

GWE10700: .NET Developer Bootcamp Outline (8 Weeks)



Introduction

This 8 week instructor led bootcamp provides students with the skills needed to be a proficient .NET Developer. This bootcamp is a code intensive, real world enhanced bootcamp that is designed to produce developers that are ready for the .NET workplace. It is designed as a hands-on, lab intensive course.

Prerequisites

There are no pre-requisites for this class. Prior coding experience is a plus but not required. Experience with a relational database is a plus but is not required.

Course Description

At the end of this 8 week bootcamp, students will be able create a full scale .NET application from start to finish. Such an application would include several .NET technologies such as ASP.NET, Windows Forms, WCF, Web Services and would be data driven using a relational database such as Microsoft SQL Server 2005. Students will be taught how to design and implement a relational database, how to write code for an application using C#.NET or VB.NET, how to use Visual Studio 2008, how to create an Object Oriented application, how to write queries using T-SQL, how to create web sites using HTML, XHTML, XML, and ASP.NET and more.

This course is designed to turn non-programmers or basic programmers in to professional programmers in an 8 week period of time. It involves long hours, homework and lots of extra assignments.

Course Content

Understanding the .NET Framework

- Overview of the .NET Framework
- CLR
- MSIL
- CTS
- Just-in-time compiler
- Where can .NET applications run
- .NET Languages

Introduction to Visual Studio.NET

- Creating New Projects
- What's the difference between a solution and a project?

- Templates
- Clipboard
- Customizing the editor
- Project Properties
- Options
- Help Features

Quiz: Understanding the .NET Framework

C#.NET/VB.NET (Basic syntax and coding skills) focusing on:

- Syntax
- Good coding techniques
 - Indenting
 - Naming
 - Other good coding habits
- Coding Techniques and Standards
- Structure of a program
- Compiling, running, debugging
- Dealing with bad existing code
- Value-type Variables
- Statements
- Flow Control Statements (i.e., 'if', etc.)
- Iteration Statements (i.e., 'while', 'do', 'for', etc.)
- Creating Objects / Reference-types
- Classes
- Methods
- Properties
- Using Constructors
- Using Static Members

Quiz: Good coding techniques and Standards

Lab: Creating a Simple C# Program

Lab: Creating and using types

Quiz: What value-type do I use?

Quiz: Statements

Lab: Using Statements

Code Test: Statements

Lab: Using Exceptions

Code Test: Debugging Logical Errors

Finding and Fixing Bad Code from other developers

Lab: Creating and Using Methods

Workshop 1: Basic Coding Skills

Understanding Object Oriented Applications and Design

- Objects
- Object oriented programming
- Using Inheritance
- Creating and using Interfaces

Lab: Creating and Using Classes

Lab: Defining and Using Reference-Type Variables

Lab: Converting Data

Lab: Creating Objects

Code Test: Creating Objects

Using Inheritance to Implement an Interface

Code Test: Inheritance

Code Test: Interfaces

Workshop 2: Designing Classes using Interfaces

C#.NET/VB.NET (Working with the .NET Framework Class Library)

- Working with Strings
- Arrays
- Data Streams and Files
- Collections
- Generics
- Threading
- Delegates and Events
- Generic Delegates and Events
- Memory and Resource Management
- Serialization
- Platform Invoke (making Win32 API calls)
- Working with COM
- Using existing COM objects in your .NET applications
- Cleaning up COM objects and releasing resources

Code Test: String Manipulation

Code Test: Generic Collections

Lab: Working with Strings, Enumerators, Collections

Code Test: Delegates and Events

Code Test: Generic Delegates and Events

Lab: Working with Generics

Lab: Working with Files

Lab: Serialization

Lab: Working with Multithreaded Applications

Code Test: Threading

Lab: Calling Win32 APIs

Lab: Calling Com Objects

Code Test: Creating application domains

Code Test: Releasing COM Resources

Quiz: .NET Framework Class Library

Understanding Data and Database Design

- Entity Relationship Diagrams
- Logical and Physical Database Designs

Quiz: Understanding Data and Database Design

Lab: Designing an Inventory Database (Partners)

The SQL Language

- Introduction to Microsoft SQL Server 2005
- Writing Scripts
- Select Statements
- Useful T-SQL Functions
- Joining Multiple Tables
- Grouping and Summarizing Data
- Using Subqueries
- Modifying Data
- Advanced T-SQL Topics
- CLR Code in SQL Server 2005

Lab: Select Statements

Lab: Useful T-SQL Functions

Lab: Joining Multiple Tables

Lab: Grouping and Summarizing Data

Lab: Using Subqueries

Quiz: Speaking SQL

Lab: Modifying Data

Lab: Implementing Views

Lab: Creating Stored Procedures

Lab: Creating CLR Stored Procedures and Functions

Code Test: Writing SQL Statements

C#.NET/VB.NET (ADO.NET)

- Understanding Connections
- .NET Data Providers
- Defining Connections
- Managing Connections
- Handling Connections Exceptions
- Connections Pooling
- Connected Database Operations
- Working with the xxxCommand object
- Working with the xxxDataReader object
- Disconnected Database Operations
- Working with the xxxDataAdapter object
- Working with the Dataset object
- Dataset Designer
- Table Adapters
- Creating End-User Reports

Lab: Data-Centric Applications and ADO.NET

Lab: Connecting to a Data Source

Code Test: Connecting to a remote Data source

Quiz: Connection Strings

Lab: Performing Connected Database Operations

Lab: Building, Binding, Opening and Saving Datasets

Lab: Manipulating Datasets

Lab: Working with XML and ADO.NET

Lab: Retrieving Data into a Disconnected Application

Lab: Retrieving and Updating Customers and Orders Data

Code Test: Executing a Stored Procedure

Code Test: Looping through a DataReader object

Lab: Creating a class using TableAdapters

Lab: Creating End-User Reports

Workshop 3: Creating a Data Component

C#.NET/VB.NET (Working with windows forms)

- Creating Windows Forms
- Single Document interface
- Multiple Document interface (MDI)
- Working with Controls
- Event Handlers
- Dialog boxes
- Menus
- Validation
- Creating user controls
- Working with Data in Windows Forms
- Working with the DataGridView
- Working with DataSources
- Creating Master Detail Forms

Lab: Creating Windows Forms

Lab: Working with controls

Lab: Building Controls

Code Test: Validating a Windows Form

Code Test: Working with the DataGridView Control

Code Test: Creating a Mater Details Form

Workshop 4: Creating a Data Driven Multi-tier Windows Application (Inventory Application)

Basic HTML design

- Working with static HTML
- Tables
- Images
- Hyperlinks
- Commonly used HTML tags
- Cascading Style Sheets (CSS) Editor in Visual Studio
- WYSIWYG Editor in Visual Studio

Quiz: HTML tags

Code Test: Create a static HTML site

XML and related technologies

- XML
- XSD
- XSLT
- XML Editor in Visual Studio
- .NET Framework Classes for XML

Quiz: XML and related technologies

Code Test: Creating an XML document

C#.NET/VB.NET (Working with ASP.NET)

- Overview of Web Application design and architecture
- Master Pages
- Nested Master Pages
- Web Forms
- Code-behind pages
- Server Controls / HTML controls
- ASP.NET Objects
- Session
- Application
- Response
- Request
- Server
- Cache
- ViewState
- Page
- ASP.NET Event model
- Validation
- Creating User controls
- Tracing
- State Management
- Cookies
- Session
- Application
- Web.config file
- Security
- Membership Providers
- Login Controls
- Navigation Controls
- Web Parts
- Working with Data with ASP.NET
- GridView control
- FormView Control
- DataList Control
- Other Data bound web controls

Quiz: ASP.NET objects

Quiz: Controls and their uses

Lab: Creating a Web Form

Lab: Adding Functionality to a Web Application

Code Test: Validation

Lab: Creating User Controls

Lab: Navigating in the web site

Lab: Membership

Lab: Web Parts

Code Test: Working with Data

Lab: Storing Application and Session Data

Workshop 5: Creating an ASP.NET multi-tiered application (Inventory Application Web Enabled)

C#.NET/VB.NET (ASP.NET Web Services)

- Overview of XML Web Services and Architecture
- Service Oriented Architecture
- Consuming XML Web Services
- Implementing XML Web Services
- Publishing and Deploying
- Securing XML Web Services

Code Test: Web Services

Lab: Web Services

C#.NET/VB.NET (Security in .NET)

- Encryption / Cryptography in .NET
- Using SQL Server 2005 Encryption
- Windows security
- Role-Based Security
- Code Access Security
- Configuring .NET Framework Security

Quiz: Code Access Security

Code Test: Role based Security

Lab: Code Access Security

Lab: Encryption

C#.NET/VB.NET (Deployment)

- Global Assembly Cache (GAC)
- Signing an application
- Deploying .NET applications
- Click Once Overview
- Deployment Options for ASP.NET web applications

Lab: Creating a Setup Application

Lab: Deploying a Windows Application using Click Once

Lab: Deploying an ASP.NET Application 3 ways

Code Test: SN.exe

Code Test: Using the GAC

Code Test: Creating a setup program

Code Test: Finding and fixing bad code from other developer

Visual Studio Team Systems and Team Foundation Server Introduction

Workshop 6: The final project

10 days to build a project based on a set of requirements. This is a team project.