

02 HTML5 & CSS3

(MCA) CSA-507 Web Development
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HTML
(content)



CSS
(design)



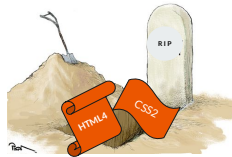
JS
(interactivity)



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HTML4 & CSS2

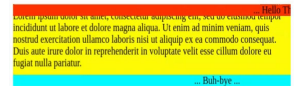
- HTML still doing minor styling
- HTML not performing for native animations
- Need for modern UI building capabilities for CSS
- Native animations in CSS
- Neither old wine in new skin, nor new wine in old skin



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HTML4 Animation

```
<html>
<body>
  <marquee bgcolor="red">
    ... Hello There ...
  </marquee>
  <marquee direction="up"
    bgcolor="yellow">
    Lorem ipsum dolor sit amet, consectetur
    adipiscing elit, sed do eiusmod tempor incididunt
    ut labore et dolore magna aliqua. Ut enim ad
    minim veniam, .....
  </marquee>
  <marquee direction="right" bgcolor="aqua">
    ... Buh-bye ...
  </marquee>
</body>
</html>
```



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Flash

- FutureSplash -> Macromedia Flash -> Adobe Flash -> Adobe Animate
- Non-interactive animations (videos, movies, GIFs) & Interactive animations (games)
- Development via Drag-and-drop & Programming Interfaces
- Heavy-content & External plug-in



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Applets & ActiveX

- Java Applet
- Microsoft ActiveX



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HTML5 features ...

- Less styling markup
- More semantic markup
- Accessibility (use) and Design (device)
- More separation of concerns (HTML-CSS, HTML-JS, CSS-JS)
- Native support for media
- More Components & APIs (canvas, web storage, geolocation, etc.)



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Markup, no longer HTML

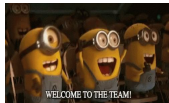
- "If CSS can do it, then HTML doesn't need it".
 - Styling related html markup elements (& attributes of certain elements) are deprecated
- Includes:-
 - Elements (frameset/frame, applet, br/br, center, etc.) & Attributes (bgcolor, marginwidth, etc.)
- Following were retained:-
 - Necessary (h1-h6, table, iframe, etc.) & Conforming (lang on script, border on img, etc.)



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Newer HTML markup

- "Semantic meaning to content".
 - No longer just div/span or form/table
- Includes :-
 - Layout (header, nav, section, article, footer, etc)
 - Quantitative (time, figure, progress, meter, etc)
 - And more...



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Accessibility and Design

- 'a11y' (accessibility)
- "alt" attribute to images | "aria-*" attributes | tabindex | label "for" attr
- <header>, <main>, <nav> over <div>, | <button> for clickable <a>, <div>,
- Multimedia input & output support
- Target device & platform view & events



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More separation of concerns

- Styling from HTML
- Animation from HTML
- More styling to CSS
- Non-interactive animation to CSS
- Assign/Deassign HTML & CSS via JS-DOM



Native support for media

- SVG for vector images
- Sound/Music & Video/Movies
 - Native support for various common formats
- Youtube videos via iframe



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More Components & APIs

- Canvas – interactive animations, games, videos
 - XML & JS instead of 3rd party platform
- Web Storage – browser data storage
 - localStorage & sessionStorage instead of cookies
- Device's GNSS (global nav sat systems) GIS-applications



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CSS3 features ...

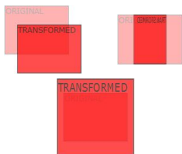
- Transform
- Transition
- Animation
- More Color, Backgrounds, Gradients
- Rounded borders; Shadowing
- Enhanced media queries for RWD



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Transform

- Translate, Rotate, Scale in 2D/3D
- Projection: Perspective view of 3D object



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Transition

- Transition: properties of elements change gradually
- "transition-*" (delay | duration | property | timing-function)



- https://www.w3schools.com/css/tryit.asp?filename=trycss3_transition_speed

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Animation

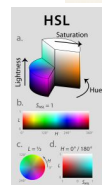
- Animate HTML without JS
- "Keyframes"
- "animation-*" (name, duration, delay, timing-function, ...)



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More Color, Backgrounds, Gradients

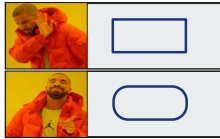
- Alpha (opacity)
 - Also to color formats
- HSL(A) color format
- "background-*" (color, image, repeat, attachment, position)
- Gradients (color transition)
 - linear, radial, conic



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Rounded borders & Shadowing

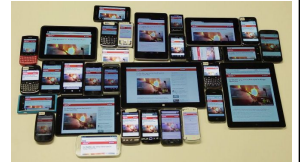
- Border-radius
- Shadow Effects
 - text- and box-



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Enhanced media queries for RWD

- @media in CSS2, device dependent
- Media queries in CSS3 : feature/property dependent
 - height, width
 - orientation



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