

**HTML**



# **HYPERTEXT MARKUP LANGUAGE**

**HTML5**

**COS216**

**AVINASH SINGH**

**DEPARTMENT OF COMPUTER SCIENCE**

**UNIVERSITY OF PRETORIA**

# HTML

- HTML4 was not updated for a decade
- Many features, especially multimedia, was missing
- Third parties developed separate browser addons to provide new functionality
  - Requires additional installation
  - Vulnerable to security flaws/bugs and malware
  - No standards or cross-compatibility



# HTML

- HTML5 was released in 2014
- Released in parallel with CSS3
- Added a bunch of new features
  - Browsers took a few years to implement the new features
  - Caused addons like Adobe Flash to be discontinued



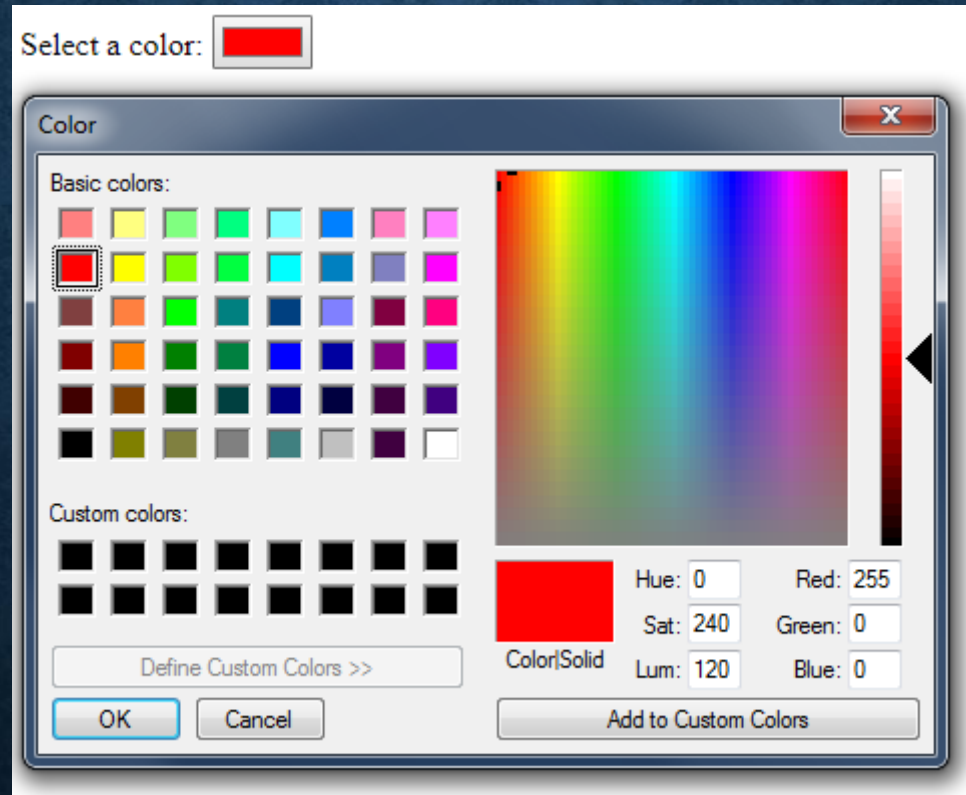
# HTML

- HTML5 provided the following
  - Advanced multimedia, such as video and audio players
  - Added canvas that can be used to draw directly in HTML
  - New ways of structuring the document, such as navigation, menus, and sections
  - Many new types of inputs with built-in functionality that previously had to be done in JS
  - Deprecating old attributes and HTML styling that can now be done in CSS3
  - Enhanced font support and selectors through CSS3
  - Better local storage, geolocation, SVG manipulation, and selectors in JS



# HTML5 - INPUTS - COLOR SELECTOR

```
<input type="color" name="favcolor" value="#ff0000">
```



# HTML5 - INPUTS - DATE SELECTOR

```
<input type="date" name="birthday">
```

Select your birthday: 01/10/1999 x ▴ ▾

October 1999 ▾ ◀ ● ▶

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

# HTML5 - INPUTS - TIME SELECTOR

```
<input type="time" name="currenttime">
```

Select the time: 04 : 20 X



# HTML5 - INPUTS - EMAIL

```
<input type="email" name="myemail">
```

Enter your email:



# HTML5 - INPUTS - SEARCH

```
<input type="search" name="mysearch">
```

Search for keywords:



# HTML5 - INPUTS - RANGE

```
<input type="range" min="1" max="100" value="50" name="percentage">
```

Select the threshold:

A horizontal range input slider. It consists of a light gray track with a darker gray thumb (slider) positioned at the 50% mark. The track is flanked by vertical lines at the minimum and maximum values.



# HTML5 – PAGE STRUCTURE

- Many new objects for structuring a page and handling navigation:
  - header
  - footer
  - article
  - section
  - nav
  - menu
  - dialog
  - figure
  - progress
  - Many more ...

# HTML5 – API

- HTML5 added new API features
- Mainly accessible through JavaScript
- **Geolocation:** determine the geographical location of the client
- **Drag-and-drop:** drag files into the browser and drop them on the website
- **Web Storage:** save data locally for later use (similar to cookies)
- **Web Workers:** sort-of multithreading for HTML and JavaScript
- **Server Sent Events:** the server can update the client page (similar to sockets)



# HTML5 - VIDEO

- Adds a video clip
- The video codec is depended on browser support

```
<video width="300" height=" 200" controls>  
  <source src="video.mp4" type="video/mp4">  
  <source src="video.webm" type="video/webm">  
  Your browser does not support the video tag.  
</video>
```



# HTML5 – VIDEO CODECS (NATIVE)

Browser	MP4	WebM	Ogg	Other
Firefox	Yes	Yes	Yes	Depends
Chrome	Yes	Yes	Yes	Depends
Opera	Yes	Yes	Yes	Depends
Safari	Yes	No	No	Probably not
Internet Explorer	Yes	No	No	Probably not



# HTML5 - VIDEO CODECS

- MP4
  - Widely supported across the web and standalone media players
  - Developed by the MPEG group in 2001 (also create MP3)
  - Supports x265: higher compression, smaller file size
  - New versions support auto resolutions: if your connection is slow, it will automatically decrease the quality to avoid buffering
- WebM
  - Developed by Google in 2010
  - Royalty-free video and audio
  - Based on Matroska (MKV) profile
  - Designed specifically for web-based streaming

# HTML5 - VIDEO CODECS

- Ogg
  - Developed by the Xiph.Org Foundation in 1993 (also create FLAC)
  - Unrestricted use without patents
  - Designed for high quality streaming



# HTML5 - YOUTUBE

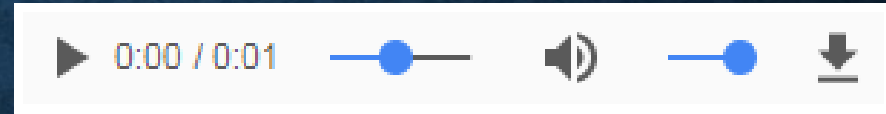
```
<iframe width="420" height="250"  
  src="https://www.youtube.com/embed/19j0Jk30eQs"></iframe>
```



# HTML5 - AUDIO

- Adds an audio clip
- The video codec is depended on browser support

```
<audio controls>  
  <source src="audio.mp3" type="audio/mpeg">  
  <source src="audio.ogg" type="audio/ogg">  
  Your browser does not support the audio element.  
</audio>
```





# HTML5 - AUDIO CODECS

Browser	MP3	Wav	Ogg	Other
Firefox	Yes	Yes	Yes	Depends
Chrome	Yes	Yes	Yes	Depends
Opera	Yes	Yes	Yes	Depends
Safari	Yes	Yes	No	Probably not
Internet Explorer	Yes	No	No	Probably not

# HTML5 - AUDIO CODECS

- MP3
  - Created by the MPEG group
  - Lossy compression, small file sizes, perfect for streaming
- Wav
  - Typically, PCM does not require decoding
  - Lossless, no compression, large files sizes, should be avoided for streaming
- Ogg
  - Created by the Xiph.Org Foundation
  - Also has lossless compression formats
  - Most are lossy compression, small file sizes, perfect for streaming



# HTML5 - CANVAS

- Allows drawing in HTML
- Requires JavaScript to manipulate the canvas
- Can be used for many things:
  - Drawing text
  - Drawing graphics and graphs
  - Create animations
  - Interactive experiences such as games

```
<canvas id="myCanvas" width="200" height="100"></canvas>
```

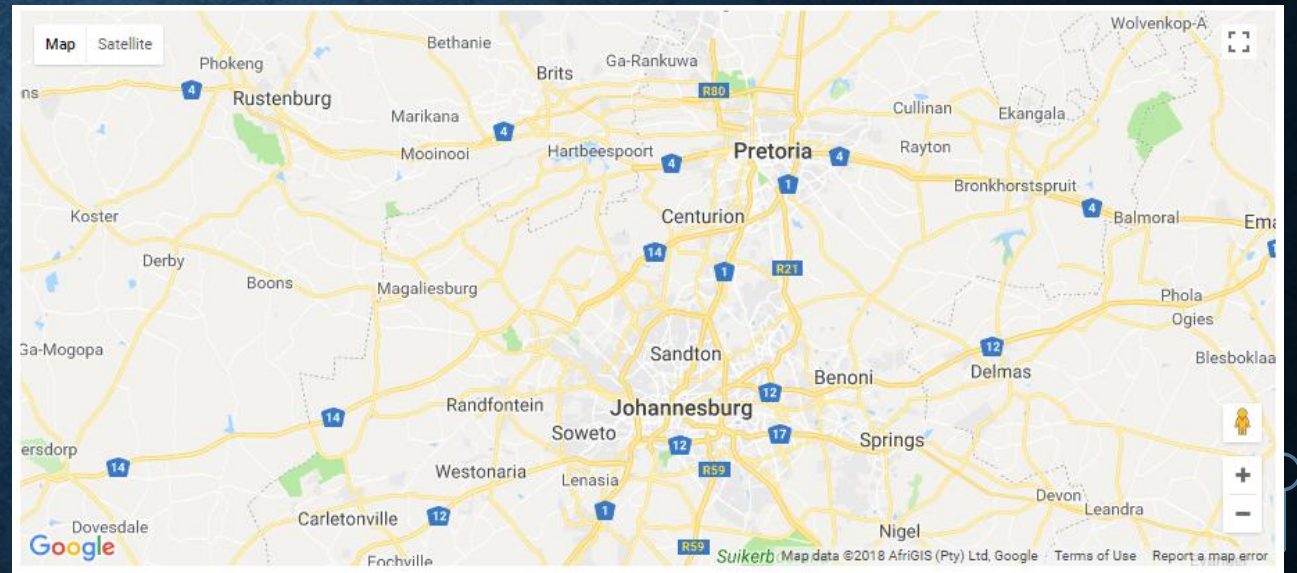
# HTML5 - CANVAS

- Examples



# HTML5 - GOOGLE MAPS

- Add Google Maps
- Not really a new HTML element, but addition is now simplified
- Requires configuration through JavaScript



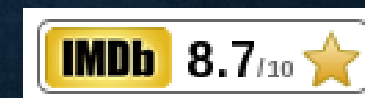
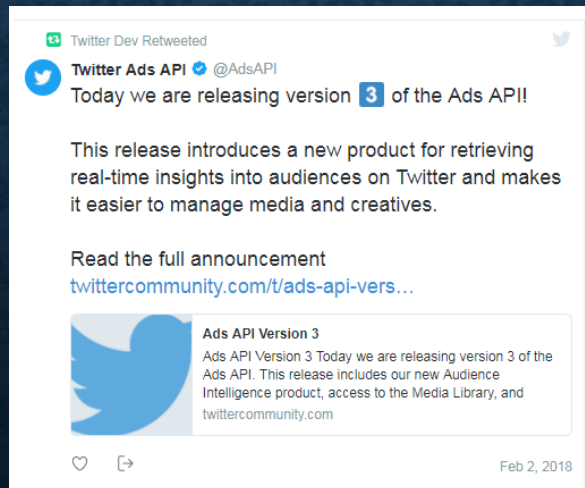
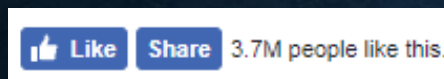
# HTML5 - INTEGRATION

- Integrate widgets from other companies
- Uses iframes or divs with some supporting JavaScript
- Code snippets can be copied from company websites
- Example: Facebook like button, Twitter feed, IMDb rating



# HTML5 - INTEGRATION

- Integrate widgets from other companies
- Uses iframes or divs with some supporting JavaScript
- Code snippets can be copied from company websites
- Example: Facebook like button, Twitter feed, IMDb rating



### Like Button Configurator

URL to Like:

Width:

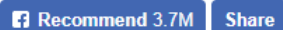
Layout:

Button Size:

Action Type:

☒ Show Friends' Faces

☒ Include Share Button



[Get Code](#)

### JavaScript SDK

IFrame

**Step 1:** Include the JavaScript SDK on your page once, ideally right after the opening body tag.

```
<div id="fb-root"></div>
<script>(function(d, s, id) {
  var js, fjs = d.getElementsByTagName(s)[0];
  if (d.getElementById(id)) return;
  js = d.createElement(s); js.id = id;
  js.src = 'https://connect.facebook.net/en_US/sdk.js#xfbml=1&version=v2.12';
  fjs.parentNode.insertBefore(js, fjs);
})(document, 'script', 'facebook-jssdk');

Step 3: Place this code wherever you want the plugin to appear on your page.



```
<div class="fb-like" data-href="https://developers.facebook.com/docs/plugins/" data-
layout="button_count" data-action="recommend" data-size="large" data-show-faces="true"
data-share="true"></div>
```


```

# HTML5 - INTEGRATION

- Do a Google search for these widgets
- Companies have a website where you can configure the widget and then get a code snippet



## What's new in **HTML 5.1**?

