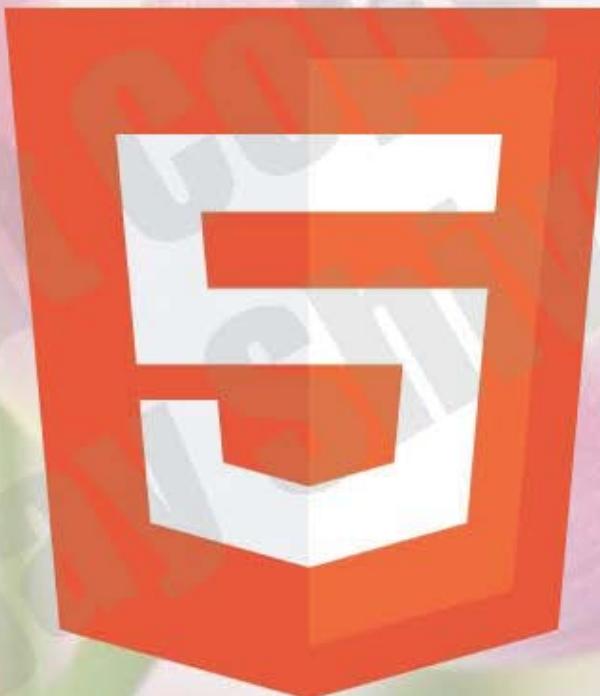


# **HTML**



**Vijay Shivakumar**

**Prepared By Vijay ShivaKumar**

**HTML**



# About Me

**Vijay ShivaKumar**

Designer | Developer | Trainer



**CERTIFIED EXPERT**  
Flex® with AIR

Training on web and Adobe products from past 10 years



# What I don not claim...

- To be the subject matter expert
- Founder of these technologies
- Teach you each and every thing about HTML 5
- What ever I teach will never change
- You wont have to learn anything on your own



# About You...?

**Designers  
Developers  
Content Writers  
Business Analysts**



# Introduction to HTML 5

## What is HTML 5 ?

New emerging web, mobile... standard

## Why do we need it ?

Increasing user demands for enhanced experience.

## Who is behind working for it

WHATWG | Web Hypertext Application Technology Working Group

Apple | Mozilla | Opera

Google, Adobe and many more contributing now.



# Why is HTML 5...?

<http://www.w3.org/TR/html-design-principles/>

**Backward Compatible**

**Utility**

**Promote Usage of HTML5**



# What HTML 5 Offers ?

## # Support for existing contents

- existing html xhtml pages should get similar results as html5
- deal with broken markups e.g. `<li> item 1`  
no corresponding closing tag `<li> item 2`
- badly nested elements e.g. `<b>a<i>b</b>c</i>`

## # Graceful degrade

- New elements to have fallback option e.g.  
`<canvas>fallback</canvas>`

## # Use existing user agent specific attributes

## # Supporting widespread practices e.g `<br>` for `<br/>`

## # Evolution not revolution

- it is better to evolve an existing design rather than throwing it away.



# What HTML 5 Offers ?

## # Utility

- Address existing problems
- Separation of concerns new meaningful tags
- Consistent DOM

## # Promote Usage of HTML5

- Well defined behavior across browsers
- Avoid complexity
- Media independence
- Accessibility



# What's new in HTML5 ?

- Easier and Simpler Tags
- New attributes for old Tags (Elements)
- New Tags (Elements)
- Plug-in free Media Support
- New input forms
- Loads of new API (Application Programming Interface)



# What's new in HTML5 ?

**Less Header Code**

**More Semantic HTML tags**

**Media Tags**

**Input Types (Form API)**

**Features that don't need JavaScript API**  
Unless you want to manipulate them.

---

**Canvas**

**Geolocations**

**Form Validation**

**Drag and Drop**

**Local Storage**

**Cross Domain Communication**

**Offline**

**Web Sockets**

**Web Workers**

**Eventually, 3D canvas**

**Features that need JavaScript API**



# Previously Header Code

HTML 4.01 Strict  
HTML 4.01 Transitional  
HTML 4.01 Frameset  
XHTML 1.0 Strict  
XHTML 1.0 Transitional  
XHTML 1.0 Frameset  
XHTML 1.1

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01  
Transitional//EN"  
"http://www.w3.org/TR/html4/loose.dtd">
```



# New Header Code

`<!DOCTYPE html>`



# Less Header Code

## New doc types

```
<!DOCTYPE html>
```

```
<html>
```

```
    <head>
```

```
        <meta charset= "utf-8" >
```

```
        <title>My First HTML 5 Page</title>
```

```
    </head>
```

```
<body></body>
```

```
</html>
```



# Less Header Code

**No need for type attribute**

```
<script src= "my.js" ></script>
```

---

```
<style>
  p{
    color:0xFF0000;
  }
</style>
```

---

```
<link href= "my.css" rel= "stylesheet" ></link>
```



# New Semantic Structure Tags

- <header></header>
  - Can be used to contain h1 to h6 tags
  - Can be used to wrap titles, logos, headings etc..
- <hgroup></hgroup>
  - Acts as a container for H1 ~ H6 tags
  - Wont be recognized as a heading of the page.

```
<header>
  <hgroup>
    <h1>
    <h2>
  </hgroup>
</header>
```



# New Semantic Structure Tags

- <footer></footer>
  - Usually at the bottom of the page
  - Can represent summary , copyright, author info etc



# New Semantic Structure Tags

- **<section></section>**
  - where the document displays several articles and can be grouped under a heading
  - key idea is to be able to group these sections under a heading.



# New Structure Tags

- **<article></article>**
  - where the element displays an independent content and can be grouped under a heading.

# Semantic Tags

HEADER

NAV

ARTICAL

HEADER

SECTION

HEADER

SECTION

FOOTER

HEADER  
ASIDE



# What if not html5 is not supported on the browser...?

- **HTML5 Shiv**

```
<!--[if lt IE 9]>
<script
  src="//html5shiv.googlecode.com/svn/trunk/html5.js" ></script>
<![endif]-->
```

- **HTML5 Shim**

```
<!--[if lt IE 9]>
<script
  src="//html5shim.googlecode.com/svn/trunk/html5.js" ></script>
<![endif]-->
```



# Even More Advanced Bridge

- <http://www.modernizr.com>

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# What if not html5 is not supported on the browser...?

- HTML5 Boiler plate by Paul Irish

**HTML**



# Plug-in Free New Media Tags



# Media Tags | Before

```
<object classid="clsid:d27cdb6e-ae6d-4c41-9f8e-0589e05e8080"
       codebase="http://download.flash/swflash.cab#versio
       n=6,0,40,0">
<param name="allowFullScreen" value=""
<param name="allowScriptAccess" value=""
<param name="src" value="http://www.
<param name="allowfullscreen" value=""
<embed type="application/x-shockwave-
       src="http://www.youtube.com/v/oHg5SJYRHA0&allow
       scriptaccess="always" allowfullscreen=""
</embed>
</object>
```



# Media Tags

## Audio | Video

- Flash was the most reliable way to play video and audio on the web.
- Roughly 99% of all desktops have Flash player.
- iPhone/iPad does not.  
They do support HTML5 <video>



# Media Tags | Video

## Audio | Video

- H.264 : It is the most widely supported format. But licensing costs browser makers \$5 million a year.

Support



Does not Support





# Media Tags | Video

## Audio | Video

- Ogg : Includes a number of independent open source codec for both audio and video. is patent-free and fully open.

**Supported**



---

**Not Supported**





# Media Tags | Video

## Fall back

- Flash Player
- YouTube link
- <http://videojs.com>
- <http://projekktor.com>
- <http://jwplayer.com>
- <http://mediaelementjs.com>



# Media Tags | Video

## Audio | Video

- **WebM/VP8 : Google, Mozilla, Adobe.**  
Is open source. IE9 is on the fence. It does not (yet) work on mobile devices.



# Form API

```
<input type="tel"/>
<input type="url"/>
<input type="time"/>
<input type="number"/>
<input type="date"/>
<input type="datetime"/>
<input type="month"/>
<input type="week"/>
<input type="email"/>
<input type="range"/>
```

```
<input type="search"/>
<input type="color"/>
<progress value="0.5"/>
<meter value="0.5"/>
<input type="text"
      x-webkit-speech/>
```



# Normal Key board in iPhone





# As Displayed in iPhone

```
<form>  
  <input type="email">  
  <input type="submit" value="Submit">
```



A standard QWERTY iPhone keyboard. The top row has letters Q, W, E, R, T, Y, U, I, O, P. The second row has A, S, D, F, G, H, J, K, L. The third row has Z, X, C, V, B, N, M. Below the keyboard are four buttons: a grey backspace button with an arrow pointing up, a blue 'Go' button, a grey '.' button, and a grey '@' button. Above the keyboard is a navigation bar with 'Previous', 'Next', 'AutoFill', and a blue 'Done' button.

```
<form>  
  <input type="url">  
  <input type="submit" value="Submit">
```



A standard QWERTY iPhone keyboard. The top row has letters Q, W, E, R, T, Y, U, I, O, P. The second row has A, S, D, F, G, H, J, K, L. The third row has Z, X, C, V, B, N, M. Below the keyboard are four buttons: a grey backspace button with an arrow pointing up, a blue 'Go' button, a grey '/' button, and a grey '.com' button. Above the keyboard is a navigation bar with 'Previous', 'Next', 'AutoFill', and a blue 'Done' button.



# As Displayed in iPhone

```
<form>  
    <input type="number">  
    <input type="submit" value="Submit" />
```



A screenshot of an iPhone's numeric keyboard. At the top, there are buttons for 'Previous', 'Next', 'AutoFill', and a blue 'Done' button. Below is a grid of numbers from 1 to 0. Underneath the numbers are additional function keys: a minus sign, a slash, a colon, a semicolon, a left parenthesis, a right parenthesis, a dollar sign, an ampersand, an '@' symbol, and a double quote. Below these are keys for '#+=', '.', ',', '?', '!', ',', and a delete key. At the bottom are buttons for 'ABC', 'space', and a blue 'Go' button.

```
    <input type="tel"/>
```



A screenshot of an iPhone's telephone keyboard. At the top, there are buttons for 'Previous', 'Next', 'AutoFill', and a blue 'Done' button. Below is a 3x3 grid of numbers and letters. The first row contains '1', '2', and '3'. The second row contains '4', '5', and '6'. The third row contains '7', '8', and '9'. Each number key has its corresponding letters below it: '1' has 'ABC', '2' has 'DEF', '3' has 'GHI', '4' has 'JKL', '5' has 'MNO', '6' has 'PQR', '7' has 'STU', '8' has 'VWX', and '9' has 'YZ'. Below the grid is a key for '+ \* #', a large '0', and a delete key.



# Form API New Attributes

- **autofocus**
- **placeholder**
- **required**
- **autocomplete**
- **pattern**
- **novalidate**



# Canvas | The Future of Graphics on the Web

- 2D drawing platform within the browser
- Uses nothing more than JavaScript and HTML - no plugins
- Extensible through a JavaScript API
- Created by Apple for dashboard widgets
- Now openly developed as a W3C spec



# Canvas v/s SVG

Canvas is a bitmap system

- *Everything is drawn as a single, flat, picture*
- *Changes require the whole picture to be redrawn*

SVG is a vector system

- *Elements to be drawn are separate DOM objects*
- *They can be manipulated individually*

SVG isn't part of HTML5

- *Future is not as rosy as canvas*



# Canvas | what is it for...?

- **Data visualization**
  - <http://raphaeljs.com/>
- **Animated graphics**
  - <http://www.canvasdemos.com/>
- **Web applications**
  - <http://mugtug.com/sketchpad/>
- **Games**
  - <http://www.pirateslovedaisies.com/>



# Canvas Browser Support

**Supported**

---



---

**Grrr....**



# Canvas

**Get context from canvas | supported 2d, 3d**

```
context.translate(x, y) : moves the context
context.strokeStyle = '#ff0000' ;
context.fillStyle = '#ff0000' ;
context.lineTo , moveTo
```



# Canvas | Fallback

- ExplorerCanvas for Internet Explorer

<http://code.google.com/p/explorercanvas>

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# Geolocation API



# Geolocation API

Firefox	IE	Chrome	Safari	Opera	iPhone	Android	Blackberry
3.5	9.0	5	5	10.63	3.2	2.1	6.0

## Sources for Geolocation

IP address / ISP – not very accurate

Wi Fi spots – when indexed will give you block and street level accuracy

GPS – will deliver very accurate location of the user



# Geolocation Implementation

`navigator.geolocation` will return **true** if supported on device

---

`getCurrentPosition()`

attempts to get the current location of the user  
asynchronously

`watchPosition()`

starts monitoring the location of a user at an interval.

`clearWatch()`

stops monitoring the location of a user



# Geolocation Implementation

## getCurrentPosition()

---

```
getCurrentPosition( successFunction, failureFunction,  
 {enableHighAccuracy: true, timeout:5000, maximumAge:6000  
 } );
```

**enableHighAccuracy:** Is a Boolean setting that allows you to use accurate GPS detection (when available).

**maximumAge:** specifies how recently (in milliseconds) location detection needs to have occurred.

**timeout :** specifies when (in milliseconds) an attempt to get a user location needs to timeout.

# Geolocation Implementation

## position Object

---

**timestamp:** returns the time when the location was detected.

**coords.latitude:** returns the latitude in degrees.

**coords.longitude:** returns the longitude in degrees.

**coords.accuracy:** returns how accurate the location is, in meters.

**coords.altitude:** returns the altitude , when available.

**coords.altitudeAccuracy:** gives altitude accuracy, in meters, if available.

**coords.speed:** returns speed (based on previous detected position),in meters/second.

**coords.heading:** returns the angle,in degrees clockwise from true north.

# Geolocation Implementation

## Error Codes

---

0: an unknown error, something went wrong getting the location

1: the user disallowed sharing his or her location

2: the position can't be found, the network is down, or GPS is unavailable.

3: timeout occurred ,as it took too long to get the user's location.



# Geolocation for unsupported devices

geo.js from

<http://code.google.com/p/geo-location-javascript/>

---

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# Validation API

HTML



# Client-Side Validation Attributes

New attributes that trigger validation

*required*

*pattern*

*min*

*max*

*step*

*maxlength*

**HTML**



# Offline API

**HTML**



# Communication API



# Communication API

Firefox	IE	Chrome	Safari	Opera	iPhone	Android	Blackberry
3.0	8.0	2	4	9.6	3.0	2.0	6.0

## Cross Document Messaging

Applications from different domains can communicate safely  
Communication between Tabs, IFrames, and Windows  
Communication is enabled via PostMessage API

**HTML**



# Storage API



# Web | Local | Session storage

- **length** Number of key/value pairs associate read-only
- **key(n)** Name of the key in position *n*
- **getItem(key)** *data* Value of the given *key*(a *DOMString*)
- **setItem(key,data)** Saves the value *data* of the *key*
- **removeItem(key)** Deletes the content of the *key*
- **clear()** Deletes all key/value pairs of this object