HTML

HTML5 is a catch-all term for a group of emerging modern web technologies

Modern web

Html5

Css

Responsive

Javascript

HTML5 is a collection of features.

You decide which individual features to add to each project.

2022 ?

HTML5 is a
work in progress

Cennydd Bowles
@Cennydd

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HTML5 is unfinished the same way the English language is unfinished. I like that analogy. #csforum12

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Many HTML5 features are useable now.

All browsers support
some of HTML5.

No browser supports
all of HTML5.

Chrome 22 Mac	91%

IE10	65%
IE9	28%
IE8	8%
IE7	5%
IE6	5%

Percentage scores based on data from http://html5test.com

Evolution

HTML1

1991

HTML4.01

1998

XHTML1

2000

XHTML2

2009

2008

?

2022

HTML 4.0.1

14 years old

A markup language
for creating static pages
viewed on desktops

HTML 5

A markup language
for a dynamic
and responsive web

Javascript

A central part of HTML5.

e.g. <canvas>

Pragmatic

Works with existing HTML4 content.

Looser syntax.

Simpler doctype

Current language

Unicode

Stylesheet

Javascript

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="utf-8">
        <link rel="stylesheet" href="style.css">
    </head>
    <body>
        <h1>HTML5</h1>
        <script src="code.js"></script>
    </body>
</html>
```

Semantic tags

Structural elements

that define parts
of a web page

Meaningful markup

"Good sites need good structure.
Pages become more accessible,
can be authored more easily,
are more maintainable,
work better with the browser,
are more searchable by Google,
provide clear document outlines,
lay a foundation for everything else"

Peter Gasston, The Modern Web

A solid structure helps
creation
maintenance
browsers
search engines
accessibility

The new semantic tags may improves authoring, readability, accessibility, and semantic value of the code produced

In HTML4 we use DIVs.

A lot.

No common vocabulary, no naming convention

html 4

1 system of headings per page, h1-h6

html 5

Multiple sections/ articles on the same page can have their own heading systems from h1-h6

We want a web page..

to work with search engines,
to be syndicatable,
to be readable by software tools

Is there still a use for DIVs?

Wrapper divs to centre a page.

As stylistic hooks to style a page which has no meaning.

html 4

html 5

<section>
<article>
<nav>
<header>
<footer>
<aside>
<main>

Works in IE6+

```
<!--[if lt IE 9]>
    <script src="html5shiv.js"></script>
<![endif]-->
```

```
article,section,nav,aside {
    display:block;
}
```

Convert existing pages, or just new pages?

<section>

A chunk of page content.

<article>

Independent cohesive chunk of content that can be republished elsewhere

Sections can contain articles.
Articles can contain sections.

```
<article id="oscars">
    <section id="nomations>
        <article id="bestActor>
            <section>De Niro</section>
            <section>Al Pacino</section>
        </article>
    </section

    <section id="ceremony>
        <section>Times</section>
        <section>Red carpet</section>
    </section>
</article>
```

Multiple heading hierarchies on the same page.

```
<section>
    <header>
        <h1>Smith & Jones Ltd.</h1>
    </header>

    <footer>
        <h1>Established 1864</h1>
    </footer>
</section>
```

ARIA roles for accessibility

ARIA Role	HTML5 Element
banner	header
complementary	aside
contentinfo	footer
navigation	nav
article	article
main	*N/A*

<aside role="compilmentary"> .. </aside>

Semantic tags

Search
Republish
Accessibility
Outliner tools

Other new HTML5 elements

<figure>
<figcaption>

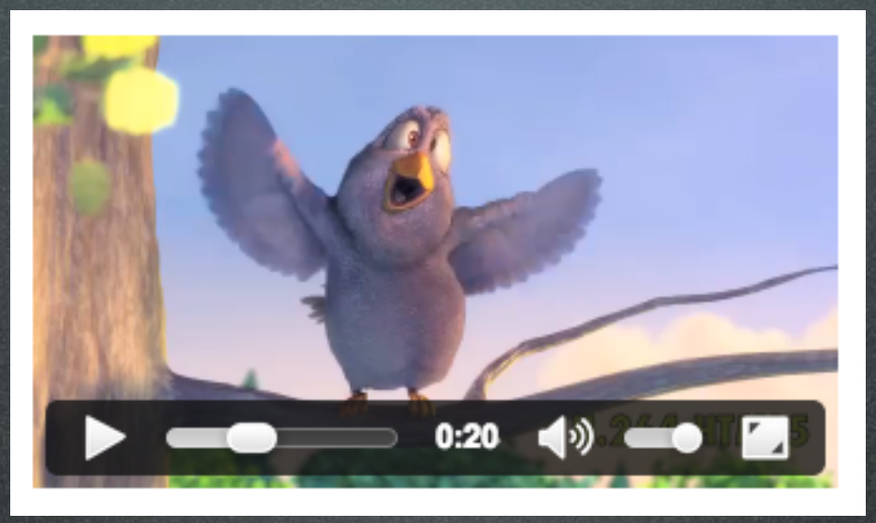
Group an image and related text.

Custom data attributes

```
<li id="rembrandt"
    data-full="Rembrandt Harmenszoon van Rijn"
    data-born="15 July 1606"
    data-file="details/rembrandt.txt"
    data-wiki="http://en.wikipedia.org/wiki/Rembrandt" >
    <img src="media/rembrandt.jpg" />
</li>
```

Create attributes, prefixed with “data-“ to elements

Video



It works on tablets, phones.

Unlike Flash.

IE9

<video> element has fallback logic built in for older browsers

Video is now a 1st class element on a web page.

Style video with CSS.

Script video with Javascript

CODECs

<source src="film.mp4" type="video/mp4">

<source src="film.ogv" type="video/ogg">

Batch convert video formats with MIRO

Subtitles

```
<track src="words.vtt" srclang="en">
<track src="parole.vtt" srclang="it">
```

WebVTT text file contains
timecodes and localised subtitles.

IE10

No copy protection or digital rights management yet

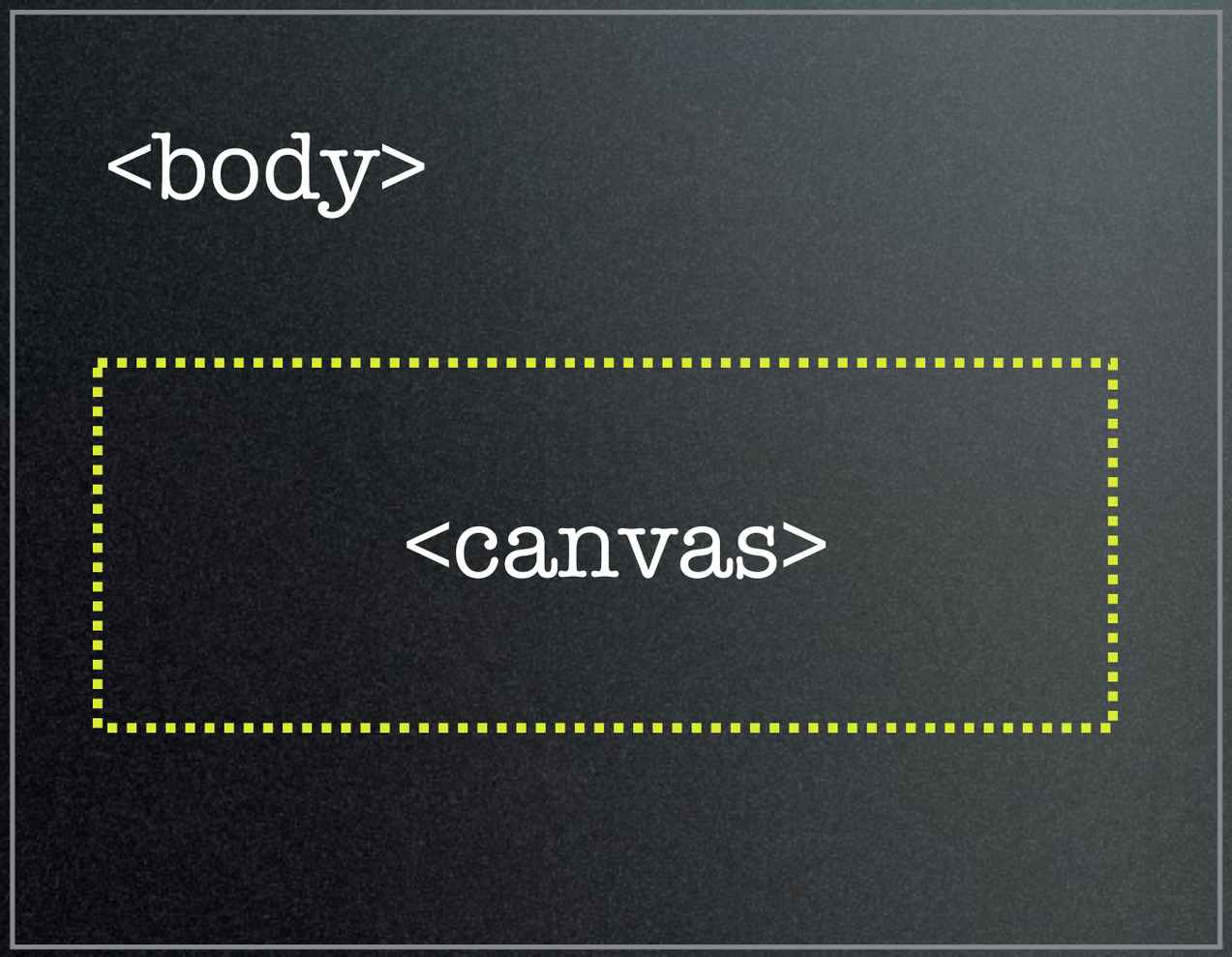
Drawing

HTML4

Displayed bitmaps,
But lacked dynamic drawing tools, for data visualisation

Canvas

index.html



Draw into a blank slate using Javascript.

IE9

Canvas

```
<canvas width="200" height="200" >
  <p>Fallback content for older browsers</p>

</canvas>
```

IE9

Canvas

Creates bitmaps

Requires Javascript

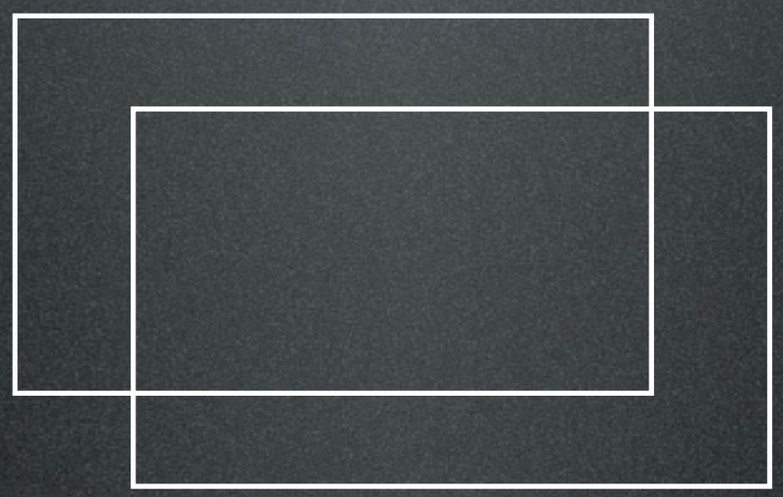
Animation

No interactivity

Canvas

Software tools
generate canvas
Javascript
for you.

Combine green/blue screen video with canvas



SVG

SVG creates resolution independent, scalable, vector graphics, stored in XML text files.

SVG?

<svg width="40px" height="80px" ></svg>

An XML description
of a scalable vector.
in a small text file.

Forms

IE10

Forms

Form validation without the need to write Javascript.

Forms

Form behaviour changes to match the device being used.

Forms

```
<input
type=email
placeholder="name@domain.com"
required
autofocus>
</input>
```

Forms

pattern="[0-9]{16}"

Regular expression style pattern matching for validation.
Only allow a number which is all digits and 16 digits in length

HTML

Local storage

IE8

Local Storage

Save state of a web page.
Data stored on local HD.
Browser specific.
Domain specific.

Simple values

```
localStorage.today = “Friday”;
console.log( localStorage.today );
```

Store objects

```
var time = { hours:”12” , minutes:”45};
localStorage.time = JSON.stringify( time );
```

Retrieve objects

```
var time = JSON.parse( localStorage.time );
```

Appcache

Tell browser to save web page locally.
Works offline : no Javascript required.

Geolocation

IE9

Geolocation

Find users location on Earth.

Pass longitude, latitude data
onto a service
like GoogleMaps

Geolocation

Browser

Background HTTP request

{ latitude , longitude }

Location information server

Public IP address
WIFI
GPS
Cell Towers

```
if (navigator.geolocation) {
  navigator.geolocation.getCurrentPosition( .. )
}
```

```
if (navigator.geolocation) {
  var options = { enableHighAccuracy : true };
  navigator.geolocation.getCurrentPosition( options )
}
```

Testing for HTML5 support

caniuse.com

html5please.com

Modernizr.js

Javascript library tests
feature support
on users browser.

Modernizr.js adds classes for support features to <html> element. Test these in CSS.

<html class="svg canvas">

.svg button { .. }

Test Modernizr support with Javascript

```
if (Modernizr.video) { .. }
```