CSC4202 - Full Stack - I:
Web UI and Responsive UI Framework

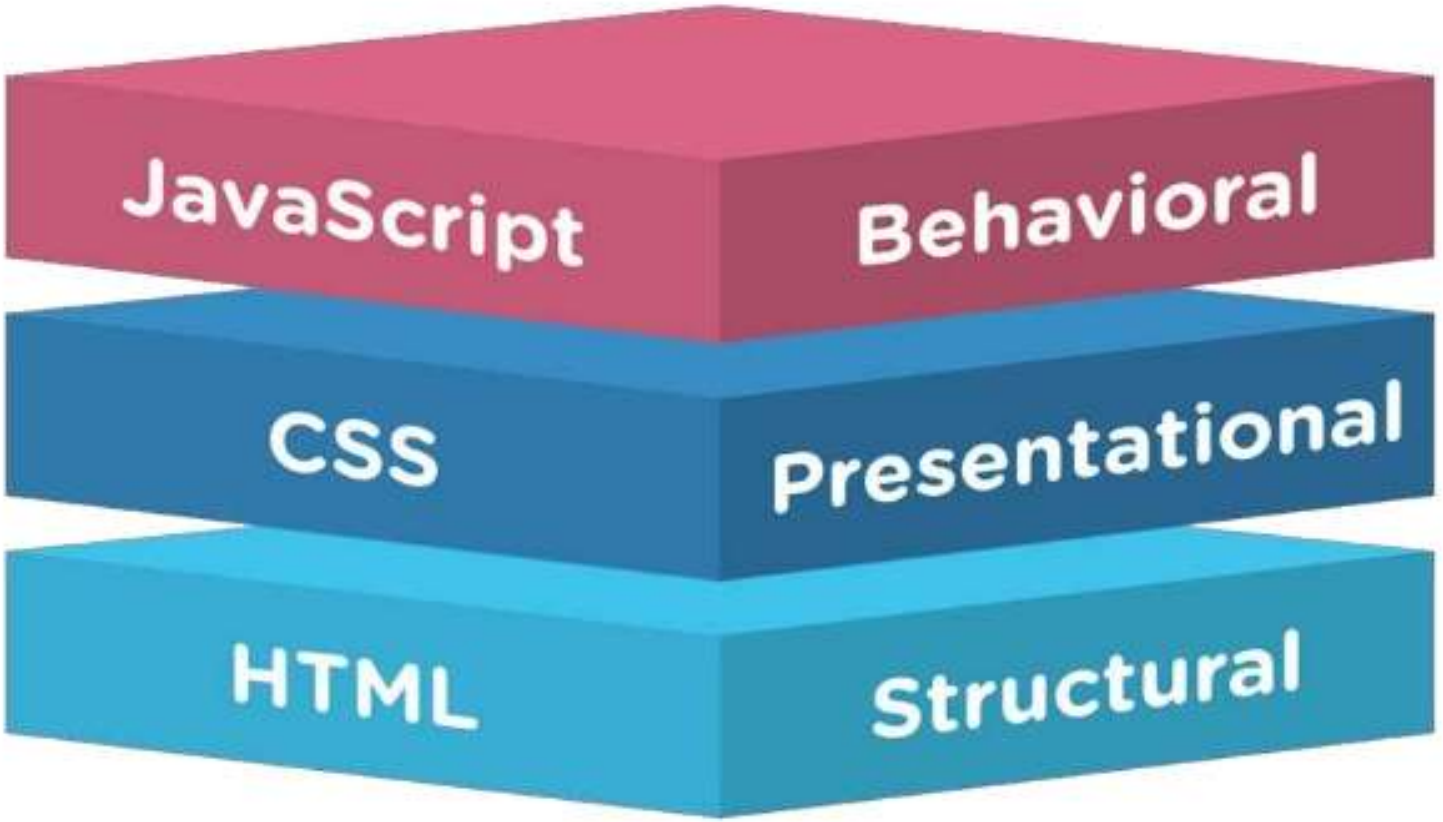
- Overview of HTML5
- Introducing CSS3
- Overview of JavaScript
- Bootstrap
- jQuery and AJAX

Overview of HTML5

- History, Vision & Future of HTML5
- Structure of a Web Page
- HTML5 Mark-up
- Browser Support
- Forms
- Audio and Video
- Canvas
- SVG
- Geo location

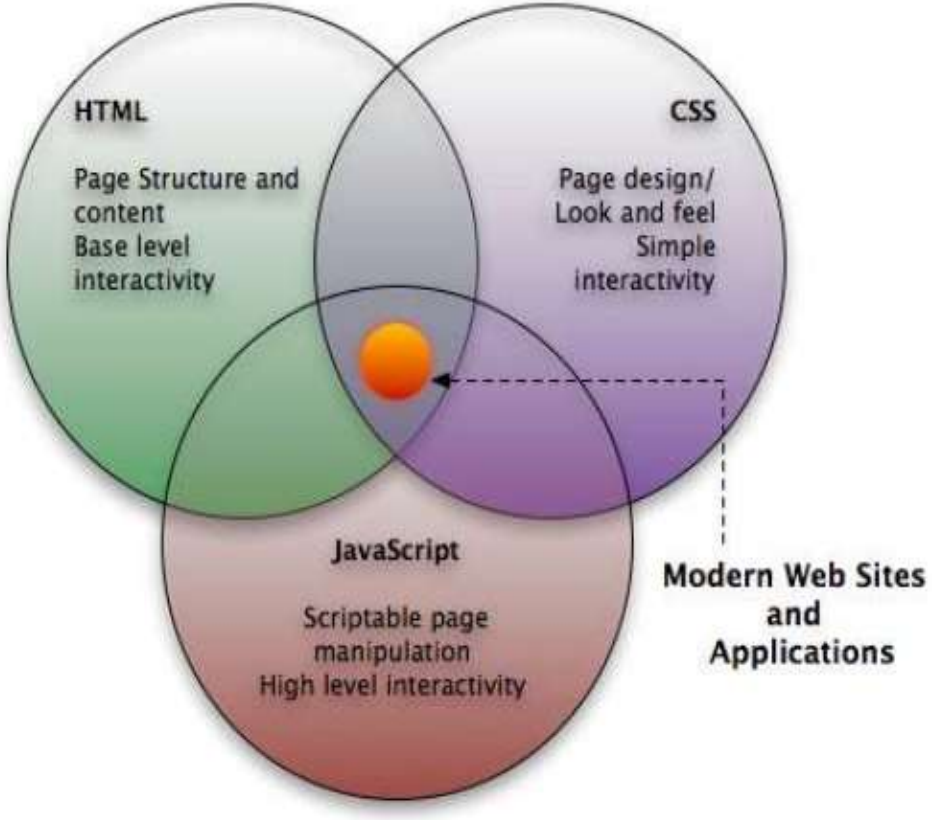
HTML vs CSS vs JAVASCRIPT

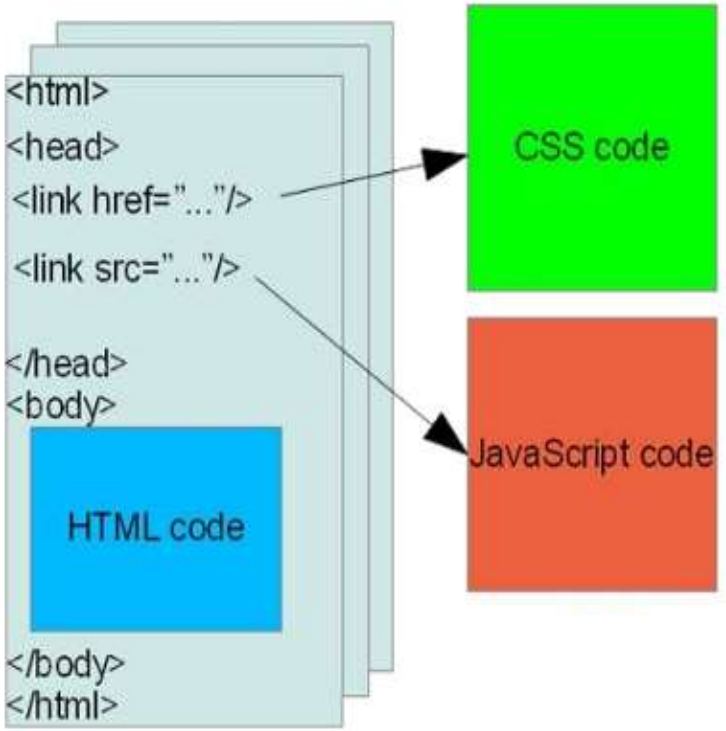
Overview



HTML vs CSS vs JAVASCRIPT

Overview





What is HTML?

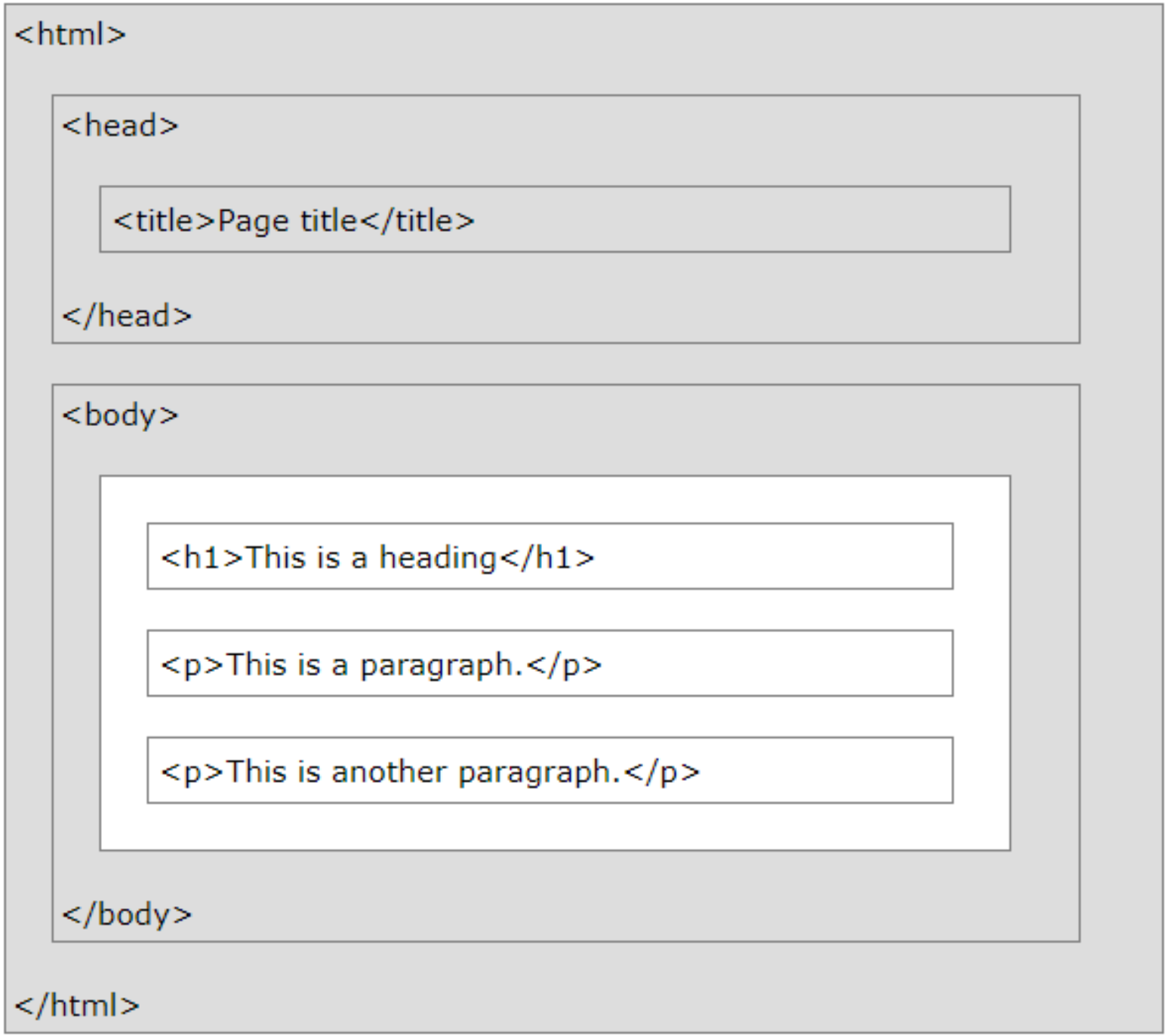
- HTML is the standard markup language for creating Web pages.
- Stands for Hyper Text Markup Language
- Describes the structure of a Web page
- Consists of a series of elements
- Elements tell the browser how to display the content
- Tags label pieces of content such as "heading", "paragraph", "table", and so on
- Browsers do not display the HTML tags, but use them to render the content of the page

A Simple HTML Document

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```


<html>
<head>
<title>Page title</title>
</head>
<body>
<h1>This is a heading</h1>
This is a paragraph.
This is another paragraph.
</body>
</html>

The <!DOCTYPE> Declaration

- The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.
- It must only appear once, at the top of the page (before any HTML tags).
- The <!DOCTYPE> declaration is not case sensitive.

HTML Version

Version	Year
HTML	1991
HTML 2.0	1995
HTML 3.2	1997
HTML 4.01	1999
XHTML	2000
HTML5	2014

HTML Structural Tags

- <HTML>

  These tags enclose the entire Web page document.

  </HTML>

- <HEAD>

  These tags enclose the Head part of the document

  </HEAD>

- <TITLE>

  These tags enclose the title of the document. This text appears in the title bar in the browser and on the bookmark list if someone bookmarks your web page.

  </TITLE>

HTML Structural Tags

- <BODY>

  The <body> element defines the document body.

  It has a start tag <body> and an end tag </body>.

</ BODY >

HTML Structural Tags

- Header Tags -- Used for marking sections and subsections in a document.

  - <H1>Header 1 -- Giant-sized and bold </H1>
  - <H2>Header 2 -- Large and bold </H2>
  - <H3>Header 3 -- Normal-sized and bold </H3>
  - <H4>Header 4 -- Small and bold </H4>
  - <H5>Header 5 -- Very Small and bold </H5>
  - <H6>Header 6 -- Tiny and bold </H6>

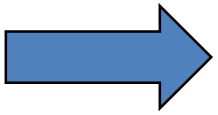
HTML Structural Tags

- ## Breaking Lines and Paragraphs

- <P> text </P>
  - Paragraph tag
  - Most browsers render (process) this with blank lines between each paragraph
-
  - Line break tag
  - Used when the webmaster wants a carriage return but doesn't want a blank line to follow

Example:

```
<p>text a</p>
<p>text b</p>
<br>text c
<br>text d
```



text a
text b

text c
text d

HTML Structural Tags

- HTML Attributes
  - All HTML elements can have **attributes**
  - Attributes provide **additional information** about an element
  - Attributes are always specified in **the start tag**
  - Attributes usually come in name/value pairs like: **name="value"**

HTML Structural Tags

- ## HTML Attributes

1. The href Attribute

- HTML links are defined with the <a> tag. The link address is specified in the href attribute:
- Example: This is a link

2. The src Attribute

- HTML images are defined with the <img> tag.
- The filename of the image source is specified in the src attribute:
- Example: <img src="img_girl.jpg">

HTML Structural Tags

- ## HTML Attributes

3. The width and height Attributes

HTML images also have width and height attributes, which specifies the width and height of the image:

Example: <img src="img_girl.jpg" width="500" height="600">

4. The style Attribute

- The style attribute is used to specify the styling of an element, like color, font, size etc.
- Example: This is a paragraph.

HTML Forms

- ## The <form> Element

- The HTML <form> element defines a form that is used to collect user input:

<form>

    form elements

</form>


HTML
5

Differences Between HTML4 & HTML5

- HTML5 is a work in progress
- Simplified Syntax
- The New <canvas> Element for 2D drawings
- New content-specific elements, like <article>, <header>, <footer>, <section>
- New <menu> and <figure> Elements
- New <audio> and <video> Elements
- New form controls, like calendar, date, time, email, url, search
- No More <frame>, , <big>, and <b>, <font>
- Support for local storage

HTML5

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Title of the document</title>
</head>

<body>
Content of the document.....
</body>

</html>
```

8-bit Unicode Transformation Format

HTML5 Technology Functions

- **Semantics:** allows you to describe more precisely what your content is.

- **Connectivity:** allowing you to communicate with the server in new and innovative ways.

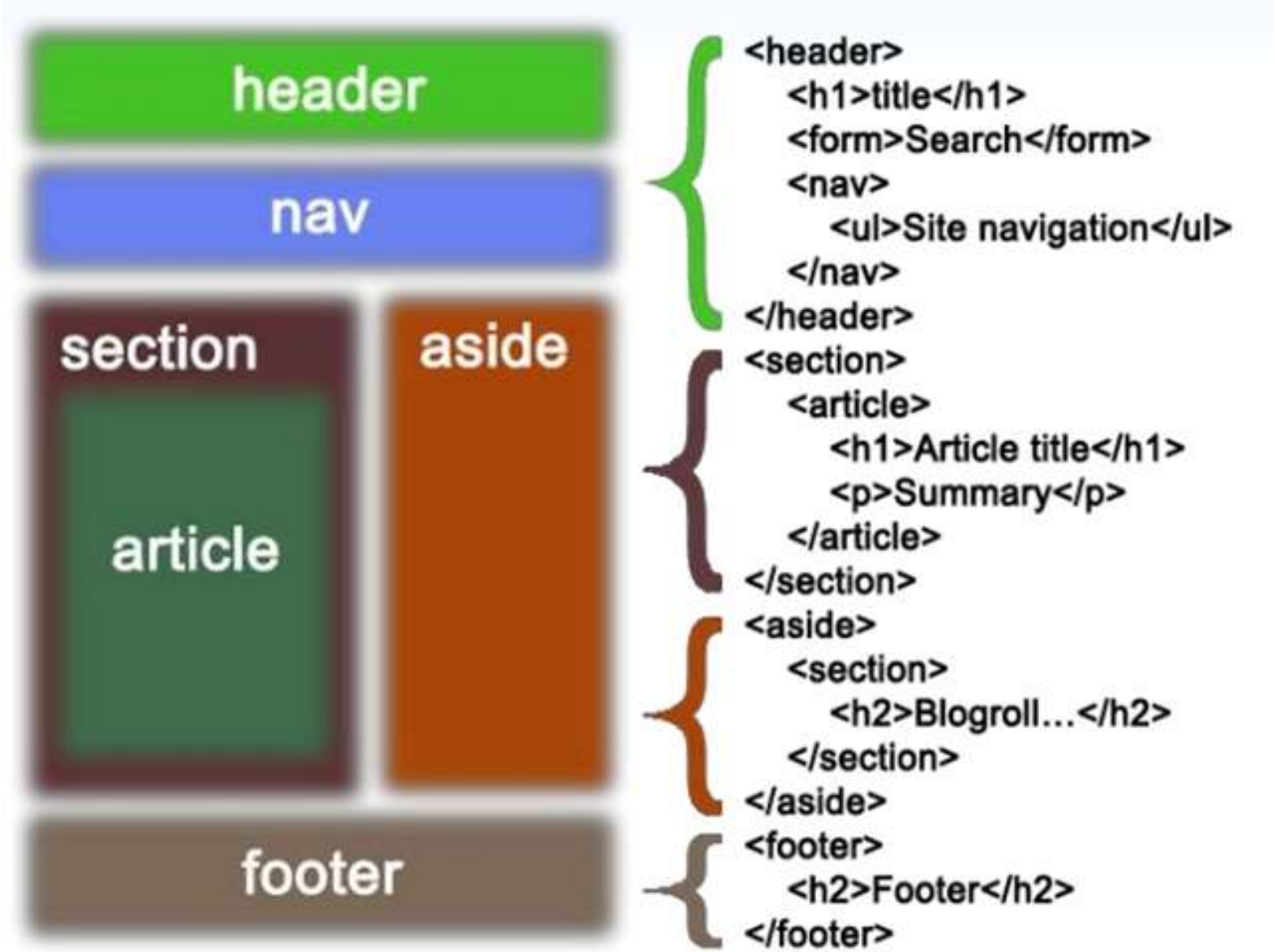
- **Offline and Storage:** allowing web pages to store the data at client side locally and operate offline more efficiently.

- **Multimedia:** allows to import audio and video.

- **2D/3D Graphics and Effects:** allowing much more diverse range of presentation options.

- **Performance and Integration:** providing greater speed optimization

HTML5 Semantic Elements



HTML5 Semantic Elements

• Semantic elements = elements with a meaning.

• A semantic element clearly describes its meaning to both the browser and the developer.

• Examples of **non-semantic** elements: and - Tells nothing about its content.

• Examples of **semantic** elements: <form>, <table>, and <article> - Clearly defines its content.

• Many web sites contain HTML code like: <div id="footer“> to indicate navigation, header, and footer.

HTML5 Semantic Elements

HTML5 offers new semantic elements to define different parts of a web page:

<article>

<aside>

<details>

<figure>

<footer>

<header>

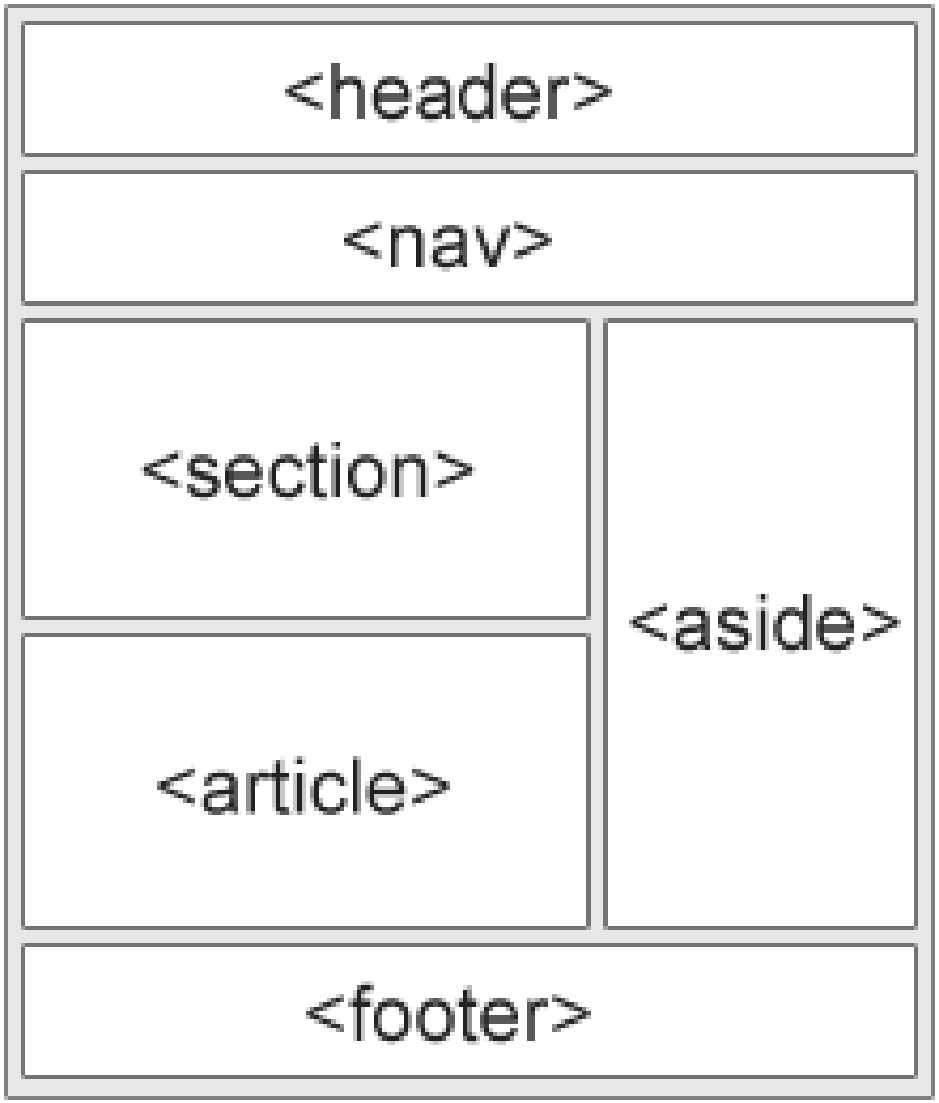
<main>

<nav>

<section>

<summary>

<time>



HTML5 Semantic Elements

Tag	Description
<article>	Defines an article
<aside>	Defines content aside from the page content
<details>	Defines additional details that the user can view or hide
<figcaption>	Defines a caption for a <figure> element
<figure>	Specifies self-contained content, like illustrations, diagrams, photos, code listings, etc.
<footer>	Defines a footer for a document or section
<header>	Specifies a header for a document or section
<main>	Specifies the main content of a document

HTML5 Semantic Elements

Tag	Description
<mark>	Defines marked/highlighted text
<nav>	Defines navigation links
<section>	Defines a section in a document
<summary>	Defines a visible heading for a <details> element
<time>	Defines a date/time

HTML5 New Tags and Elements

Navigation:

<article>
<aside>
<header>
<hgroup>
<footer>
<figure>
<figcaption>
<nav>
<section>

Multimedia/Interactivity:

<audio>
<canvas>
<embed>
<source>
<track>
<video>

New <input> types:

color
date
datetime
datetime-local
email
month
number
range
search
tel
time
url
week

HTML5 Graphics API

Canvas	SVG (Scalable Vector Graphics)
Low Level	High level
Intermediate Mode	Retained Mode
Fixed Size	Scalable
Best for keyboard based apps	Best for mouse clicked apps
Pixels	XML object model
NO interaction	User Interaction

HTML5 Graphics Elements

Tag	Description
<canvas>	Draw graphics, on the fly, via scripting (usually JavaScript)
<svg>	Draw scalable vector graphics

HTML5 Local Storage

• With local storage, web application can store data locally within the user's browser.

• Local storage don't use cookies unlike previous versions, it is more secure and can store large amounts of data locally, without any performance issue.

•It Provides two objects:

- •Windows.localStorage – store data with no expiration date
- •Window.sessionStorage – stores data for one session (data is lost when the tab is closed)

New Structural Elements

Tag	Description
<article>	Defines an article in a document
<aside>	Defines content aside from the page content
<bdi>	Isolates a part of text that might be formatted in a different direction from other text outside it
<details>	Defines additional details that the user can view or hide
<dialog>	Defines a dialog box or window
<figcaption>	Defines a caption for a <figure> element
<figure>	Defines self-contained content
<footer>	Defines a footer for a document or section
<header>	Defines a header for a document or section
<main>	Defines the main content of a document

New Media Elements

Tag	Description
<audio>	Defines sound content
<video>	Defines a video or movie
<source>	Defines multiple media resources for <video> and <audio>
<embed>	Defines a container for an external application or interactive content (a plug-in)
<track>	Defines text tracks for <video> and <audio>

New Form Elements

Tag	Description
<datalist>	Specifies a list of pre-defined option for input controls
<keygen>	Defines a key-pair generator field (for forms)
<output>	Defines the result of a calculation