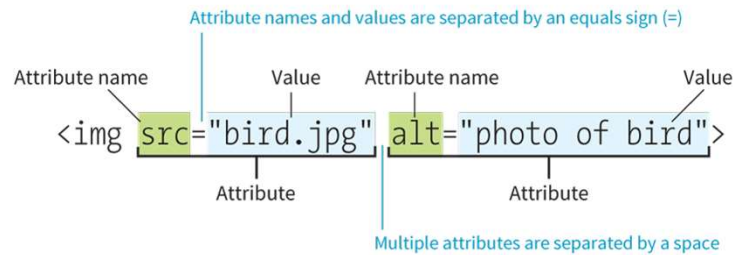
```
<element attribute="value">Content</element>
```

```
<a href="http://oreilly.com">O'Reilly site</a>
```

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Attributes (cont'd)

There can be more than one attribute in a tag:

Attribute names and values are separated by an equals sign (=)

Attribute name   Value   Attribute name   Value

`<img src="bird.jpg" alt="photo of bird">`

Attribute   Attribute

Multiple attributes are separated by a space

They are separated by spaces and can go in any order.

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Attributes (cont'd)

▶ Most attributes take values, which follow an = sign; some are single descriptive words.

▶ A value might be a number, word, string of text, URL, or measurement.

▶ Quotation marks aren't strictly required but are recommended for consistency.

▶ Single or double quotation marks are okay.

▶ Attribute names and values are defined in the HTML specification.

▶ Some attributes are required.

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Nesting Elements

Putting elements inside other elements is called **nesting**. Make sure closing tags don't overlap:

```
<div>
  <h1>Headline</h1>
  <p>This is <em>emphasized</em> text.</p>
</div>
```

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HTML Comments

To leave a note in an HTML document, mark it up as a **comment**:

```
<!-- start global navigation -->
<ul>
…
</ul>
<!-- end global navigation
and begin the main header
for content page -->
```

Text between <!-- and --> won't display in the browser. Keep in mind that they are still visible in the source.

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Minimal Document Structure

It is recommended that HTML documents have the following minimal structure:

```
<!DOCTYPE html>
<html>

  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>

  <body>
    <!-- Page content goes here.-->
  </body>

</html>
```

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Minimal Document Structure (cont'd)

The **DOCTYPE declaration** lets browsers know that the document is written according to the HTML5 specification:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>
  <body>
    [Page content goes here.]
  </body>
</html>
```

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Minimal Document Structure (cont'd)

The **html** element is the **root element** that contains all the elements in the document:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>
  <body>
    [Page content goes here.]
  </body>
</html>
```

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Minimal Document Structure (cont'd)

The **head** element contains elements that pertain to the document and are not rendered as content, such as **title**, **metadata**, **style sheets**, and **scripts**:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>
  <body>
    [Page content goes here.]
  </body>
</html>
```

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Minimal Document Structure (cont'd)

meta elements provide document **metadata**. In this case, it says that the document uses an expanded **character set** (UTF-8). It could also provide keywords, author information, publishing status, and more:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>
  <body>
    [Page content goes here.]
  </body>
</html>
```

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Minimal Document Structure (cont'd)

The **title** element is required. Titles display in the browser tab and bookmark lists, and are used by search engines:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>
  <body>
    [Page content goes here.]
  </body>
</html>
```

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Minimal Document Structure (cont'd.)

The **body** element contains the content of the document.
The content is everything you want to show up in the
browser window:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Title here</title>
  </head>
  <body>
    [Page content goes here.]
  </body>
</html>
```

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A Structured Document

With the document structure in place, there is a title in the browser tab,
but the content is still unstructured.

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Black Goose Bistro</title>
</head>
<body>
Black Goose Bistro

The Restaurant
The Black Goose Bistro offers casual
lunch and dinner fare in a relaxed
atmosphere. The menu changes regularly
to highlight the freshest local
ingredients.
…
Location and Hours
Seekonk, Massachusetts;
Monday through Thursday 11am to 9pm;
Friday and Saturday, 11am to midnight
</body>
</html>
```


Black Goose Bistro The Restaurant The Black Goose Bistro offers casual lunch and dinner fare in a relaxed atmosphere. The menu changes regularly to highlight the freshest local ingredients. Catering You have fun. We'll handle the cooking. Black Goose Catering can handle events from snacks for a meetup to elegant corporate fundraisers. Location and Hours Seekonk, Massachusetts; Monday through Thursday 11am to 9pm; Friday and Saturday, 11am to midnight
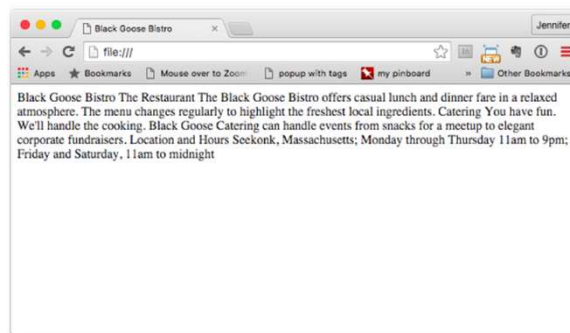
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Marking Up Content

▶ The purpose of HTML is to add meaning and structure to the content. This is called **semantic markup**.

▶ It is **not** intended to describe how the content should look (its presentation).

▶ The way elements relate to one another forms an outline-like structure called the **DOM (Document Object Model)**.

▶ The DOM is the foundation on which you apply styles and scripts.

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Basic Text Elements

With headings (`<h1>`) and paragraphs (`<p>`) identified, the browser can display the content appropriately:

```
…
<body>
<h1>Black Goose Bistro</h1>

<h2>The Restaurant</h2>
<p>The Black Goose Bistro
offers casual lunch and
dinner fare in a relaxed
atmosphere. The menu changes
regularly to highlight the
freshest local
ingredients.</p>

<!--more content-->
</body>
```
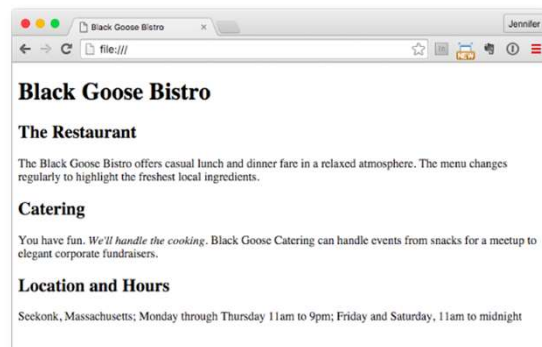

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Block and Inline Elements

Block elements
Major components of the page that display like rectangular blocks stacking up on the page

Example: headings, paragraphs, long quotations

Inline elements
Appear within the text flow of a block element

Example: emphasized text, links, abbreviations

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Block and Inline Elements (cont'd)
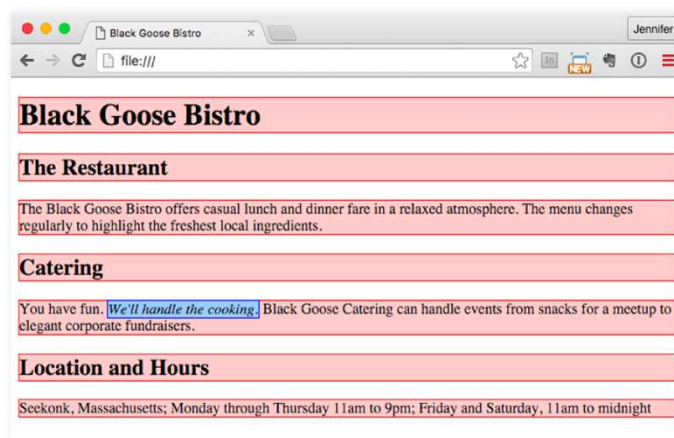
Block elements (headings, paragraphs) outlined in RED.

Inline element (emphasized text) outlined in BLUE.

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Style Sheets

▶ HTML only describes structure, not presentation

▶ Presentation is controlled by style sheets (CSS)

▶ Browsers have their own style sheets (user agent style sheets) with default styles for HTML elements

▶ You can write your own styles to override the default styles

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Style Sheets (cont'd)

The browser parsed the markup and used its built-in style sheet to format the text elements in the example:

Margin around page

Headings bold and large

Space added above block elements

Emphasized text in italic font
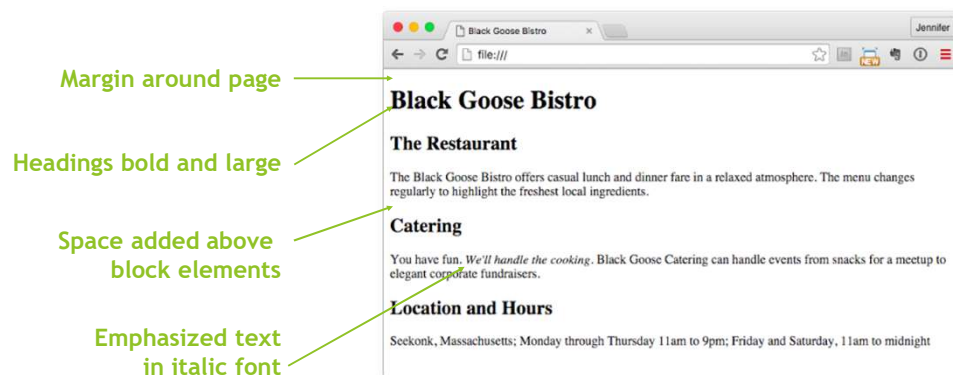
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Troubleshooting HTML

Small mistakes and missing characters can cause HTML documents to "break."

Common mishaps:

- ▶ Missing closing tag (or / in closing tag)

- ▶ Missing closing bracket in a tag

- ▶ Missing quotation mark around an attribute value

- ▶ Not saving your document before viewing changes in the browser

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Troubleshooting (cont'd)

When a slash is omitted, the browser doesn't know when the element ends:

```
<h2>Catering</h2>
<p>You have fun. <em>We'll handle the cooking.<em> Black Goose
Catering can handle events from snacks for a meetup to elegant
corporate fundraisers.</p>
```

g. `<em>`

Catering

You have fun. *We'll handle the cooking. Black Goose Catering can handle events from snacks for a meetup to elegant corporate fundraisers.*

Location and Hours

Seekonk, Massachusetts;
Monday through Thursday 11am to 9pm;
Friday and Saturday, 11am to midnight

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Troubleshooting (cont'd)

A missing end bracket makes the browser interpret all the following characters as part of the tag:

```
<h2The Restaurant</h2>
<p>The Black Goose Bistro offers casual lunch and dinner fare
in a relaxed atmosphere. The menu changes regularly to highlight
the freshest local ingredients.</p>
```

<h2The

Missing subhead

Without the bracket, all the following characters are interpreted as part of the tag, and "The Restaurant" disappears from the page.

BLACK GOO

The Black Goose Bistro offers casual lunch and d changes regularly to highlight the freshest local in

Catering

You have fun. *We'll handle the cooking*. Black Go a meetup to elegant corporate fundraisers.

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Validating Your Documents

Validate a document to make sure that you have abided by the HTML rules and that there are no errors:

▶ Include the DOCTYPE declaration

▶ Indicate the character encoding

▶ Include required attributes

▶ Don't use non-standard elements

▶ Don't mismatch tags

▶ Nest elements correctly (no overlaps)

▶ Check for typos and other minor errors

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Validating Your Documents

▶ Use a validator
tool like the one at
**html5.validator.n
u.**

▶ Upload a
document or
provide a link, and
the validator
returns an error
report.

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Handson exercises

▶ Complete exercises in Chapter 4

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