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ASP .Net

Enabling Objectives

After completing this module, you will be able to explain about the basics of ASP.Net

Key Topics

- Introduction to Web-Programming and Working with ASP.NET
- Building ASP.NET pages
- Building ASP.NET Application
- Web services

Introduction to Web-Programming and Working with ASP.NET

Web Applications

- Any application which is based on WWW (World Wide Web) architecture is called a Web application.

- Web applications are multi-tiered applications.

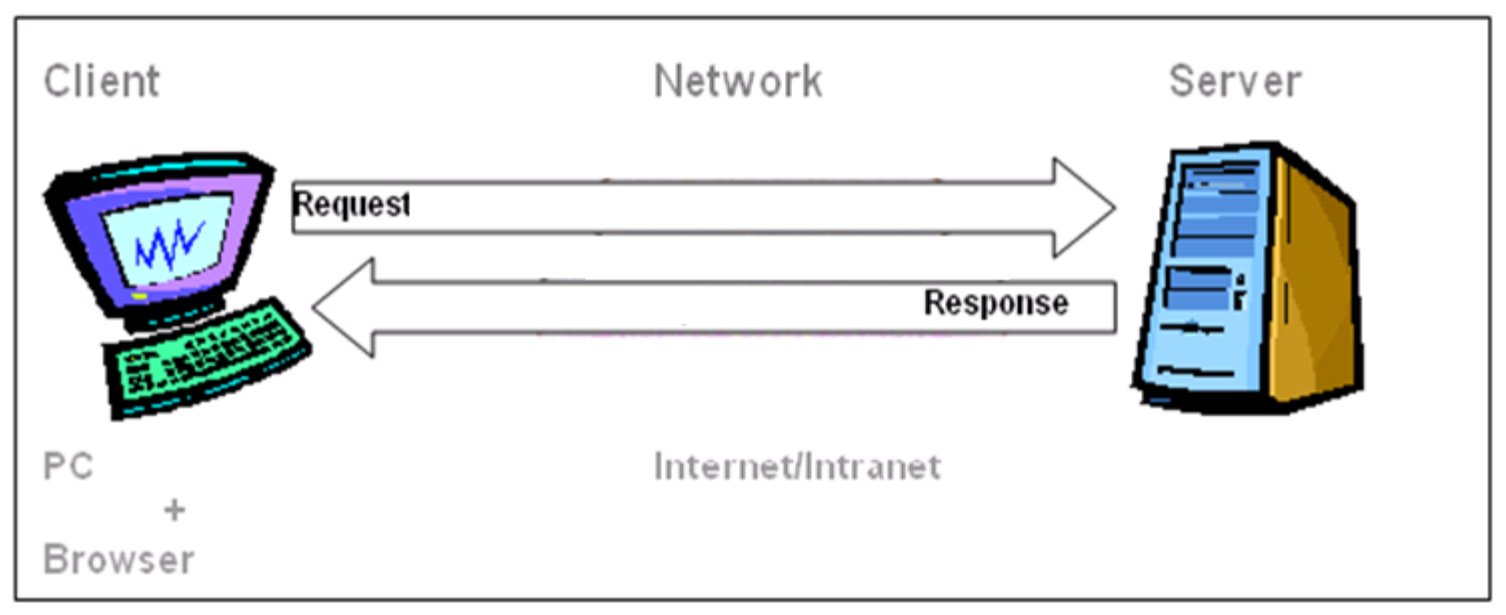
- The minimal requirements of Web applications are:
  -Browser (Internet Explorer, Mozilla, Netscape, and so on)
  -Web Server (IIS, Tomcat)
  -Network (Internet/Intranet)

Web Applications

- The .NET Framework is a managed execution environment that provides a variety of services to its running applications.
- XML, SOAP, and HTTP - open platforms used in Web Application development.
- Web Page can be Static or Dynamic.

Web Application Architecture

- Client-Server Architecture:
  - There can be multiple clients connected to a single server for the application hosted in the server via a network.



Part of the Dot Net Framework

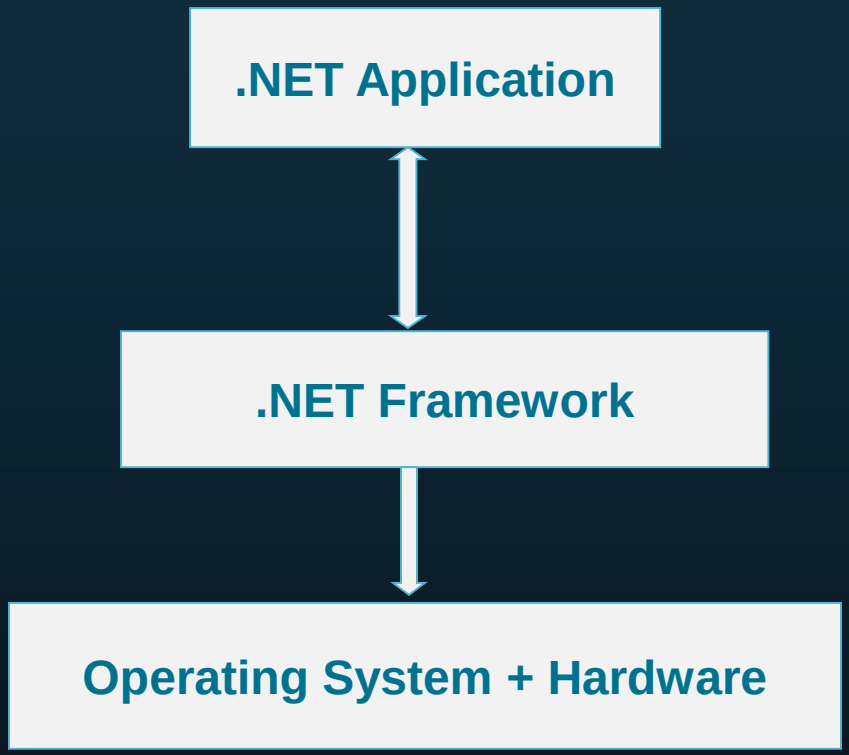
- ASP.NET is part of the Microsoft.NET framework.
- Visual Studio is the recommended tool for developing ASP.NET applications.
- Visual Studio is multi-targeted which allows to create applications against the ASP.NET 2.0,3.5,4.0,4.5,4.7 frameworks.
- To build an ASP.NET page, an application should take advantage of the features of the .NET Framework.
- ASP.NET Framework consists of two parts:
  -Framework Class Library
  -Common Language Runtime [CLR]

ASP.Net and its Framework

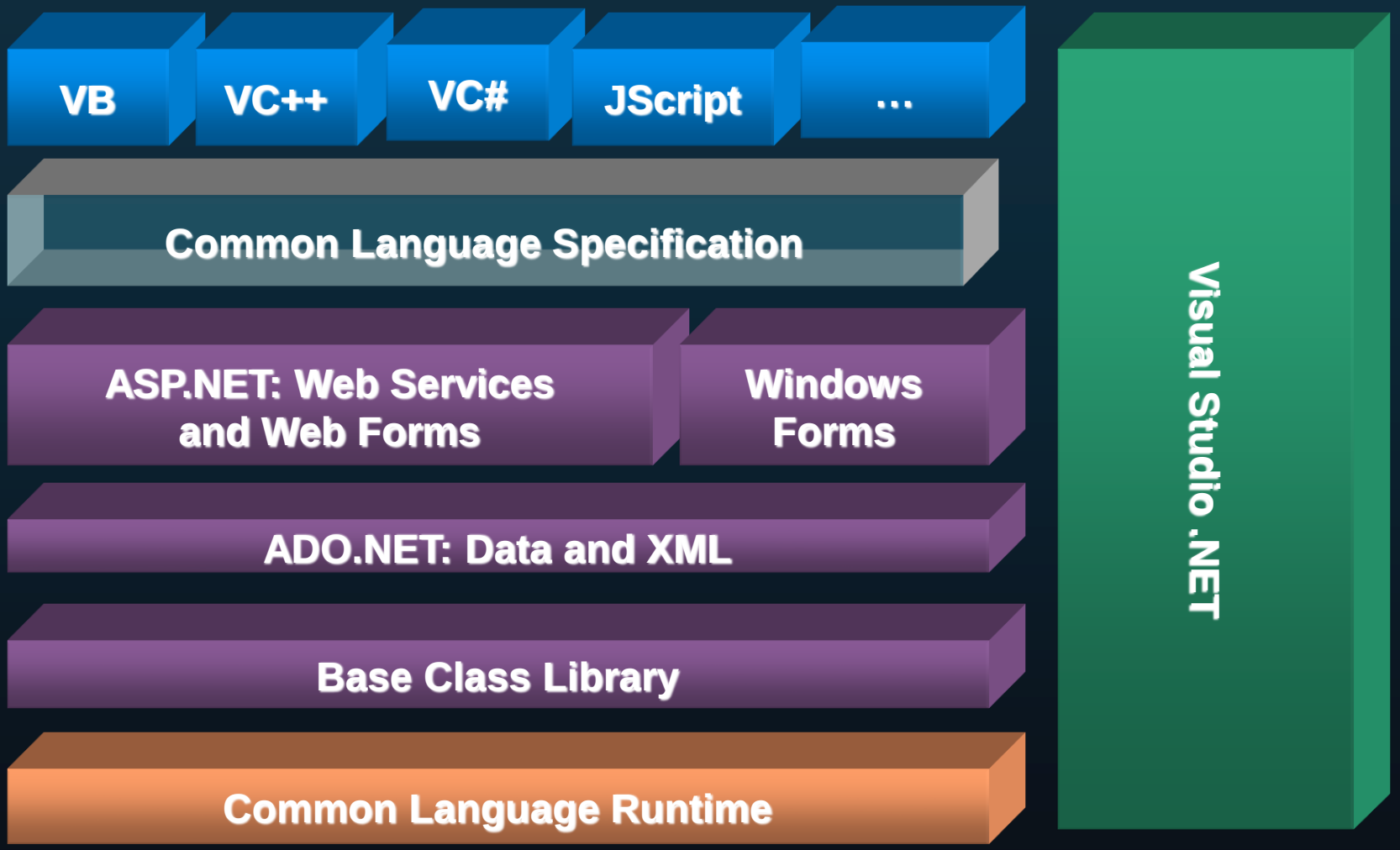
What is ASP?

- Microsoft introduced ASP (Active Server Pages) in November 1996.
- ASP offered the efficiency of ISAPI applications
- An ASP file is just the same as an HTML file
- An ASP file can contain text, HTML, XML, and scripts
- Scripts in an ASP file are executed on the server
- An ASP file has the file extension “.asp”

What is ASP.NET?



Framework, Languages, And Tools



Need for ASP.NET

- ASP.NET is built into this framework, we can create ASP.NET applications using any of the built-in languages.
- Unlike ASP, ASP.NET uses the Common Language Runtime (CLR) provided by the .NET Framework.
- This CLR manages execution of the code we write.
- ASP.NET code is a compiled CLR code instead of interpreted code (ASP).
- CLR also allows objects written in different languages to interact with each other.

Features of ASP.NET

- Visual Web Developer
- ASP.NET Web Sites and ASP.NET Web Application Projects
- ASP.NET API Reference
- Page and Controls Framework
- ASP.NET Compiler
- Security Infrastructure and State-Management Facilities

Internet Information Services - IIS

- IIS is a web server that runs on the Microsoft platform for Windows OS
- It is used to host web applications
- Any request for a site hosted on IIS is first received by it, checked if there is a matching web application hosted. If a web application exists, then the request is routed to it for the appropriate web page to be served
- Visual studio framework provides inbuilt set up for a local IIS server that gets initialized and runs automatically on running the application

ASP.NET Application Life Cycle

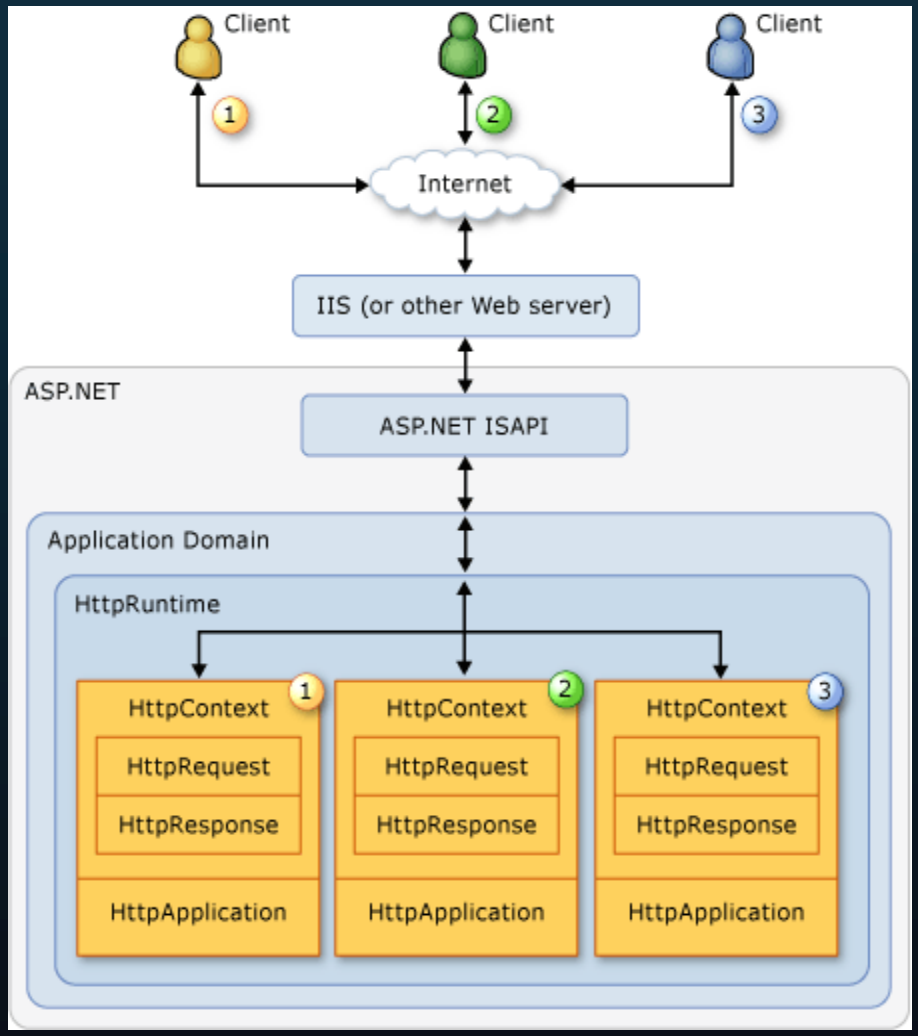
User requests an application resource from the Web server.

ASP.NET receives the first request for the application.

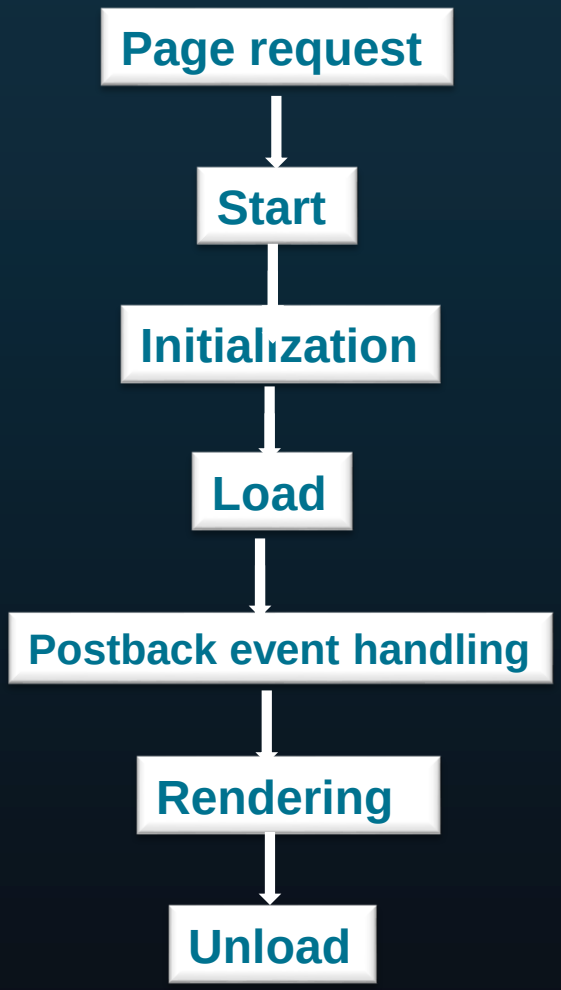
ASP.NET core objects are created for each request.

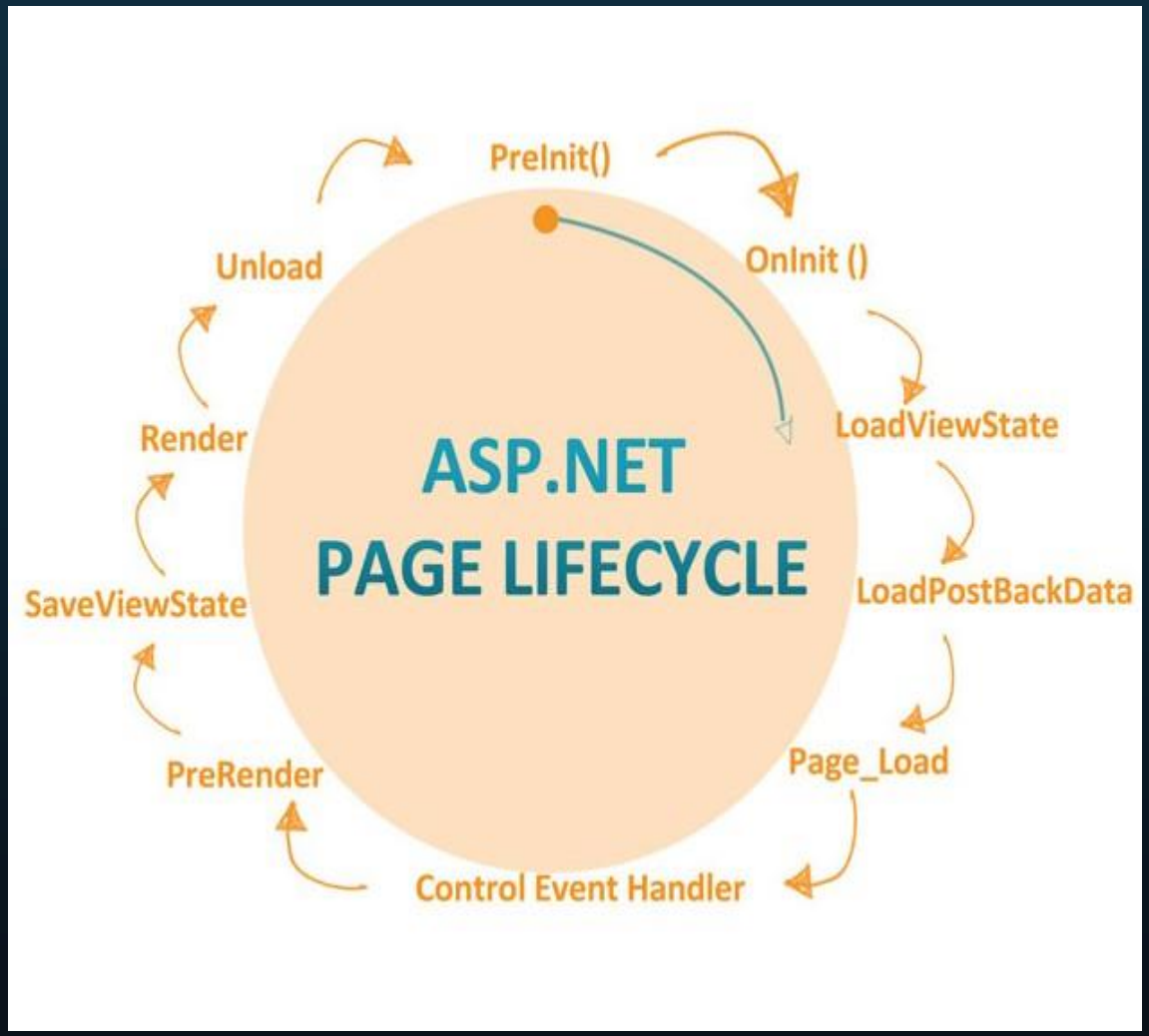
An HttpApplication object is assigned to the request

The request is processed by the HttpApplication pipeline.



ASP.NET Page Life Cycle





Building ASP.NET pages

ASP.NET Web Forms

- Web Forms are pages that your users request through their browser and that form the user interface (UI) that give your web applications their look and feel.

- These pages are written using a combination of
  - HTML controls, server controls, and server code.

  When users request a page, it is compiled and executed on the server, and then it generates the HTML markup that the browser can render.

ASP.NET Controls

Types of ASP.NET Controls.

- **ASP.NET Web Server Control**

  - They are objects on ASP.NET Web pages that run when the page is requested and that render markup to the browser.

- **ASP.NET User Control**

  - They are own custom, reusable controls using the same techniques you use for creating ASP.NET Web pages.

- **ASP.NET Web Part Control**

  - They are an integrated set of controls for creating Web sites

ASP.NET Server Controls

- Server controls are specifically designed to work with Web Forms pages.

- When you create Web Forms pages, you can use these types of controls:
  - ❑HTML server controls
  - ❑Web server controls
    - Validation controls
  - ❑User controls

HTML Server Controls

- The HTML server controls are basically the standard HTML controls enhanced to enable server side processing.

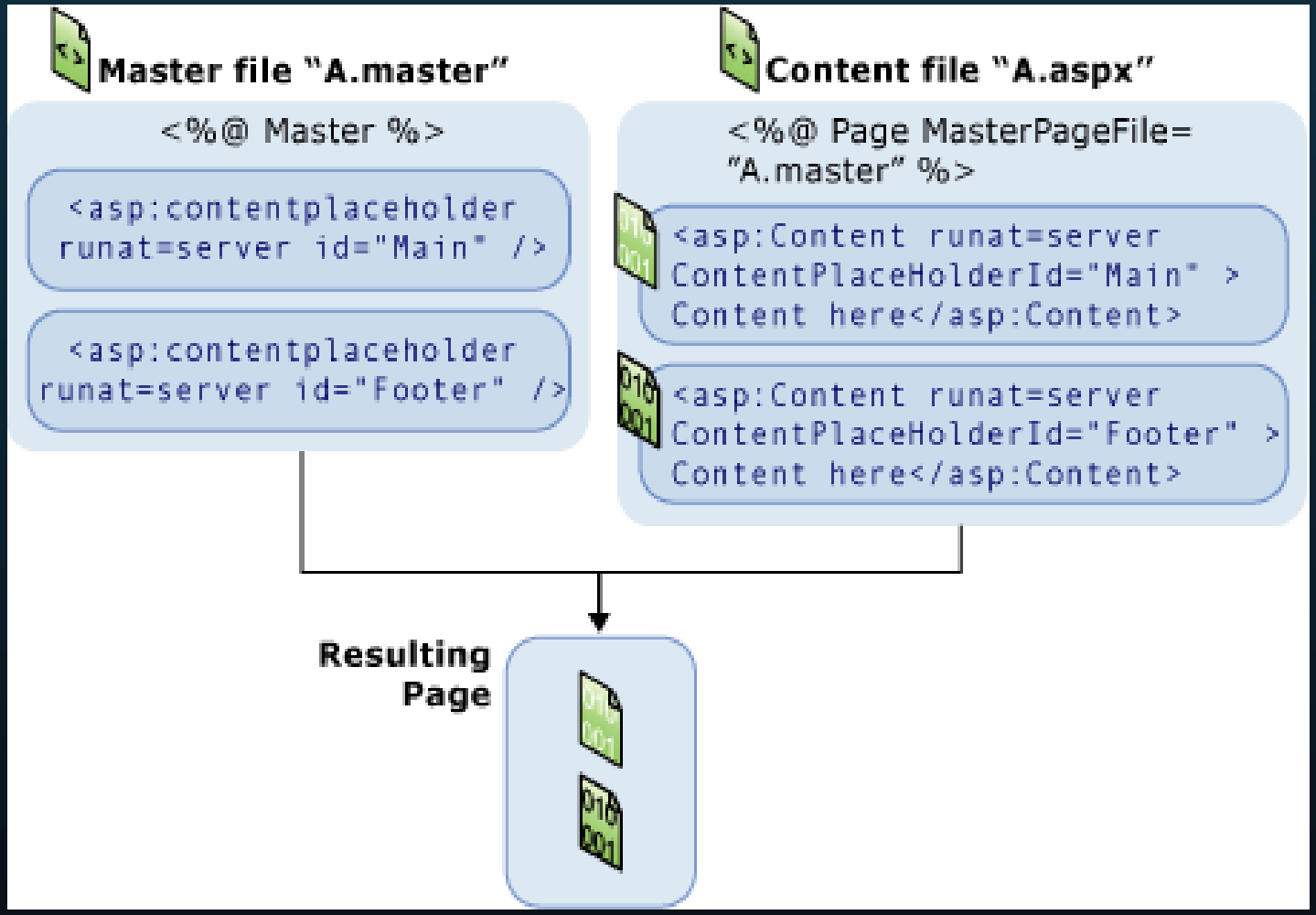
- HTML controls act as the HTML server controls with **runat=”server”** attribute or value pair.

- Examples:

  - <input id="Name" type=“text” size=40 runat="server">
  - <input id="Enter" type=“submit” value="Enter“ runat="server">
  - Click More to see the next page.

Building ASP.NET Application

ASP.NET Master Pages



ASP.Net Web User Control

- ASP.Net provides feature for web control reusability
- WebUserControl is a type of control in Visual studio that can be created and placed it in any web page
- It has .ascx extension

- Reference link: https://www.tutorialspoint.com/asp.net/asp.net_custom_controls.htm

Configuration

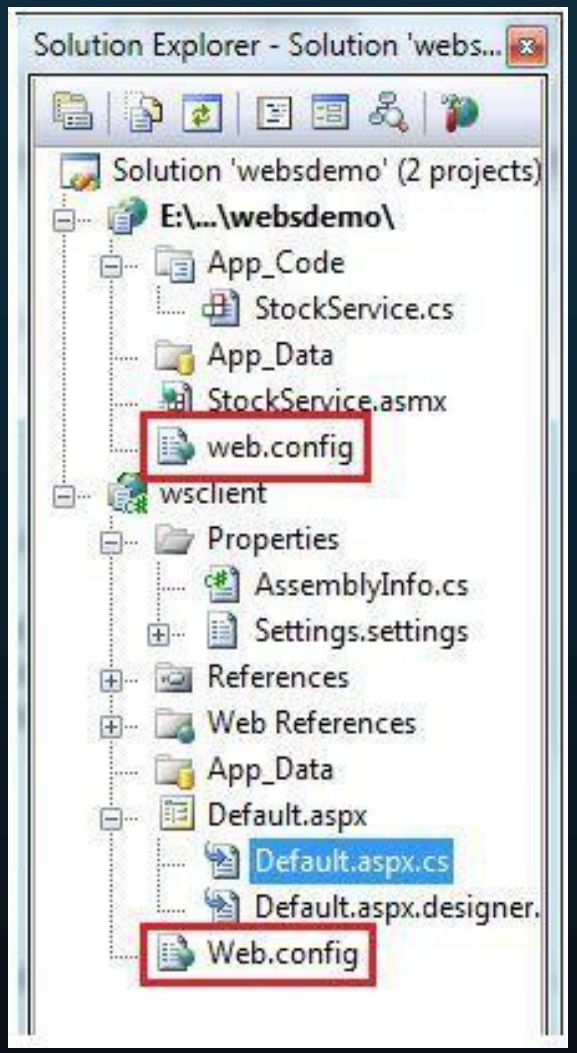
Configuration Files

- The .NET Framework defines a set of elements to implement configuration settings.
- The ASP.NET configuration settings contain elements that control how ASP.NET Web applications behave.
- ASP.NET configuration files are XML files. The XML tags and attributes are case-sensitive.
- For Web Application, the important configuration files are as follows:
  - Web.config
  - Machine.config

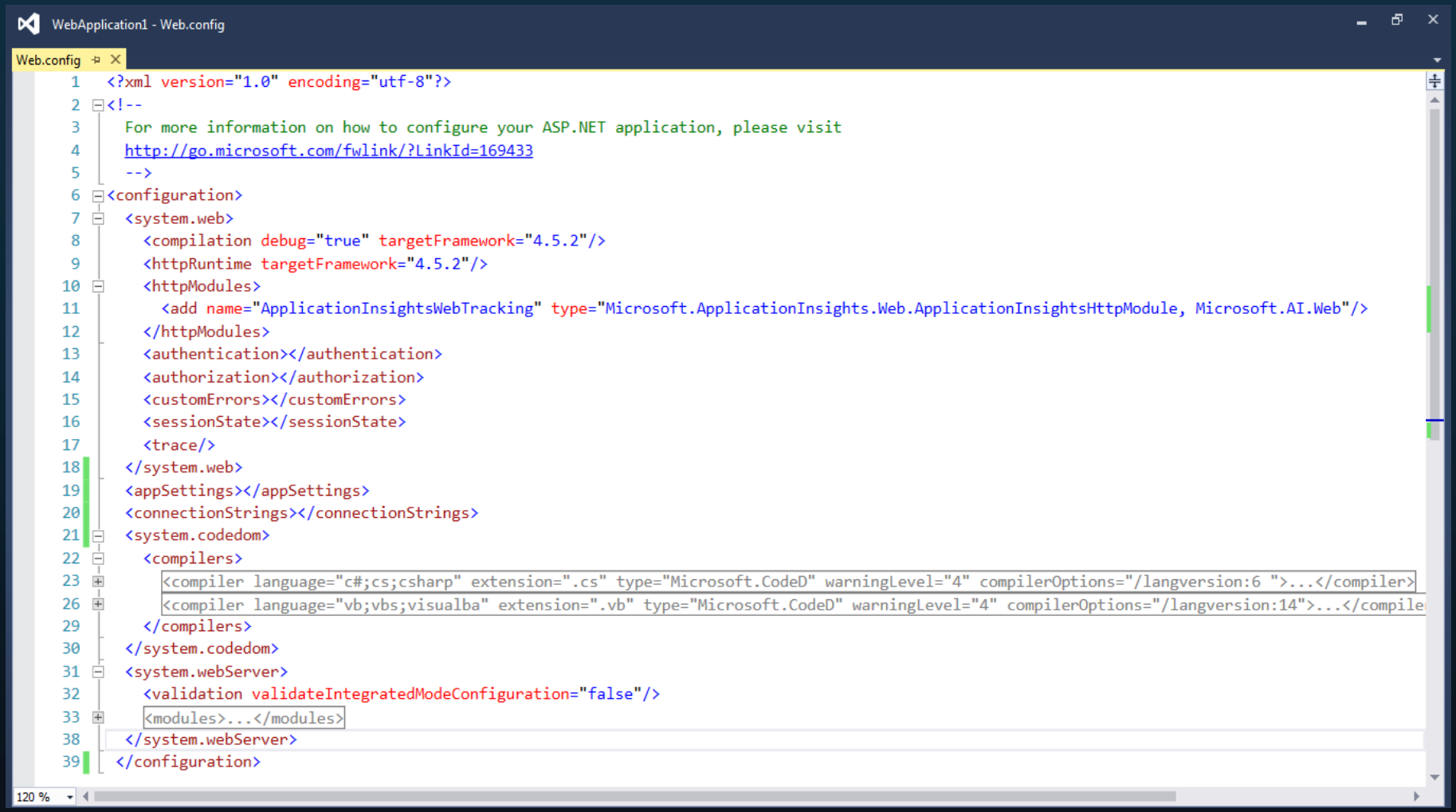
Web.Config

The Web.Config file:

- The Web.config is an XML based configuration file for the entire application.
- Resides in the application root.
- It provides the application wide settings for the entire application.
- Multiple web.config files are supported.



The layout of the web.config file



Web.Config File

- **<appSettings>**
  - This element stores custom application configuration information, such as:
    - file paths
    - XML Web service URLs
    - Any information that is stored in the .ini file
    - key/value pairs for an application

```
<appSettings>
  <add key="key" value="value"/>
</appSettings>
```

Recap

In this chapter, we have learnt about:

- Introduction to Web-Programming and Working with ASP.NET
- Building ASP.NET pages
- Building ASP.NET Application

ASP.Net

You have successfully completed –

Learning on basics of ASP.Net