What is HTML5?

- HTML5 is the latest standard for HTML.
- The previous version of HTML, HTML 4.01, came in 1999, and the internet has changed significantly since then.
- HTML5 was designed to replace both HTML 4, XHTML, and the HTML DOM Level 2.
- It was specially designed to deliver rich content without the need for additional plugins. The current version delivers everything from animation to graphics, music to movies, and can also be used to build complicated web applications.
- HTML5 is also cross-platform. It is designed to work whether you are using a PC, or a Tablet, a Smartphone, or a Smart TV.

How Did HTML5 Get Started?

- HTML5 is a cooperation between the World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).
- WHATWG was working with web forms and applications, and W3C was working with XHTML 2.0. In 2006, they decided to cooperate and create a new version of HTML.
- Some rules for HTML5 were established:
    - ✔ New features should be based on HTML, CSS, DOM, and JavaScript
    - ✔ The need for external plugins (like Flash) should be reduced
    - ✔ Error handling should be easier than in previous versions
    - ✔ Scripting has to be replaced by more markup
    - ✔ HTML5 should be device-independent
    - ✔ The development process should be visible to the public

A Minimum HTML5 Document

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Title of the document</title>
</head>
<body>
Content of the document......
</body>
</html>
```

HTML5 - New Features

HTML-5 Notes   **www.vedisoft.com**

Some of the most interesting new features in HTML5 are:
- The <canvas> element for 2D drawing
- The <video> and <audio> elements for media playback
- Support for local storage
- New content-specific elements, like <article>, <footer>, <header>, <nav>, <section>
- New form controls, like calendar, date, time, email, url, search

Browser Support for HTML5

- HTML5 is a work in progress. However, all major browsers (Chrome, Firefox, Internet Explorer, Safari, Opera) support the new HTML5 elements and APIs, and continue to add new HTML5 features to their latest versions.

- The HTML 5 working group includes AOL, Apple, Google, IBM, Microsoft, Mozilla, Nokia, Opera, and hundreds of other vendors.

New Elements in HTML5

- The internet, and the use of the internet, has changed a lot since 1999, when HTML 4.01 became a standard.

- Today, several elements in HTML 4.01 are obsolete, never used, or not used the way they were intended. All those elements are removed or re-written in HTML5.

- To better handle today's internet needs, HTML5 has also included new elements for drawing graphics, displaying media content, for better page structure and better form handling, and several new APIs for drag and drop, for finding your geological location, for storing local data, and more.

The New <canvas> Element
<canvas>   Defines graphic drawing using JavaScript

New Media Elements
<audio>   Defines sound or music content
<video>   Defines video or movie content
<source>   Defines sources for <video> and <audio>
<track>   Defines tracks for <video> and <audio>
<embed>   Defines containers for external applications (like plug-ins)

New Form Elements
<datalist>   Defines pre-defined options for input controls

<keygen>	Defines a key-pair generator field (for forms)
<output>	Defines the result of a calculation

New Semantic/Structural Elements

<header>	Defines a header for the document or a section
<nav>	Defines navigation links in the document
<section>	Defines a section in the document
<article>	Defines an article in the document
<aside>	Defines content aside from the page content
<footer>	Defines a footer for the document or a section
<details>	Defines additional details that the user can view or hide
<summary>	Defines a visible heading for a <details> element
<figure>	Defines self-contained content, like illustrations, diagrams, photos, code listings, etc.
<figcaption>	Defines a caption for a <figure> element
<mark>	Defines marked or highlighted text
<time>	Defines a date/time
<bdi>	Defines a part of text that might be formatted in a different direction from other text outside it
<wbr>	Defines a possible line-break
<dialog>	Defines a dialog box or window
<command>	Defines a command button that a user can invoke
<meter>	Defines a scalar measurement within a known range (a gauge)
<progress>	Defines the progress of a task
<ruby>	Defines a ruby annotation (for East Asian typography)
<rt>	Defines an explanation/pronunciation of characters (for East Asian typography)
<rp>	Defines what to show in browsers that do not support ruby annotations

Removed Elements

The following HTML 4.01 elements has been removed from HTML5:

- <acronym>
- <applet>
- <basefont>
- <big>
- <center>
- <dir>
- <font>
- <frame>
- <frameset>
- <noframes>

- <strike>
- <tt>

Semantic = Meaning.

Semantic elements = Elements with meaning.

What are Semantic Elements?

- A semantic element clearly describes its meaning to both the browser and the developer.
- Examples of non-semantic elements: <div> and <span> - Tells nothing about its content.
- Examples of semantic elements: <form>, <table>, and <img> - Clearly defines its content.

Browser Support
Internet Explorer 9+, Firefox, Chrome, Safari and Opera supports the semantic elements described in this chapter.

New Semantic Elements in HTML5

- ✔ Many of existing web sites today contains HTML code like this: <div id="nav">, <div class="header">, or <div id="footer">, to indicate navigation links, header, and footer.
- ✔ HTML5 offers new semantic elements to clearly define different parts of a web page:

  - ✔ <header>
  - ✔ <nav>
  - ✔ <section>
  - ✔ <article>
  - ✔ <aside>
  - ✔ <figure>
  - ✔ <figcaption>
  - ✔ <footer>
  - ✔ <details>
  - ✔ <summary>
  - ✔ <mark>
  - ✔ <time>

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

HTML5 <section> Element

- The <section> element defines a section in a document.

- According to W3C's HTML5 documentation: "A section is a thematic grouping of content, typically with a heading."

Example
<section>
 <h1>WWF</h1>
 <p>The World Wide Fund for Nature (WWF) is....</p>
</section>

Example

<!DOCTYPE html>
<html>
<body>

<section>
 <h1>WWF</h1>
  <p>The World Wide Fund for Nature (WWF) is an international organization working on issues regarding the conservation, research and restoration of the environment, formerly named the World Wildlife Fund. WWF was founded in 1961.</p>
</section>

<section>
 <h1>WWF's Panda symbol</h1>
 <p>The Panda has become the symbol of WWF. The well-known panda logo of WWF originated from a panda named Chi Chi that was transferred from the Beijing Zoo to the London Zoo in the same year of the establishment of WWF.</p>
</section>

</body>
</html>

HTML5 <article> Element

- The <article> element specifies independent, self-contained content.

- An article should make sense on its own and it should be possible to distribute it independently from the rest of the web site.

- Examples of where an <article> element can be used:
  - ✔ Forum post
  - ✔ Blog post
  - ✔ News story
  - ✔ Comment

Example
```
<article>
 <h1>Internet Explorer 9</h1>
 <p>Windows Internet Explorer 9 (abbreviated as IE9) was released to
 the  public on March 14, 2011 at 21:00 PDT.....</p>
</article>
```

Example
```
<!DOCTYPE html>
<html>
<body>

<article>
 <h1>Internet Explorer 9</h1>
 <p>Windows Internet Explorer 9 (abbreviated as IE9) was released to
 the  public on March 14, 2011 at 21:00 PDT.....</p>
</article>

</body>
</html>
```

HTML5 <nav> Element

- The <nav> element defines a set of navigation links.

- The <nav> element is intended for large blocks of navigation links. However, not all links in a document should be inside a <nav> element!

Example
```
<nav>
<a href="/html/">HTML</a> |
<a href="/css/">CSS</a> |
```

```
<a href="/js/">JavaScript</a> |
<a href="/jquery/">jQuery</a>
</nav>
```

Example
```
<!DOCTYPE html>
<html>
<body>

<nav>
<a href="/html/">HTML</a> |
<a href="/css/">CSS</a> |
<a href="/js/">JavaScript</a> |
<a href="/jquery/">jQuery</a>
</nav>

</body>
</html>
```

HTML5 <aside> Element

- The <aside> element defines some content aside from the content it is placed in (like a sidebar).

- The aside content should be related to the surrounding content.

Example
```
<p>My family and I visited The Epcot center this summer.</p>
<aside>
  <h4>Epcot Center</h4>
  <p>The Epcot Center is a theme park in Disney World, Florida.</p>
</aside>
```

Example
```
<!DOCTYPE html>
<html>
<body>

<p>My family and I visited The Epcot center this summer.</p>

<aside>
<h4>Epcot Center</h4>
<p>The Epcot Center is a theme park in Disney World, Florida.</p>
```

</aside>

</body>
</html>

HTML5 \<header\> Element

- The \<header\> element specifies a header for a document or section.

- The \<header\> element should be used as a container for introductory content.

- You can have several \<header\> elements in one document.

- The following example defines a header for an article:

Example
```
<article>
 <header>
  <h1>Internet Explorer 9</h1>
  <p><time pubdate datetime="2011-03-15"></time></p>
 </header>
 <p>Windows Internet Explorer 9 (abbreviated as IE9) was released to
 the  public on March 14, 2011 at 21:00 PDT.....</p>
</article>
```

Example
```
<!DOCTYPE html>
<html>
<body>

<article>
 <header>
  <h1>Internet Explorer 9</h1>
  <p><time pubdate datetime="2011-03-15"></time></p>
 </header>
 <p>Windows Internet Explorer 9 (abbreviated as IE9) was released to
 the  public on March 14, 2011 at 21:00 PDT.....</p>
</article>

</body>
</html>
```

HTML5 <footer> Element

- The <footer> element specifies a footer for a document or section.

- A <footer> element should contain information about its containing element.

- A footer typically contains the author of the document, copyright information, links to terms of use, contact information, etc.

- You can have several <footer> elements in one document.

Example
```
<footer>
 <p>Posted by: Hege Refsnes</p>
 <p><time pubdate datetime="2012-03-01"></time></p>
</footer>
```

Example
```
<!DOCTYPE html>
<html>
<body>

<footer>
 <p>Posted by: Hege Refsnes</p>
 <p><time pubdate datetime="2012-03-01"></time></p>
</footer>

</body>
</html>
```

HTML5 <figure> and <figcaption> Elements

- The <figure> tag specifies self-contained content, like illustrations, diagrams, photos, code listings, etc.

- While the content of the <figure> element is related to the main flow, its position is independent of the main flow, and if removed it should not affect the flow of the document.

- The <figcaption> tag defines a caption for a <figure> element.

- The <figcaption> element can be placed as the first or last child of the <figure> element.

Example

```
<figure>
  <img src="img_pulpit.jpg" alt="The Pulpit Rock" width="304" height="228">
  <figcaption>Fig1. - The Pulpit Pock, Norway.</figcaption>
</figure>
```

Example

```
<!DOCTYPE html>
<html>
<body>

<p>The Pulpit Rock is a massive cliff 604 metres (1982 feet) above Lysefjorden, opposite the Kjerag plateau, in Forsand, Ryfylke, Norway. The top of the cliff is approximately 25 by 25 metres (82 by 82 feet) square and almost flat, and is a famous tourist attraction in Norway.</p>

<figure>
  <img src="img_pulpit.jpg" alt="The Pulpit Rock" width="304" height="228">
  <figcaption>Fig.1 - The Pulpit Rock, Norway.</figcaption>
</figure>

</body>
</html>
```

Can We Start Using These Semantic Elements?

- The elements explained above are all block elements (except <figcaption>).

- To get these elements to work properly in older browsers, set the display property to block in your style sheet (this causes older browsers to render these elements correctly):

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

Problem With Internet Explorer 8 And Earlier

- IE8 and earlier does not know how to render CSS on elements that it doesn't recognize. You cannot style new HTML5 elements like <header>, <section>, <footer>, <aside>, <nav>,

<article>, <figure>.

- Thankfully, Sjoerd Visscher has discovered a JavaScript workaround called HTML5 Shiv; to enable styling of HTML5 elements in versions of Internet Explorer prior to version 9.

- You can download and read more about the HTML5 Shiv at: http://code.google.com/p/html5shiv/

- To enable the HTML5 Shiv (after downloading), insert the following code into the <head> element:

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