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Introduction

Hypertext Markup Language 5 (HTML5)

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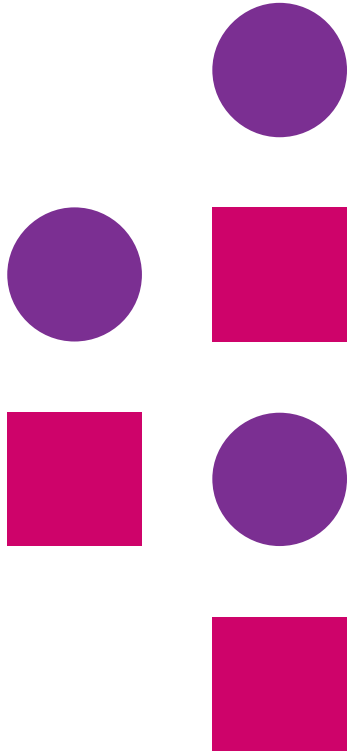


Introduction

(Hypertext Markup Language 5)

What is HTML?

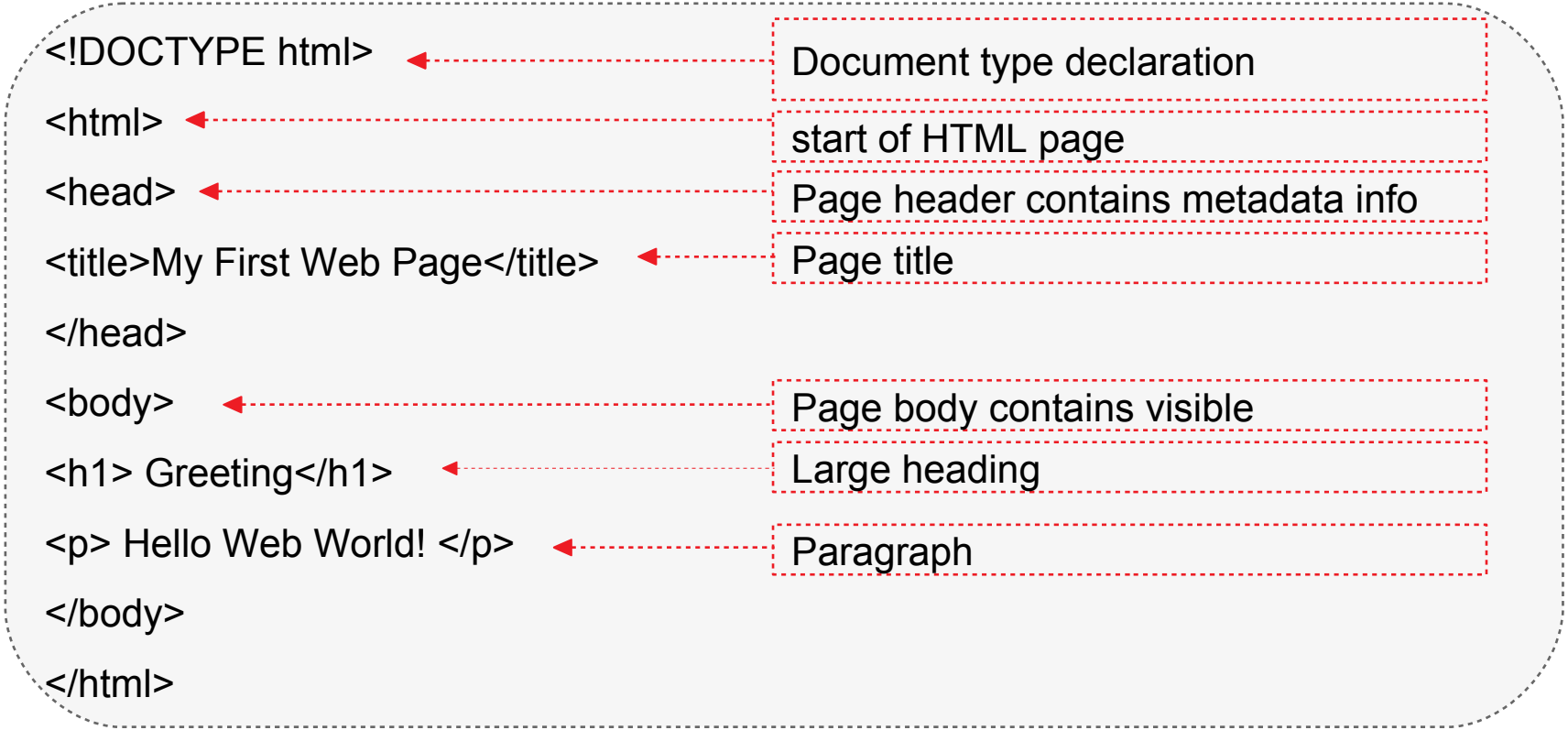
HTML (Hypertext Markup Language) is a standard markup language for creating Web pages

- Hyper Text means “Text within Text”
- A text has a link within it, is a hyper text
- Markup language “mark up” a text document with tags that tell a web browser how to structure the document to display

Where HTML is used?

- HTML is used to create Web Pages
- HTML is extensively used in online solutions such as e-commerce, banking, insurance, trading, blogging, social media, Information provided by government, news and many more...
- People use web browsers to access the desired websites from computer, tablet or mobile devices
- Browsers render the web pages to screen so that content can be seen by user

HTML - Example



HTML - History

Version	Year	Comments
HTML	1991	Tim Berners-Lee invented HTML
HTML 2.0	1995	HTML 2.0 was published as IETF RFC 1866
HTML 3.2	1997	HTML 3.2 was published as a W3C Recommendation
HTML 4.01	1999	HTML 4.01 was published as a W3C Recommendation. It offers the three variations – strict, transitional, frameset
XHTML	2000	XHTML is a language that began as a reformulation of HTML 4.01 using XML 1.0
HTML5	2014	HTML5 is much more tolerant and can handle markup from all the prior versions

What is HTML5?

- HTML5 is the new standard for HTML, XHTML and HTML DOM (Document Object Model)
- HTML5 is a cooperation between World Wide Web Consortium (W3C) and Web Hypertext Application Technology Working Group (WHATWG)

Why HTML5?

- To improve the language with support for the latest multimedia
- Candidate for cross-platform mobile apps (designed with low-powered devices in mind)
- Many new syntactic features are included -
  - To natively include and handle multimedia and graphical content
  - To enrich the semantic content of documents, new page structure elements
  - DOM is now fundamental parts of the HTML5 specification
  - Improves processing of any invalid documents

HTML5 new features

Category	Description
Semantics	Enable you to describe more precisely what your content is
Connectivity	Enable you to communicate with server
Offline and storage	Enable webpages to store data on the client-side locally and operate offline more efficiently
Multimedia	Enabling video and audio in web page
2D/3D graphics and effects	Allowing a much more diverse range of presentation options

HTML5 new features

Category	Description
Performance and integration	Providing greater speed optimization and better usage of computer hardware
Device access	Allowing for the usage of various input and output devices
Styling	Letting authors write more sophisticated themes

HTML5 new features
(Semantics)

- New outlining and sectioning elements
  - <section>, <article>, <nav>, <header>, <footer> and <aside>
- Forms improvements
  - Added new attributes and values for the <input> attribute type
  - Added new <output> element

HTML5 new features
(Semantics)

- Added new semantic elements
  - <mark>, <figure>, <figcaption>, <data>, <time>, <output>, <progress>, or <meter> and <main>
- Improvement in <iframe>
  - By using sandbox and srcdoc attributes, developer can be precise about level of security and wished rendering of an <iframe> element
- MathML
  - To embed mathematical formula directly

HTML5 new features
(Connectivity)

- Web Sockets
  - To create a permanent connection between the page and server and to exchange non-HTML data
- Server-sent events
  - Allows a server to push events to a client (compare to classical paradigm where server could send data only in response to a client's request)

HTML5 new features
(Offline and storage)

- Offline resources
  - HTML5 offline resource specification introduced to support app cache
- Storage
  - File APIs are added to access local files selected by user
  - This includes support for selecting multiple files using the <input> of type file HTML element's new multiple attribute

HTML5 new features
(Multimedia)

- Audio and Video
  - The <audio> and <video> elements embed and allow the manipulation of new multimedia content
- Camera API
  - Allows using, manipulating, and storing an image from the computer's camera
- WebRTC (Real Time Communication)
  - Allows connecting to other people and controlling video conferencing directly in the browser (without plugin or an external app)

HTML5 new features
(Multimedia)

- Track and WebVTT
  - The <track> element allows subtitles and chapters
  - WebVTT is a text track format

HTML5 new features
(3D Graphics and Effects)

- Added new <canvas> element
  - Can be used to draw graphs and objects
- WebGL
  - WebGL brings 3D graphics to the Web by introducing an API that closely conforms to OpenGL ES 2.0 that can be used in HTML5 <canvas> elements
- SVG
  - An XML-based format of vectorial images that can directly be embedded in the HTML

HTML5 new features
(Performance and integration)

- Web Workers
  - Allows delegation of JavaScript evaluation to background threads, allowing these activities to prevent slowing down interactive events
- History API
  - Allows the manipulation of the browser history
  - This is especially useful for pages loading interactively new information

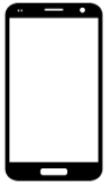
HTML5 new features
(Performance and integration)

- Drag and drop
  - The HTML5 drag and drop API allows support for dragging and dropping items within and between web sites
- Fullscreen API
  - Controls the usage of whole screen for a Web page or app, without browser UI displayed

HTML5 new features
(Performance and integration)

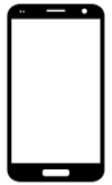
- Online and offline events
  - Good offline-capable web app need to know when to switch to offline
  - Also, app need to know when to return to online status again

HTML5 new features
(Device Access)



- Access Camera
  - Camera APIs to manipulate and store an image from computer's camera.
- Touch events
  - Handlers to react to events created by a user pressing touch screens
- Using geolocation
  - To locate the position of user using geolocation

HTML5 new features
(Device Access)



- Detecting device orientation
  - Too adapt the layout of a page to the orientation of the screen (portrait or landscape)
- Pointer Lock API
  - Allows locking the pointer to the content, so games and similar app don't lose focus when the pointer reaches the window limit

HTML5 new features
(Styling)

- Background styling features
  - Set shadow to a box using box-shadow
  - Set multiple backgrounds
- Fancy borders
  - Use images to style borders using border-image and its associated longhand properties,
  - Rounded borders are supported via border-radius property

HTML5 new features
(Styling)

- Animating your style using
  - CSS Transitions to animate between different states
  - CSS Animations to animate parts of the page without a triggering event
- Typography improvement
  - Control text-overflow and hyphenation
  - Add a shadow to it or control more precisely its decorations
  - Downloading custom typefaces and apply using new @font-face at-rule

HTML5 new features
(Styling)

- New presentational layouts
  - In order to improve the flexibility of designs, two new layouts have been added
    - CSS multi-column layouts
    - CSS flexible box layout

HTML5 – Browser Support

- Latest version of Firefox, Chrome, Safari, Opera browsers have excellent support of HTML5
- Browsers in smart hand-held devices (mobile phones, tablets) also support HTML5

HTML5 – Backward compatibility

- HTML5, as far as possible, is designed to be backward compatible with existing browsers
- New features have been built on existing features, but, semantic features are not backward compatible
- Polyfills allow you to provide fall back functionality to old browsers
- Pit-fall : Not all browsers support all of the HTML5 features

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