

HTML5 & CSS3

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Responsive Web Design

What is Responsive Web Design?

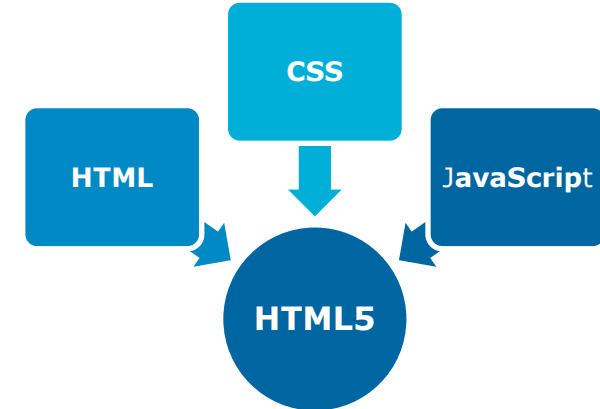
- ▶ Responsive design is an approach to web page creation that makes use of flexible layouts, flexible images and cascading style sheet media queries.
- ▶ It makes web pages render well on a variety of devices and window or screen sizes.
- ▶ The goal of responsive design is to build web pages that detect the visitor's screen size and orientation and changes the layout accordingly.
- ▶ Helps designers to create device independent web content.
- ▶ It follows the One-Web approach.



HTML5

What is HTML5?

- ▶ HTML5 is a markup language for structuring and presenting content for the World Wide Web (WWW).
- ▶ It is a W3C specification that defines the fifth major revision of the Hypertext Markup Language (HTML).
- ▶ Using HTML5 you can build **Responsive Web Design (RWD)**.
- ▶ HTML 5 is a combination of HTML, CSS and JS
- ▶ HTML5 is a suite of tools for
 - Markup (HTML)
 - Presentation (CSS)
 - Interaction (DOM, AJAX, API's)



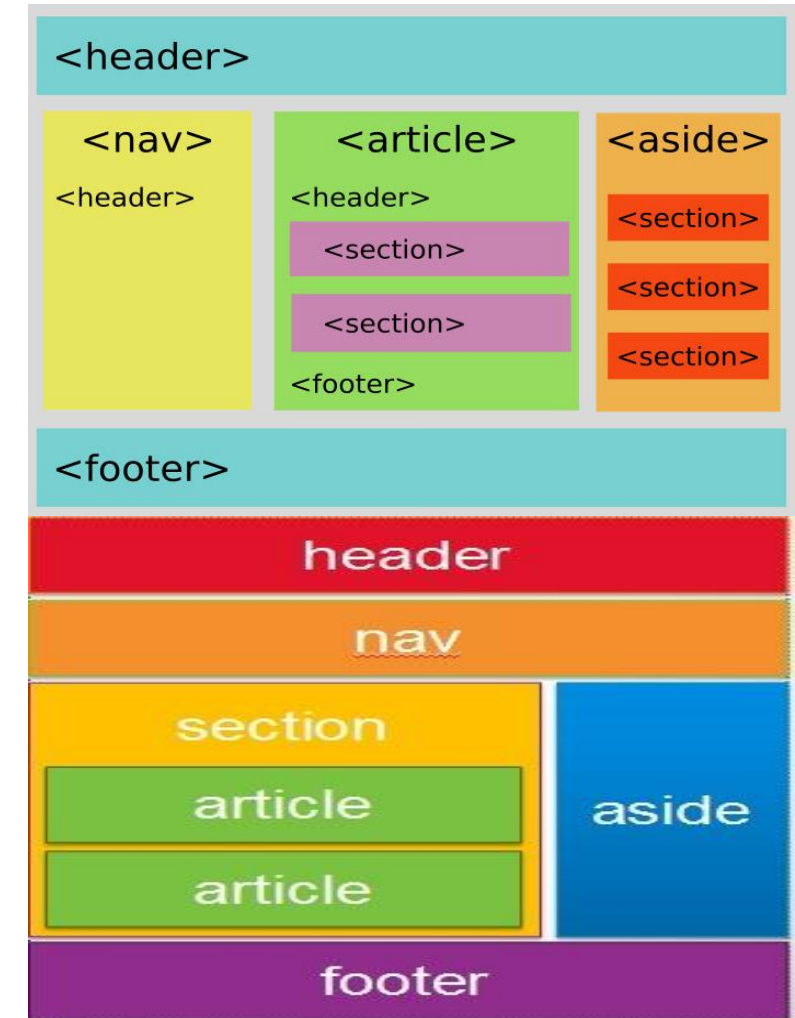
HTML5 – New Features

- ▶ Semantic Elements
- ▶ Form Elements
- ▶ Graphic Elements
- ▶ Audio and Video Support

HTML5 Semantic Elements


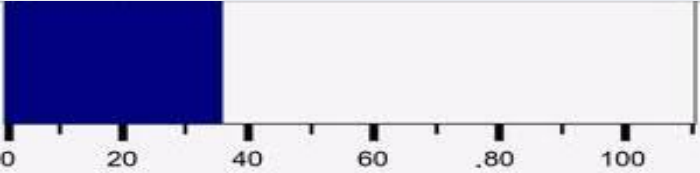
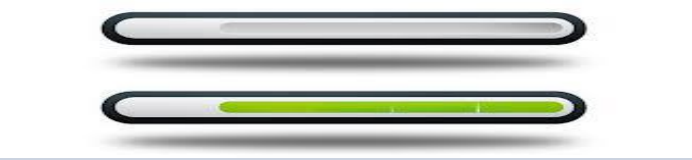
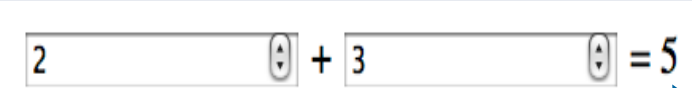
HTML5 – Semantic Elements

- ▶ **Header** : Specifies a header for a document or section.
- ▶ **Nav**: Represents a major navigation block. It groups links to other pages or to parts of the current page.
- ▶ **Footer**: Defines a footer for a document or section
- ▶ **Article**: Defines an article
- ▶ **Aside**: The "aside" element is a section that somehow related to main content, but it can be separate from that content
- ▶ **Section**: Defines a section in a document



HTML5 Form Elements

HTML5 – Form Elements

Element	Description	
<datalist>	List of values to a text input element	
<meter>	Indicates a numeric value within a range	
<Progress>	Indicates percentage of the task completed	
<output>	Display text output	



Not all major browsers support all the new form elements.
If they are not supported, they will behave as regular text fields.

output

HTML5 – Form Input Types

Input Type	Description
color	used for input fields that should contain a color
date	used for input fields that should contain a date
email	Used for input fields that should contain an e-mail address
month	Allows the user to select a month and year
week	Allows the user to select a week and year
number	Defines a numeric input field
range	Defines a control for entering a number whose exact value is not important (Slider). Default range is 0-100.
search	Used for search fields (a search field behaves like a regular text field).
tel	Used for input fields that should contain a telephone number.
url	Used for input fields that should contain a URL address
time	Allows the user to select a time (no time zone)

HTML5 – Form Attributes

Input Type Attribute	Description
autocomplete	Specifies whether a form or input field should have autocomplete on or off.
novalidate	Specifies that the form data should not be validated when submitted
autofocus	Specifies that the input field should automatically get focus when the page loads.
form	Specifies one or more forms an <input> element belongs to.
formaction	Specifies the URL of a file that will process the input control when the form is submitted.
formenctype	Specifies how the form data should be encoded when submitted (only for forms with method="post").
formmethod	Defines the HTTP method for sending form-data to the action URL.
formnovalidate	Attribute overrides the novalidate attribute of the <form> element.
formtarget	Specifies a name or a keyword that indicates where to display the response that is received after submitting the form.

HTML5 – Form Attributes Contd...

Input Type Attribute	Description
multiple	Specifies that the user is allowed to enter more than one value in the <input> element.
pattern	Specifies a regular expression that the <input> element's value is checked against.
placeholder	Specifies a hint that describes the expected value of an input field (a sample value or a short description of the format).
required	Specifies that an input field must be filled out before submitting the form.
step	Specifies the legal number intervals for an <input> element

HTML5 Graphic Elements

HTML5 - Graphic Elements

► Canvas

- <canvas> tag is used to draw graphics on the fly via scripting (usually JavaScript)
- <canvas> element has no drawing abilities of its own (it is only a container for graphics) - you must use a script to actually draw the graphics.
- getContext() method returns an object that provides methods and properties for drawing on the canvas.

► SVG

- SVG stands for Scalable Vector Graphics which is used to draw graphics on the web.
- <svg> element is a container for SVG graphics
- It is a language for describing 2D-graphics and graphical applications in XML and the XML is then rendered by an SVG viewer.

HTML5 - Graphic Elements Contd...

Canvas	SVG
Resolution dependent	Resolution independent
2D graphics with javascript	2D graphics in XML
No support for event handlers	Support for event handlers
Poor text rendering capabilities	Best suited for applications with large rendering areas
Well suited for graphic-intensive games	Not suited for game applications
Raster based (composed of pixel)	Vector based (composed of shapes)
Modified through script only	Modified through script and CSS
Single HTML element similar to in behavior	Multiple graphical elements, which become the part of the DOM



HTML5 Audio and Video

HTML5 – Audio and Video Elements

► Audio

- HTML5 provides a standard for playing audio files.
- To play an audio file in HTML, use the `<audio>` element.
- The controls attribute adds audio controls, like play, pause, and volume.
- Text between the `<audio>` and `</audio>` tags will display in browsers that do not support the `<audio>` element.
- Supported audio file formats are wav, ogg and mp3.



HTML5 – Audio and Video Elements

► Video

- HTML5 provides a standard for playing video files.
- To play an video file in HTML, use the `<video>` element.
- The controls attribute adds video controls, like play, pause, and volume.
- It is a good idea to always include width and height attributes.
- The effect will be that the page will change (or flicker) while the video loads.
- Supported video file formats are ogg, webm and mp4.





CSS3

What is CSS3?

- ▶ CSS3 stands for Cascading Style Sheet.
- ▶ CSS defines **how HTML elements are to be displayed**.
- ▶ CSS3 is the latest standard for CSS.
- ▶ CSS3 is completely backwards-compatible with earlier versions of CSS.
- ▶ CSS3 is compatible with all web browsers.
- ▶ Vendor prefixes for CSS rules.



Browser	Prefix
Mozilla (Firefox)	-moz
Webkit (Safari, Chrome)	-webkit
Opera	-o
Internet Explorer	-ms

CSS3 Modules

CSS3 - Modules

- ▶ CSS3 has been split into "modules".
- ▶ It contains the "old CSS specification" which has been split into smaller pieces.
- ▶ Most of the CSS3 Modules are W3C Recommendations, and CSS3 properties are implemented in all modern browsers.
- ▶ Some of the important CSS3 modules are:
 - New Selectors
 - New Pseudo elements
 - New Pseudo classes
 - CSS3 colors
 - CSS3 gradients
 - New Properties
 - Animations
 - Transitions
 - Transform

CSS3 Selectors and Pseudo Elements

CSS3 – New Selectors

Selector	Description
begins with	The “ begins with ” selector uses the caret (^) character to match an element with an attribute value beginning with the value specified in the selector.
ends with	The “ ends with ” selector uses the dollar sign (\$) to match an element with an attribute value ending with the value specified.
contains	The “ contains ” selector uses the asterisk character (*) to match an element with an attribute value containing at least one instance of the value specified.

CSS3 – New Pseudo Elements

Selector	Description
:first-of-type	The :first-of-type selector matches every element that is the first child, of a particular type, of its parent.
:last-of-type	The :last-of-type selector matches every element that is the last child, of a particular type, of its parent.
:only-of-type	The :only-of-type selector matches every element that is the only child of its type, of its parent.
:first-child	The :first-child selector is used to select the specified selector, only if it is the first child of its parent.
:last-child	The :last-child selector matches every element that is the last child of its parent.
:only-child	The :only-child selector matches every element that is the only child of its parent.

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CSS3 Colors and Gradients

CSS3 – Colors

► RGBA

- An RGBA colour value is specified with: **rgba(red, green, blue, alpha)**.
- The alpha parameter is a number between **0.0 (fully transparent)** and **1.0 (fully opaque)**.

► HSLA

- An HSLA colour value is specified with: **hsla (hue, saturation, lightness, alpha)**.
- The alpha parameter defines the opacity. The alpha parameter is a number between **0.0 (fully transparent)** and **1.0 (fully opaque)**.

► Opacity

- The CSS3 opacity property sets the opacity for the whole element (both background color and text will be opaque/transparent).
- The opacity property value must be a number between 0.0 (fully transparent) and 1.0 (fully opaque).

CSS3 – Gradients

- ▶ CSS3 gradients display smooth transitions between two or more specified colours.
- ▶ Earlier, images were used for the gradient effect. However, by using CSS3 gradients we can reduce download time and bandwidth usage. In addition, elements with gradients look better when zoomed, because the gradient is generated by the browser.



- ▶ CSS3 defines two types of gradients:

- **Linear gradients : (down/up/left/right/diagonally)**

- background: linear-gradient(direction, color-stop1, color-stop2, ...);

- **Radial gradients : (defined by the center)**

- background: radial-gradient(shape size at position, start-color, ..., last-color);

CSS3 Animations

CSS3 – Animations

- ▶ CSS3 animations can replace animations created by Flash and JavaScript in existing web pages.
- ▶ The @keyframes rule is where the animation is created.
- ▶ When an animation is created in the @keyframe rule, you must bind it to a selector, otherwise the animation will have no effect.
- ▶ Bind the animation to a selector (element) by specifying at least these two properties:
 - the name of the animation
 - the duration of the animation
- ▶ If the duration part is not specified, the animation will have no effect, because the default value is 0.



CSS3 Transitions and Transformations

CSS3 – Transitions

- ▶ CSS3 transitions are effects that let an element gradually change from one style to another.
- ▶ For transitions we specify 2 things:
 - The CSS property you want to add an effect to
 - The duration of the effect
- ▶ If the duration part is not specified, the transition will have no effect, because the default value is 0.
- ▶ The **transition-timing-function** property have the following values
 - **ease:** transition effect with a slow start, then fast then end slow. (default)
 - **linear:** transition effect with the same speed from start to end.
 - **ease-in:** transition effect with a slow start
 - **ease-out:** transition effect with a slow end
 - **ease-in-out:** transition effect with a slow start and end.



CSS3 – Transformation

- ▶ A transformation is an effect that lets an element change shape, size and position.
- ▶ You can transform your elements using 2D or 3D transformation.
- ▶ With CSS3 transform, we can move, scale, turn, spin, and stretch elements.
- ▶ 2d transform methods

Method Name	Description
translate	Moves an element from its current position (according to the parameters given for the X-axis and the Y-axis).
rotate	Rotates an element clockwise or counter-clockwise according to a given degree.
scale	Increases or decreases the size of an element (according to the parameters given for the width and height).
skewX	Skews an element along the X-axis by the given angle
skewY	Skews an element along the Y-axis by the given angle
matrix	Combines all the 2D transform methods into one

Thank you

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