3 Introduction to Web Programming

3.1 Introduction

Today most of the applications focus on the Internet, where the applications can be viewed in a standard Web Browser. Static Web pages are based on HTML and CSS. In order to create more advanced applications, we need more powerful tools.

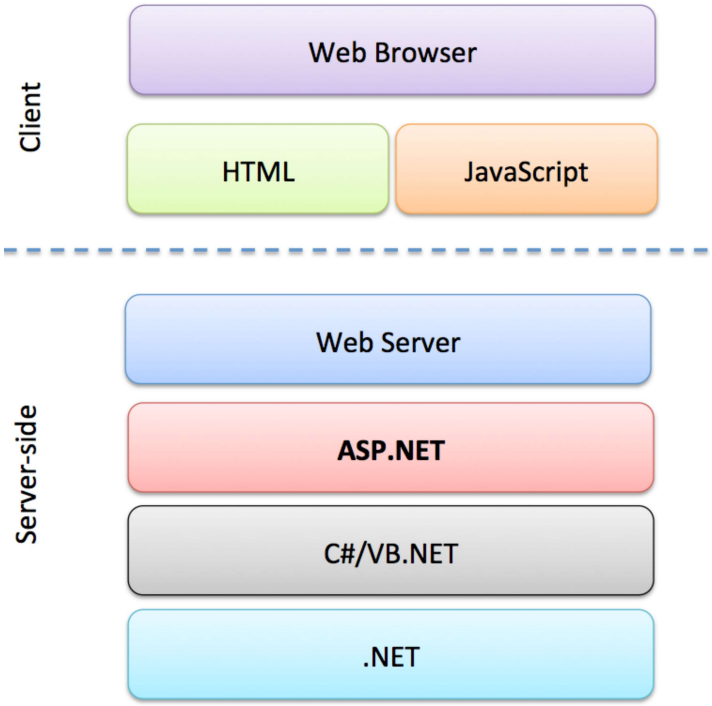
A useful web site for learning more about web development: http://www.w3schools.com

Important frameworks and tools for creating dynamic web pages:

- ASP.NET
- AJAX/ ASP.NET AJAX
- JavaScript

- Silverlight

These frameworks and tools will be explained below.



3.2 Web Browser

The purpose of a web browser is to read HTML documents and compose them into visual or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page.

Today we have the following major Web Browsers:

- Internet Explorer (by Microsoft)
- Firefox (by Mozilla)
- Chrome (by Google)
- Safari (by Apple)
- Opera (by Opera from Norway)

3.3 HTML

HTML, which stands for HyperText Markup Language, is the predominant markup language for web pages. HTML is the basic building-blocks of webpages.

HTML is written in the form of HTML elements consisting of tags, enclosed in angle brackets (like <html>), within the web page content. HTML tags normally come in pairs like <h1> and </h1>. The first tag in a pair is the start tag, the second tag is the end tag (they are also called opening tags and closing tags). In between these tags web designers can add text, tables, images, etc.

Below we see a simple a HTML web page:

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

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>
</html>
```

A useful web site for learning more about HTML: http://www.w3schools.com/html

3.4 CSS

Web browsers can also refer to Cascading Style Sheets (CSS) to define the appearance and layout of text and other material.

The W3C, maintainer of both the HTML and the CSS standards

A useful web site for learning more about CSS: http://www.w3schools.com/css

3.5 JavaScript

JavaScript is an object-oriented scripting language basically used to create dynamic web pages. JavaScript is primarily used in the form of client-side JavaScript, implemented as part of a web browser in order to provide enhanced user interfaces and dynamic websites.

Below we see a simple a HTML web page with JavaScript:

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

<h1>My First JavaScript</h1>
<p>Click the button to display the date.</p>
<p id="demo"></p>

<button type="button" onclick="myFunction()">Try it</button>

<script>
function myFunction()
{
  document.getElementById("demo").innerHTML = Date();
}
```

```
</script>

</body>
</html>
```

A useful web site for learning more about JavaScript: http://www.w3schools.com/js

3.6 ASP.NET

ASP.NET is a web application framework developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

ASP.NET is part of the Visual Studio package.

It was first released in January 2002 with version 1.0 of the .NET Framework, and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language, such as C# and VB.NET.

ASP.NET web pages or webpage, known officially as Web Forms], are the main building block for application development. Web forms are contained in files with an ".aspx" extension.

3.7 AJAX/ ASP.NET AJAX

AJAX is an acronym for Asynchronous JavaScript and XML. AJAX is a group of interrelated web development methods used on the client-side to create interactive web applications. With Ajax, web applications can send data to, and retrieve data from, a server asynchronously (in the background) without interfering with the display and behavior of the existing page.

ASP.NET AJAX is a set of extensions to ASP.NET developed by Microsoft for implementing AJAX functionality.

3.8 Silverlight

Microsoft Silverlight is an application framework for writing and running browser plug-ins or other rich internet applications, with features and purposes similar to those of Adobe Flash. The run-time environment for Silverlight is available as a plug-in for most web browsers. Silverlight is also one of the two application development platforms for Windows Phone 7/8.

The latest version is Silverlight 5.0.

Silverlight is based on WPF, so in Silverlight applications, user interfaces are declared in Extensible Application Markup Language (XAML) and programmed using a subset of the .NET Framework.