Unit-1

Overview of the ASP.NET, Framework & Coding Standards

1.1 Introduction of Web Technology:

Web technologies refer to the way computers/devices communicate with each other using mark up languages.

It is communication across the web, and creates, deliver or manage web content using hypertext markup language (HTML).

A web page is a web document which is written in in HTML (hypertext□ markup language) it is said to have brought the world into a small village where people and□ devices can communicate to each other seamlessly.

WWW has allowed for the access of information that would have been□ impossible to find or may have been difficult to find without the www.

1.2 What is Asp.net & How it Works..?

ASP.NET is a web development platform, which provides a programming model, a comprehensive software infrastructure and various services required to build up robust web applications for PC, as well as mobile devices.

ASP.NET works on top of the HTTP protocol, and uses the HTTP commands and policies to set a browser-to-server bilateral communication and cooperation.

ASP.NET is a part of Microsoft .Net platform. ASP.NET applications are compiled codes, written using the extensible and reusable components or objects present in .Net framework. These codes can use the entire hierarchy of classes in .Net framework.

Link: https://youtu.be/lE8NdaX97m0?list=PLdo4fOcmZ0oW8nviYduHq7bmKode-p8Wy

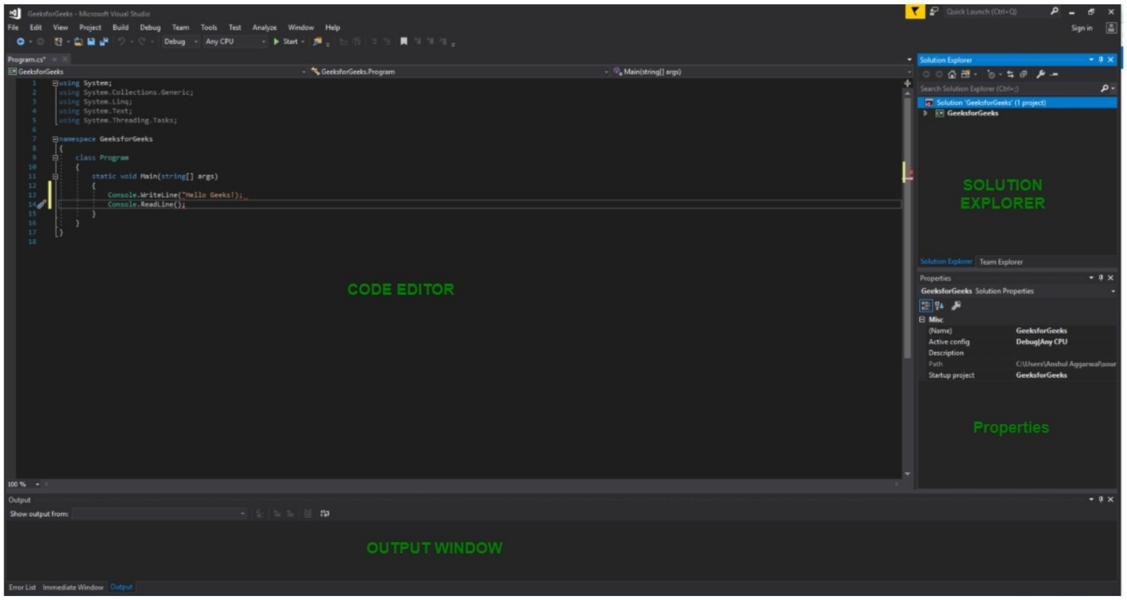
1.3 Use of visual studio :

Visual Studio is an **Integrated Development Environment(IDE)** developed by Microsoft to develop GUI(Graphical User Interface), console, Web applications, web apps, mobile apps, cloud, and web services, etc. With the help of this IDE, you can create managed code as well as native code. It uses the various platforms of Microsoft software development software like Windows store, Microsoft Silverlight, and Windows API, etc. It is not a language-specific IDE as you can use this to write code in C#, C++, VB(Visual Basic), Python, JavaScript, and many more languages. It provides support for 36 different programming languages. It is available for Windows as well as for macOS.

Evolution of Visual Studio: The first version of VS(Visual Studio) was released in 1997, named as Visual Studio 97 having version number 5.0. The latest version of Visual Studio is 15.0 which was released on March 7, 2017. It is also termed as Visual Studio 2017. The supported *.Net Framework Versions* in latest Visual Studio is 3.5 to 4.7. Java was supported in old versions of Visual Studio but in the latest version doesn’t provide any support for Java language.

Visual Studio Editions

There are 3 editions of Microsoft Visual Studio as follows: **1. Community:** It is a **free** version which is announced in 2014. *All other editions are paid*. This contains the features similar to Professional edition. Using this edition, any individual developer can develop their own free or paid apps like *.Net applications*, Web applications and many more. In an enterprise organization, this edition has some limitations. For example, if your organization have more than 250 PCs and having annual revenue greater than $1 Million(US Dollars) then you are not permitted to use this edition. In a non-enterprise organization, up to five users can use this edition. Its main purpose is to provide the Ecosystem(Access to thousands of extensions) and Languages(You can code in C#, VB, F#, C++, HTML, JavaScript, Python, etc.) support. **2. Professional:** It is the commercial edition of Visual Studio. It comes in Visual Studio 2010 and later versions. It provides the support for XML and XSLT editing and includes the tool like Server Explorer and integration with Microsoft SQL Server. Microsoft provides a free trial of this edition and after the trial period, the user has to pay to continue using it. Its main purpose is to provide Flexibility(Professional developer tools for building any application type), Productivity(Powerful features such as CodeLens improve your team’s productivity), Collaboration(Agile project planning tools, charts, etc.) and Subscriber benefits like Microsoft software, plus Azure, Pluralsight, etc. **3. Enterprise:** It is an integrated, end to end solution for teams of any size with the demanding quality and scale needs. Microsoft provides a 90-days free trial of this edition and after the trial period, the user has to pay to continue using it. The main benefit of this edition is that it is highly scalable and deliver high-quality software.



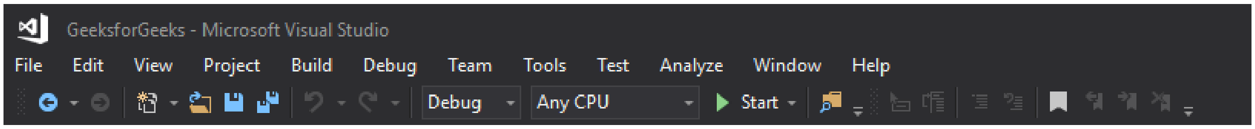
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace GeeksforGeeks
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Hello Geeks!");
            Console.ReadLine();
        }
    }
}
```

(Name) GeeksforGeeks
Active config Debug|Any CPU
Description
Path C:\Users\Anshul Aggarwal\sour
Startup project GeeksforGeeks

1. **Code Editor:** Where the user will write code.
2. **Output Window:** Here the Visual Studio shows the outputs, compiler warnings, error messages and debugging information.

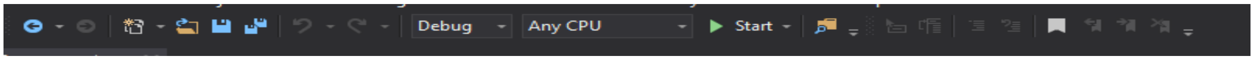
3. **Solution Explorer:** It shows the files on which the user is currently working.
4. **Properties:** It will give additional information and context about the selected parts of the current project.

- A user can also add windows as per requirement by choosing them from **View** menu. In Visual Studio the tool windows are customizable as a user can add more windows, remove the existing open one or can move windows around to best suit.
- **Various Menus in Visual Studio:** A user can find a lot of menus on the top screen of Visual Studio as shown below



1. Create, Open and save projects commands are contained by **File** menu.
2. Searching, Modifying, Refactoring code commands are contained by the **Edit** menu.
3. **View** Menu is used to open the additional tool windows in Visual Studio.
4. **Project** menu is used to add some files and dependencies in the project.
5. To change the settings, add functionality to Visual Studio via extensions, and access various Visual Studio tools can be used by using **Tools** menu.

The below menu is known as the **toolbar** which provide the quick access to the most frequently used commands. You can add and remove the commands by going to **View** → **Customize**



1.4 Different Languages used in Asp.Net

The ASP.NET application codes can be written in any of the following languages:

- C#
- Visual Basic.Net
- Jscript
- J#

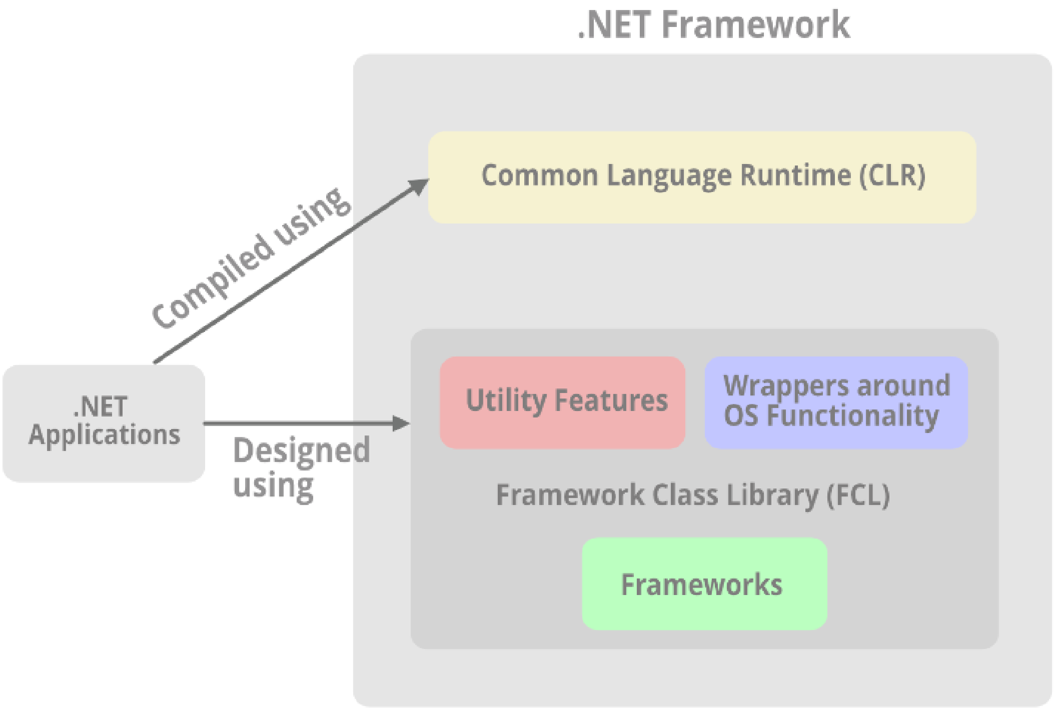
ASP.NET is used to produce interactive, data-driven web applications over the internet. It consists of a large number of controls such as text boxes, buttons, and labels for assembling, configuring, and manipulating code to create HTML pages.

1.5 NET Framework Class Library.

The Framework Class Library or FCL provides the system functionality in the .NET Framework as it has various classes, data types, interfaces, etc. to perform multiple functions and build different types of applications such as desktop applications, web applications, mobile applications, etc. The Framework Class Library is integrated with the Common Language

Runtime (CLR) of the .NET framework and is used by all the .NET languages such as C#, F#, Visual Basic .NET, etc.

Categories in the Framework Class Library
The functionality of the Framework Class Library can be broadly divided into **three** categories i.e *utility features written in .NET*, *wrappers around the OS functionality* and *frameworks*. These categories are not rigidly defined and there are many classes that may fit into more than one category.


.NET Framework
Common Language Runtime (CLR)
Compiled using
.NET Applications
Designed using
Utility Features
Wrappers around OS Functionality
Framework Class Library (FCL)
Frameworks

Details about the Categories in the Framework Class Library are given as follows:

- **Utility Features:** The utility features in the FCL includes various collection classes such as list, stack, queue, dictionary, etc. and also classes for more varied manipulations such as Regex class for regular expressions.
- **Wrappers Around OS functionality:** Some of the features in the FCL are wrappers around the underlying Windows OS functionality. These include the classes for using the file system, the classes to handle the network features, the classes to handle I/O for console applications, etc.
- **Frameworks:** There are various frameworks available in the FCL to develop certain applications. For example, ASP.NET is used to develop web applications, Windows Presentation Foundation (WPF) is used to render user interfaces in Windows applications, and so on.

1.6 Overview of coding standards follows during programming:

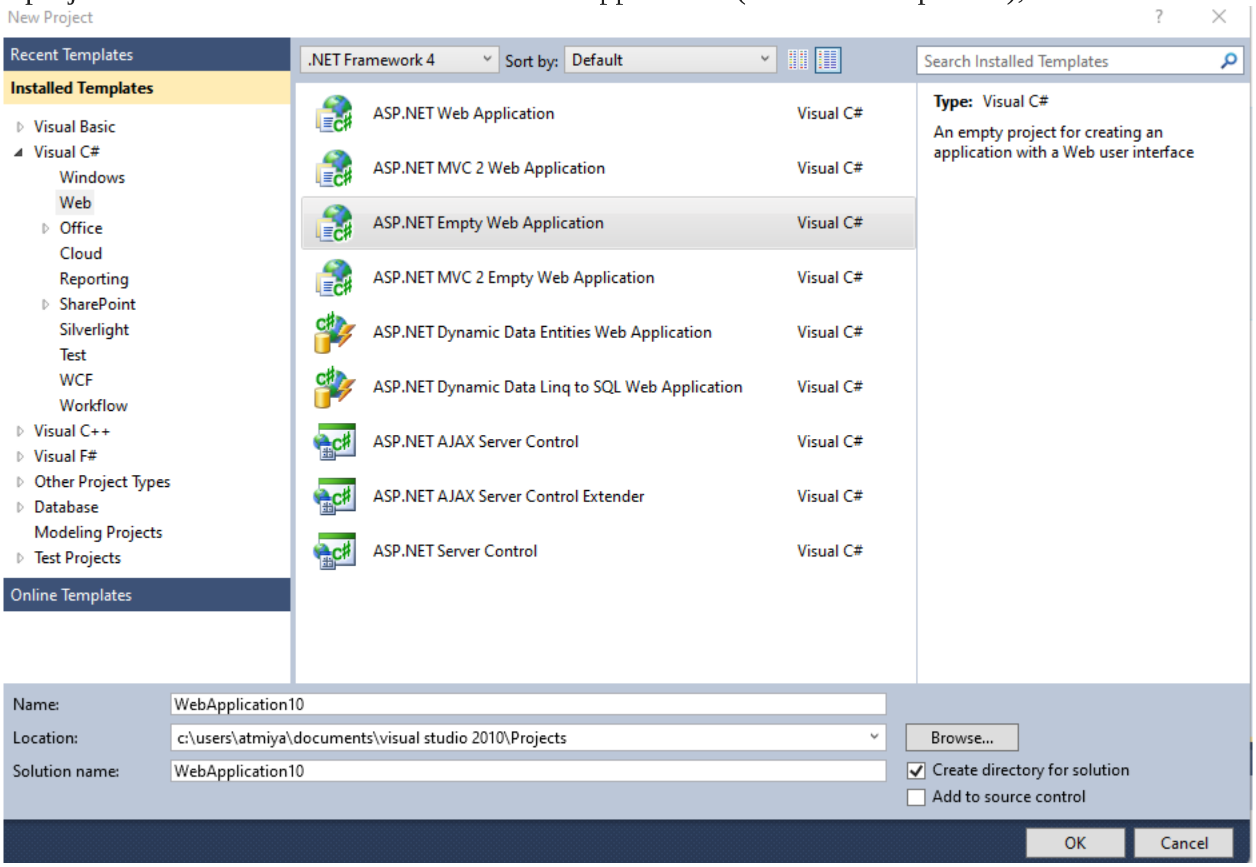
Link : https://www.youtube.com/watch?v=h22YkCi_mSM

1.7 Creating Master Page & Default Content Pages :

A master page provides the layout and functionality to other pages. Creating a master page in ASP.NET is very easy. Let's start creating master page step by step.

Step 1: Open new project in visual studio

New project->Installed->Web->ASP.NET Web Application (shown in the picture),



.NET Framework 4 | Sort by: Default

ASP.NET Web Application	Visual C#
ASP.NET MVC 2 Web Application	Visual C#
ASP.NET Empty Web Application	Visual C#
ASP.NET MVC 2 Empty Web Application	Visual C#
ASP.NET Dynamic Data Entities Web Application	Visual C#
ASP.NET Dynamic Data Linq to SQL Web Application	Visual C#
ASP.NET AJAX Server Control	Visual C#
ASP.NET AJAX Server Control Extender	Visual C#
ASP.NET Server Control	Visual C#

Type: Visual C#

An empty project for creating an application with a Web user interface

Name: WebApplication10

Location: c:\users\atmiya\documents\visual studio 2010\Projects

Solution name: WebApplication10

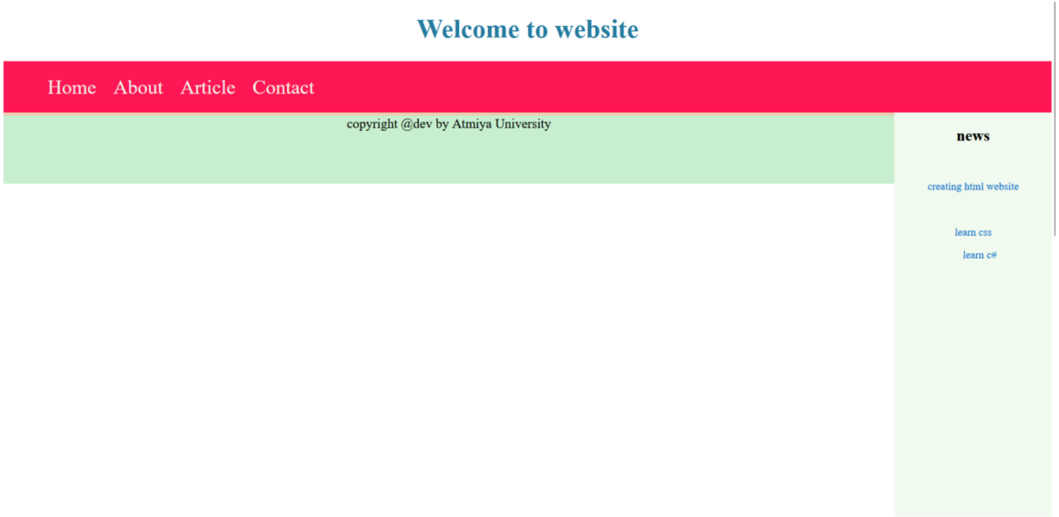
☑ Create directory for solution

□ Add to source control

Step 2: Add Content page

Add Content page by right click->Masterpage->Add Content Page.

Output:



Welcome to website

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news

1.8 Nesting master pages

Step - 1 : Create New Project

Go to File > New > Project > Select asp.net web forms application > Entry Application Name > Click OK.

Step-2: Add a Master Page.

Go to Solution Explorer > Right Click on Project under solution explorer > Add > New item > Select Master Page under web> Enter Name > Add.
Here I have named **MasterCommon.Master**

Step-3: Design your master page (For One Column Pages).

Here we will design Header and Footer section mainly.

Step-4: Add 1st Web Page (For One Column Web Page).

Go to Solution Explorer > Right Click on Project under solution explorer > Add > New item > Select Web Form using Master Page under web > Enter Name > > Select Master Page (Here Select MasterCommon.Master)>Add.
Design your web page as Single column web page

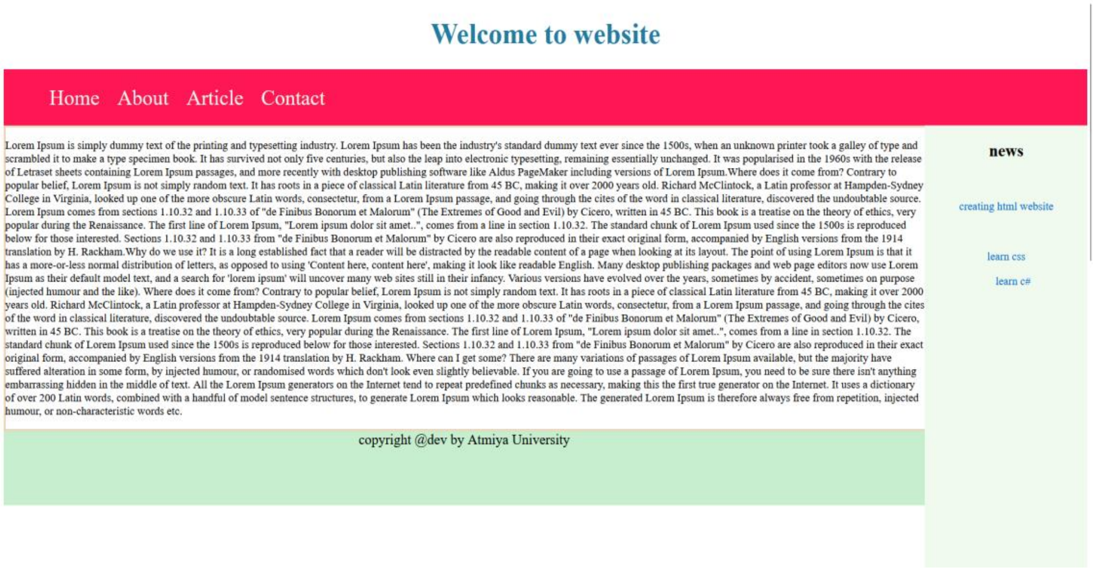
Step-5: Add a Nested Master Page (For Two Columns Pages).

Go to Solution Explorer > Right Click on Project under solution explorer > Add > New item > Select Nested Master Page under web> Enter Name > Select Master Page > Add.
Here I have named **NestedMasterPage1.Master**
Here we will add 2 ContentPlaceHolder as I have already said Nested Master Page has its own ContentPlaceHolder.

Step-6: Add 2nd Web Page (For Two Column Web Page).

Go to Solution Explorer > Right Click on Project under solution explorer > Add > New item > Select Web Form using Master Page under web > Enter Name > > Select Master Page (Here Select NestedMasterPage1.Master)> Add

Step-7: Run Application



Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.Where does it come from? Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet..", comes from a line in section 1.10.32. The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those interested. Sections 1.10.32 and 1.10.33 from "de Finibus Bonorum et Malorum" by Cicero are also reproduced in their exact original form, accompanied by English versions from the 1914 translation by H. Rackham.Why do we use it? It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for 'lorem ipsum' will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like). Where does it come from? Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet..", comes from a line in section 1.10.32. The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those interested. Sections 1.10.32 and 1.10.33 from "de Finibus Bonorum et Malorum" by Cicero are also reproduced in their exact original form, accompanied by English versions from the 1914 translation by H. Rackham. Where can I get some? There are many variations of passages of Lorem Ipsum available, but the majority have suffered alteration in some form, by injected humour, or randomised words which don't look even slightly believable. If you are going to use a passage of Lorem Ipsum, you need to be sure there isn't anything embarrassing hidden in the middle of text. All the Lorem Ipsum generators on the Internet tend to repeat predefined chunks as necessary, making this the first true generator on the Internet. It uses a dictionary of over 200 Latin words, combined with a handful of model sentence structures, to generate Lorem Ipsum which looks reasonable. The generated Lorem Ipsum is therefore always free from repetition, injected humour, or non-characteristic words etc.

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1.9 Registering master pages in web configuration

Apply the SimpleMaster.master Master Page to every page contained in the same folder (or subfolder) as the web configuration file.

A MasterPageFile attribute in a content page takes precedence over a Master Page specified in the web configuration file.

File: FolderA\Web.Config

```
<configuration>
<system.web>
  <pages masterPageFile="~/SimpleMaster.master" />
</system.web>
</configuration>
```