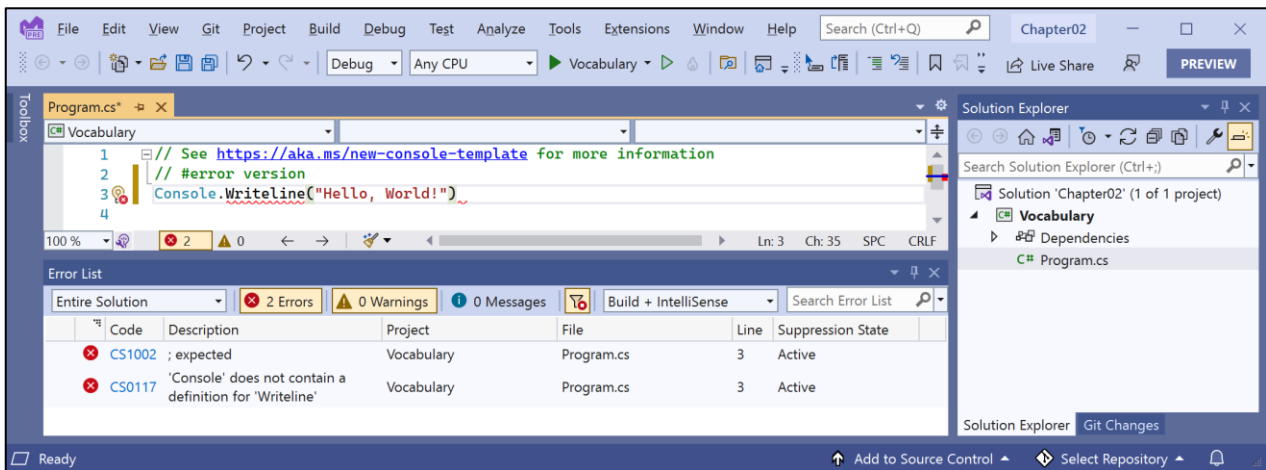
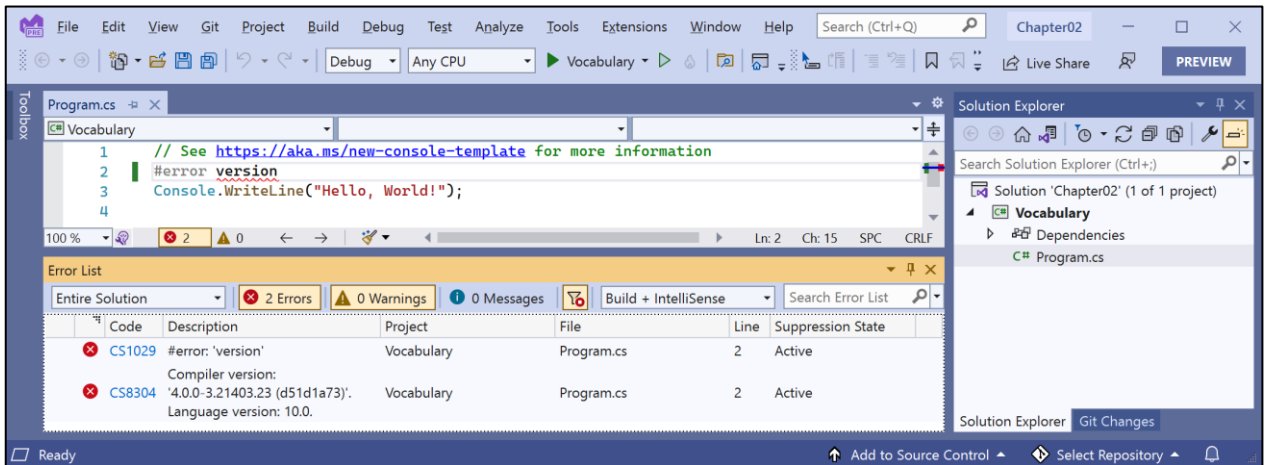
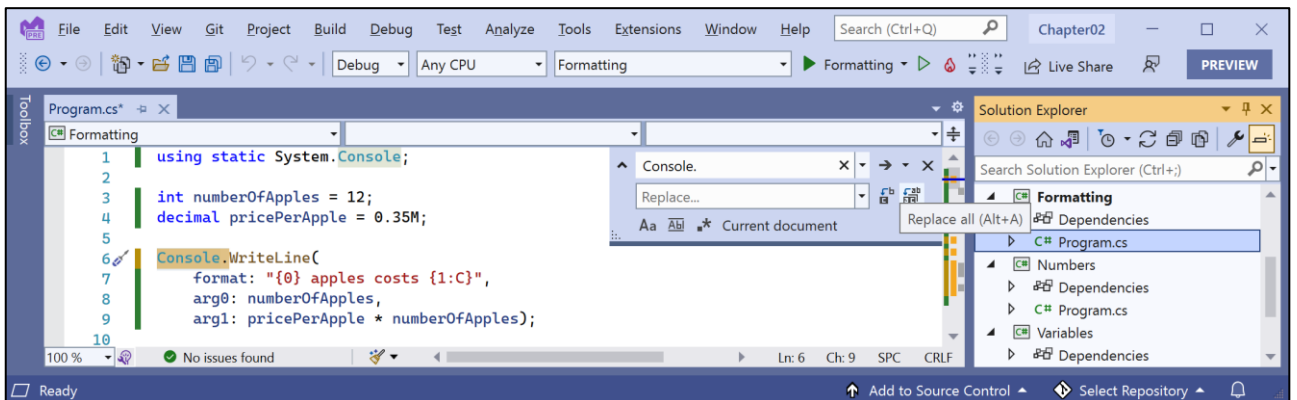
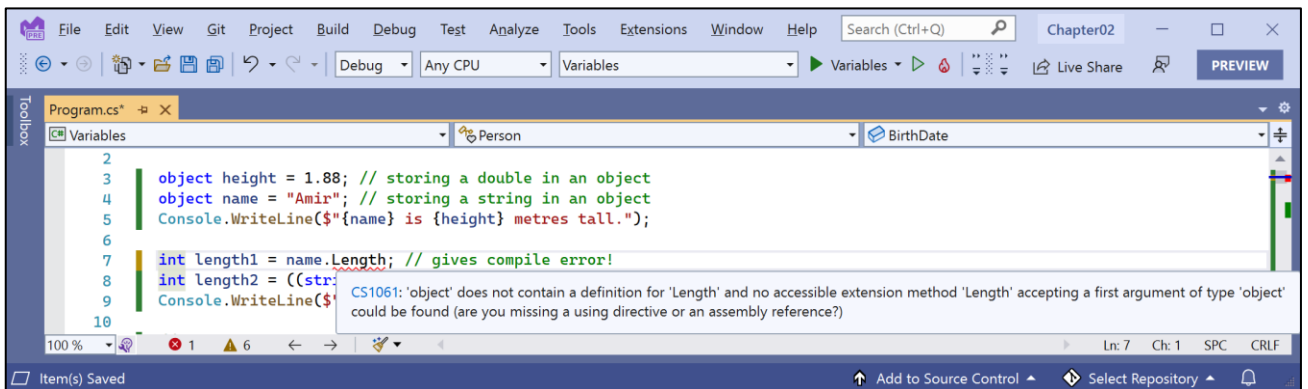
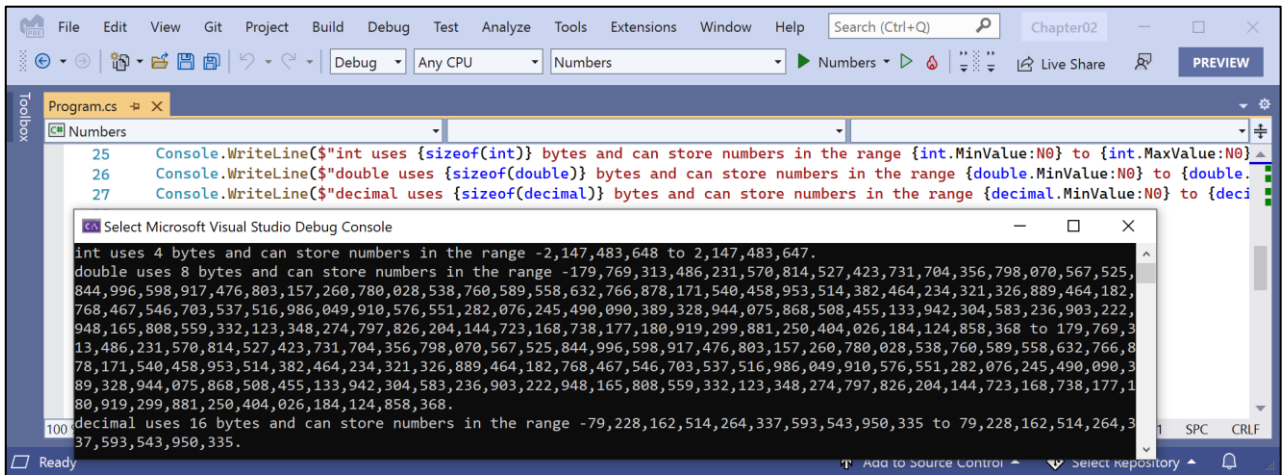
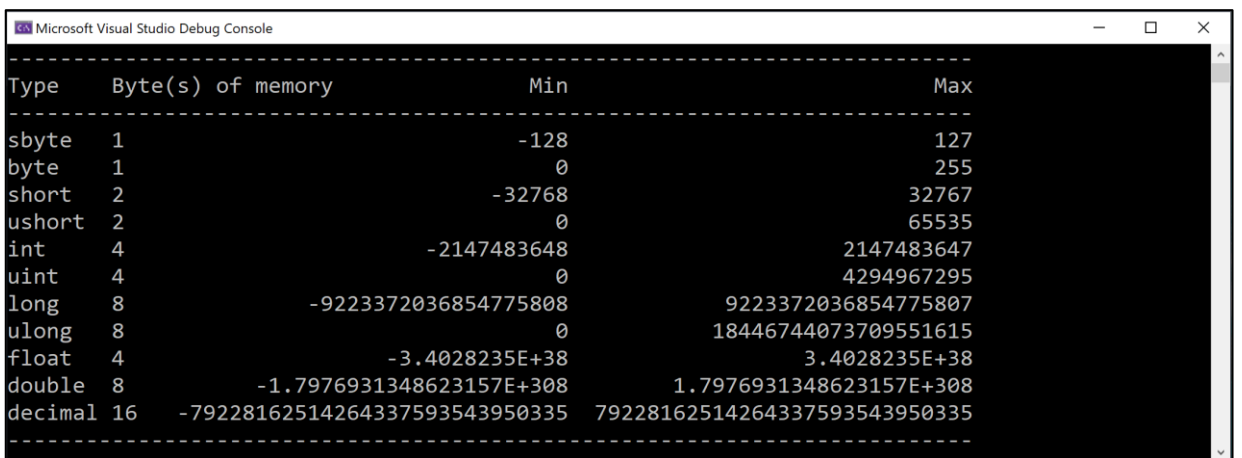
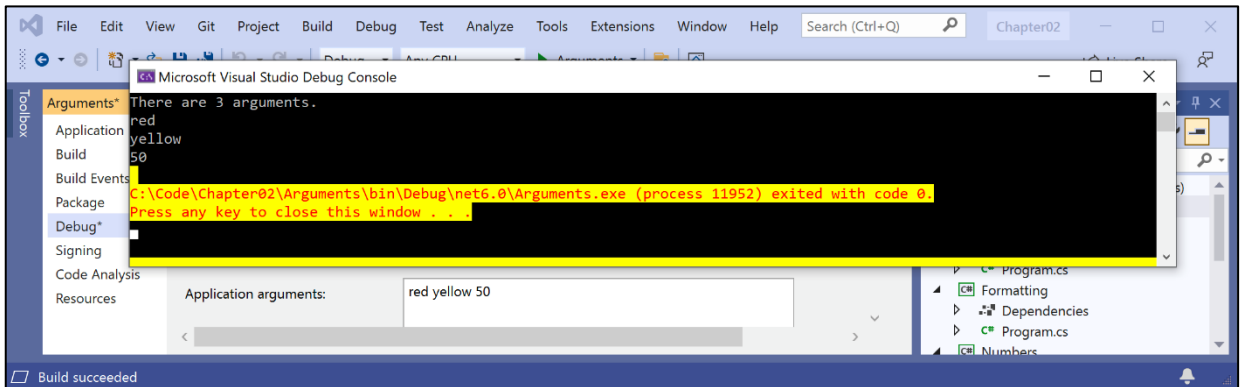
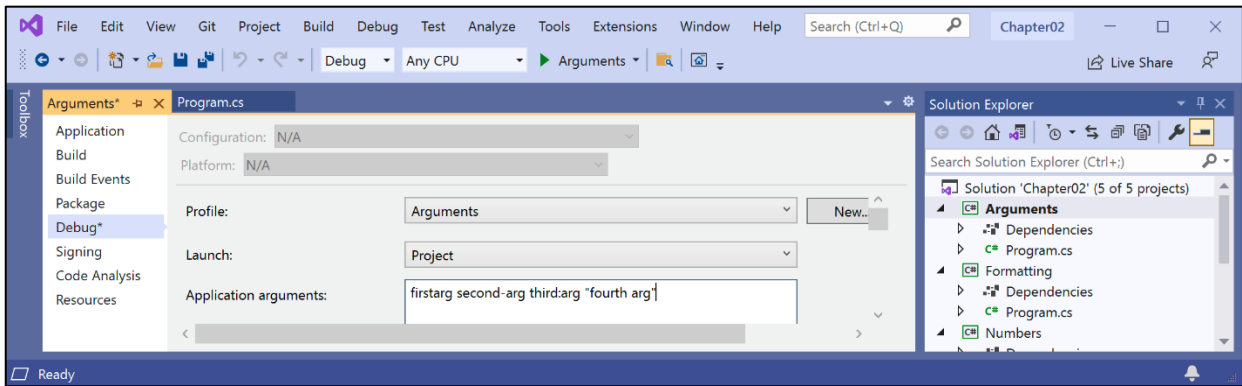


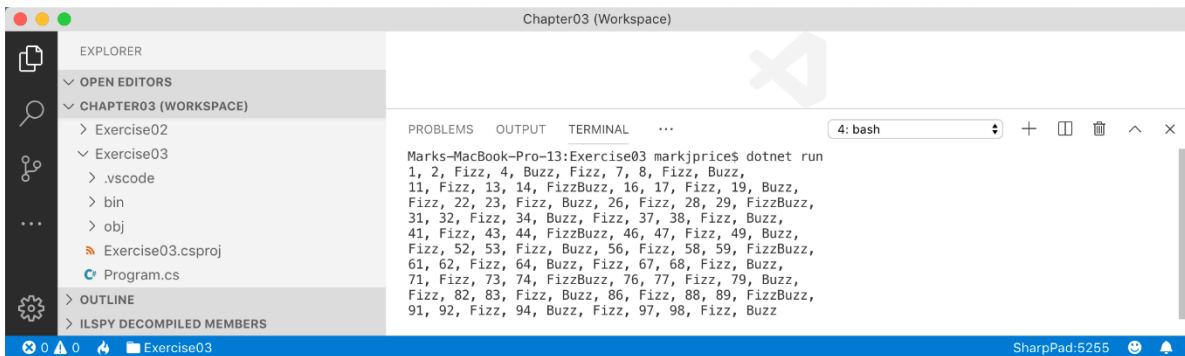
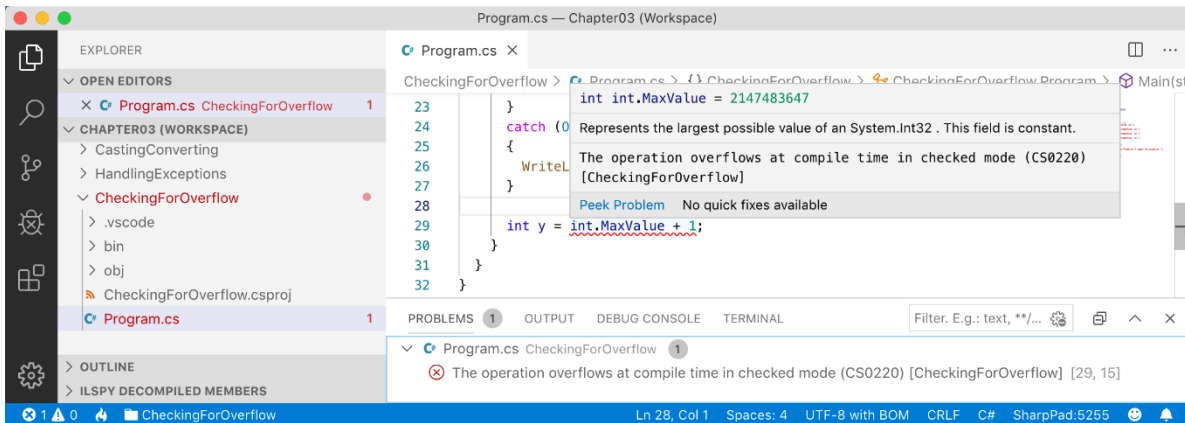
Chapter 2: Speaking C#







Chapter 3: Controlling Flow, Converting Types, and Handling Exceptions



Chapter 4: Writing, Debugging, and Testing Functions

The screenshot shows the Visual Studio Code editor with the Explorer sidebar on the left. The Explorer shows a workspace named 'CHAPTER04 (WORKSPACE)' containing a folder 'WritingFunctions'. Inside 'WritingFunctions', there is a file 'Program.cs'. The main editor window displays the code for the 'RunCardinalToOrdinal' function. The code is as follows:

```
130 static void RunCardinalToOrdinal()
131 {
132     for (int number = 1; number <= 10; number++)
133     {
134         Write($"{CardinalToOrdinal(number)} ");
135     }
136     WriteLine();
137 }
138
```

A tooltip is visible over the 'number' parameter in the 'Write' call, showing the signature: `string Program.CardinalToOrdinal(int number)`. The status bar at the bottom indicates 'Ln 134, Col 36', 'Spaces: 4', 'UTF-8 with BOM', 'CRLF', 'C#', and 'SharpPad:5255'.

This screenshot is similar to the previous one, but the tooltip is expanded to show the documentation for the `CardinalToOrdinal` function. The code in the editor is the same as in the first screenshot. The tooltip text reads:

```
string Program.CardinalToOrdinal(int number)
number: Number is a cardinal value e.g. 1, 2, 3, and so on.
Pass a 32-bit integer and it will be converted into its ordinal equivalent.
```

The status bar at the bottom indicates 'Ln 139, Col 36', 'Spaces: 4', 'UTF-8 with BOM', 'CRLF', 'C#', and 'SharpPad:5255'.

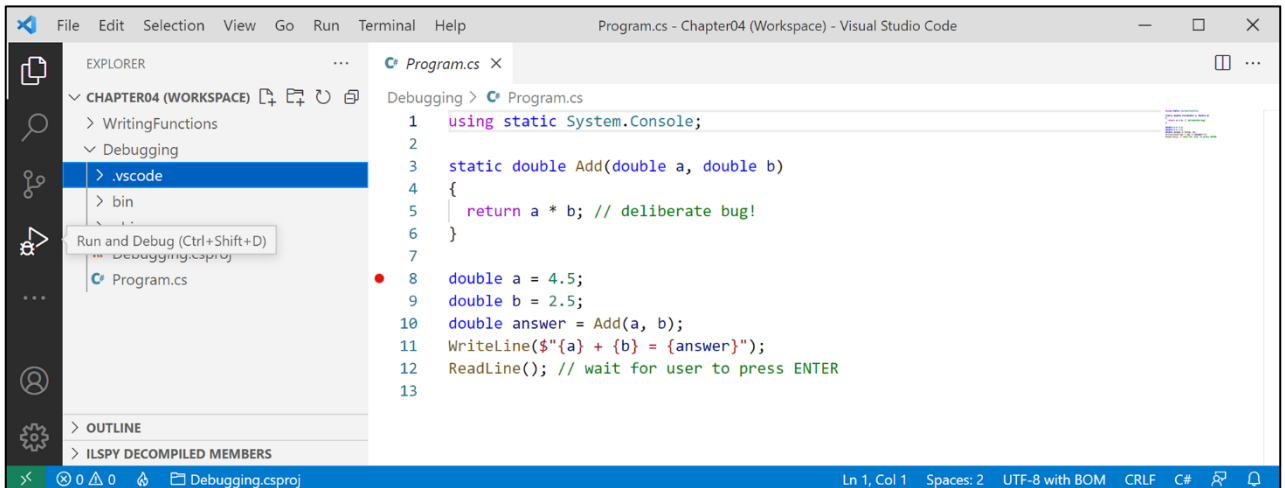
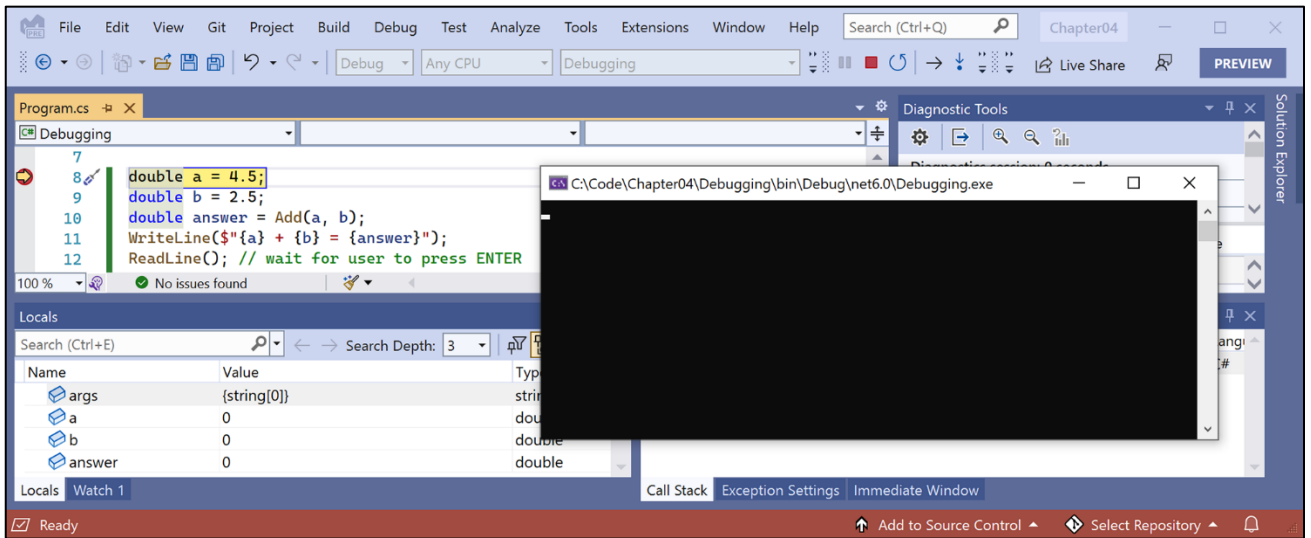
The screenshot shows the Visual Studio Code editor in Debug mode. The Explorer sidebar on the right shows the 'Solution Explorer' with the following structure:

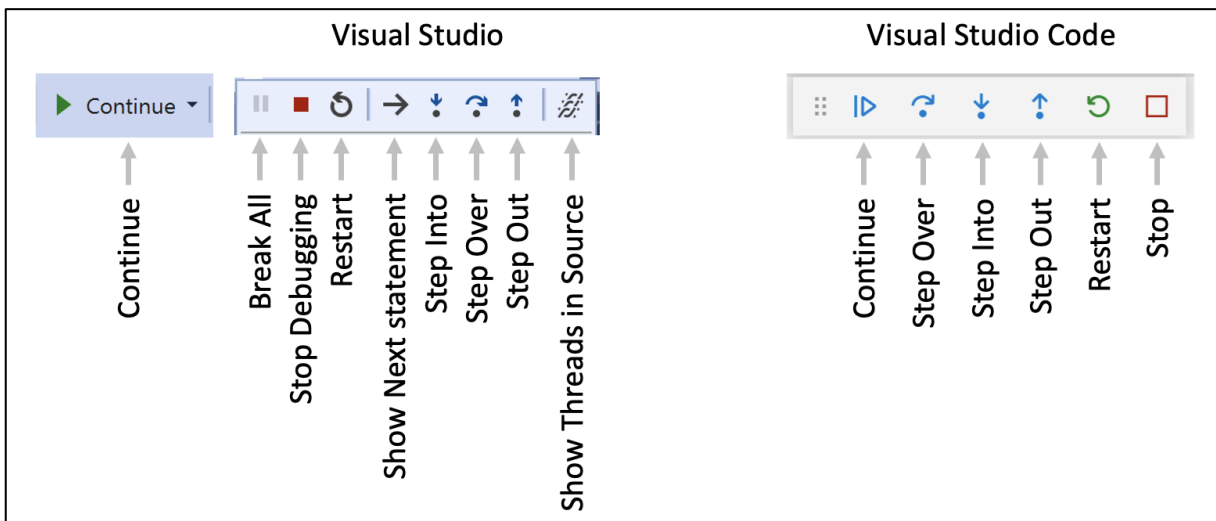
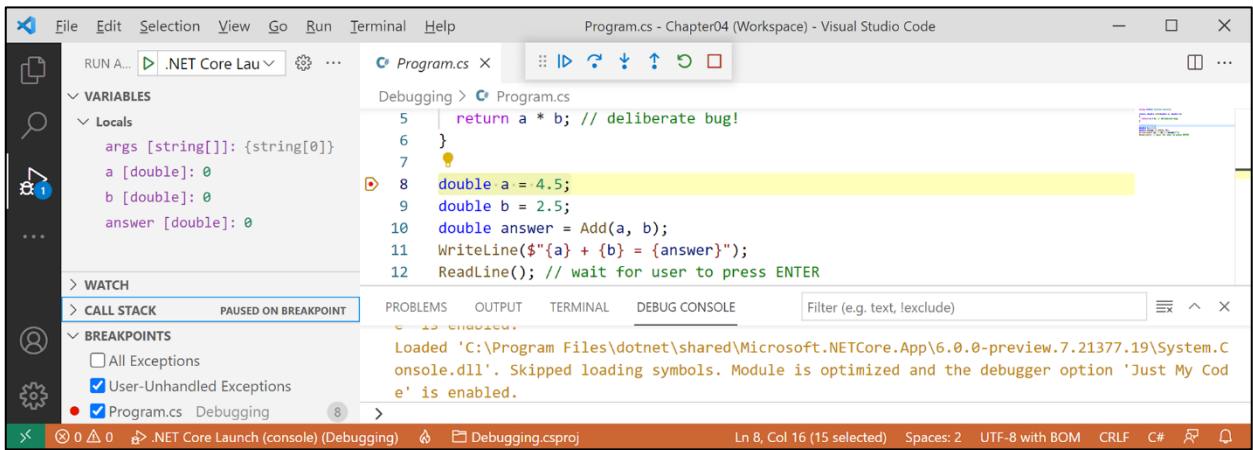
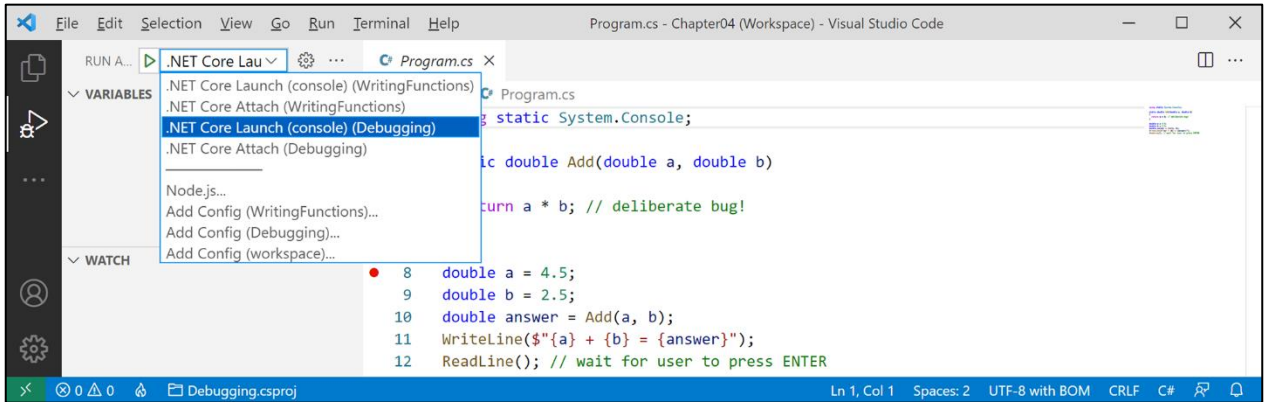
- Solution 'Chapter04' (2 of 2 projects)
 - Debugging
 - Dependencies
 - C# Program.cs
 - WritingFunctions
 - Dependencies
 - C# Program.cs

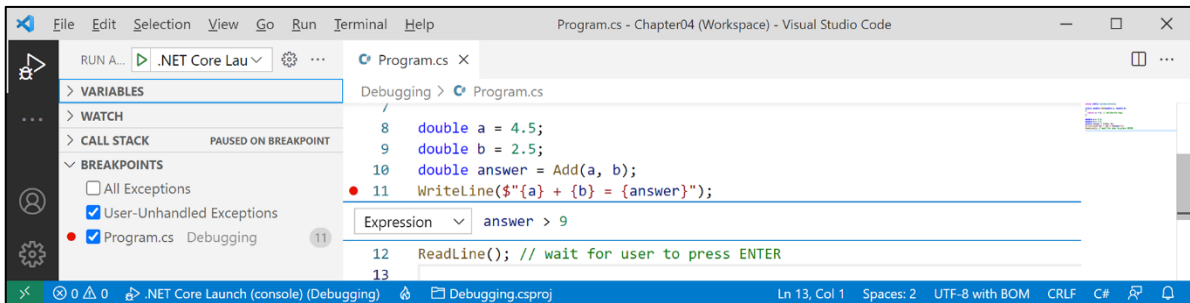
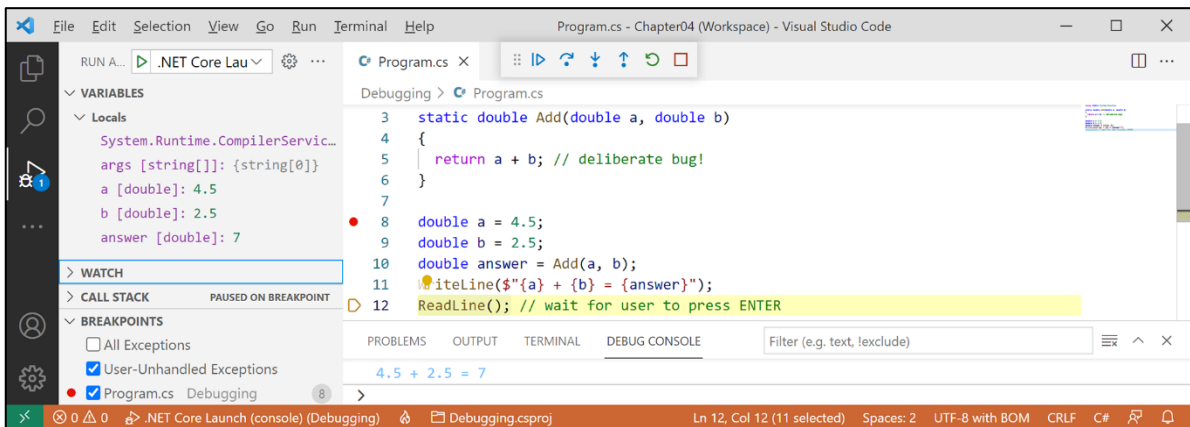
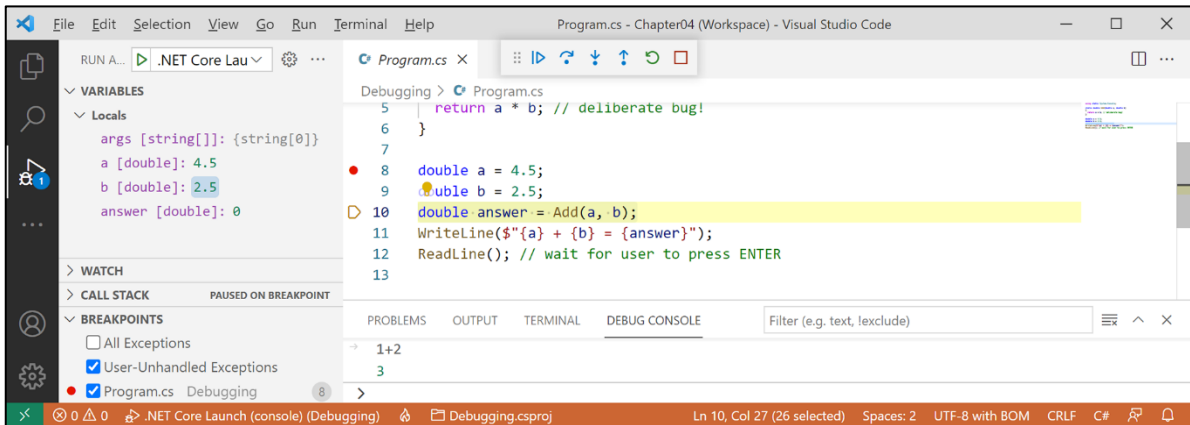
The main editor window shows the code for the `Add` function, which contains a deliberate bug:

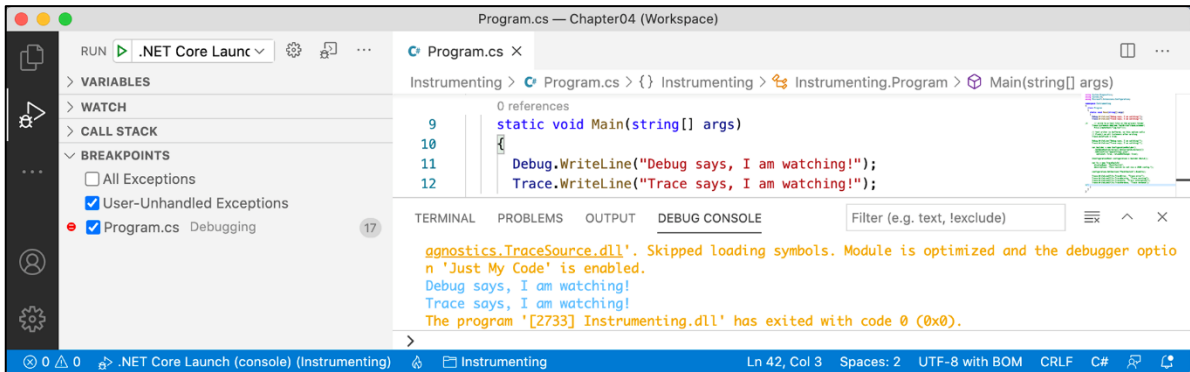
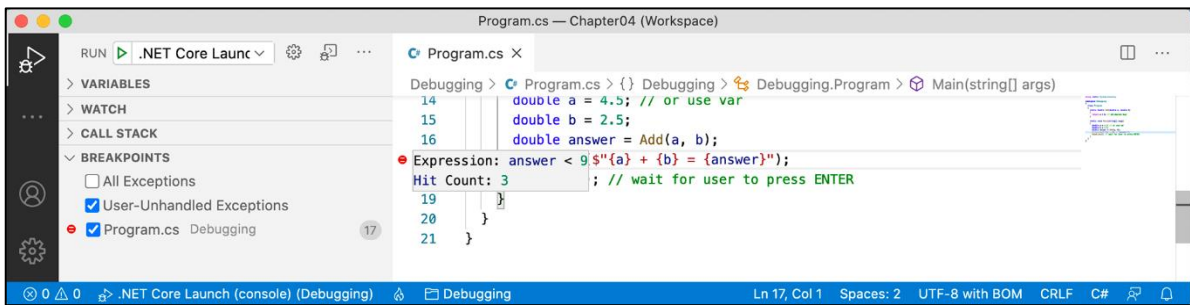
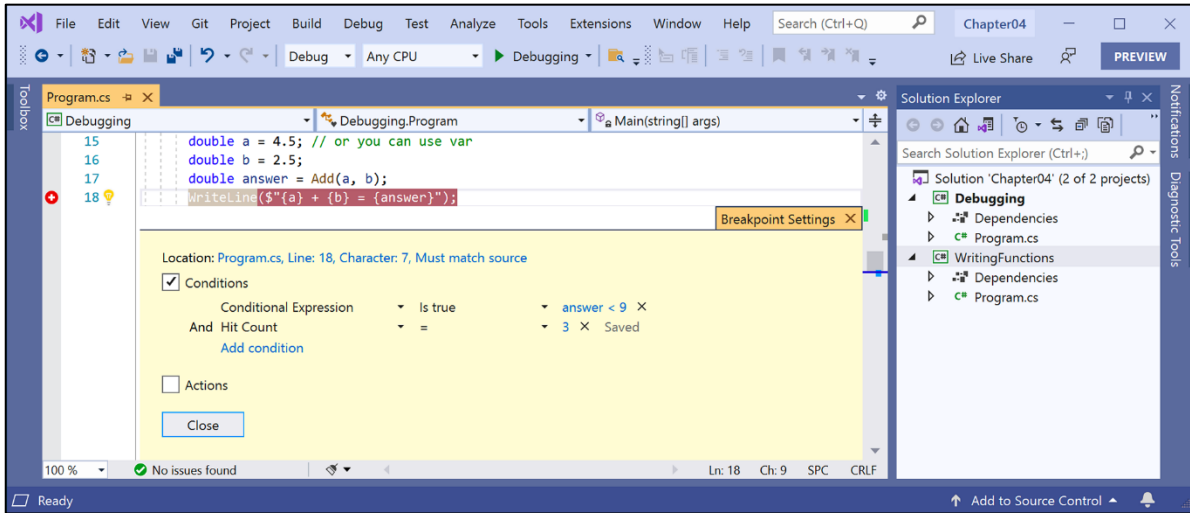
```
1 using static System.Console;
2
3 static double Add(double a, double b)
4 {
5     return a * b; // deliberate bug!
6 }
7
8 double a = 4.5;
9 double b = 2.5;
10 double answer = Add(a, b);
11 WriteLine($"{a} + {b} = {answer}");
```

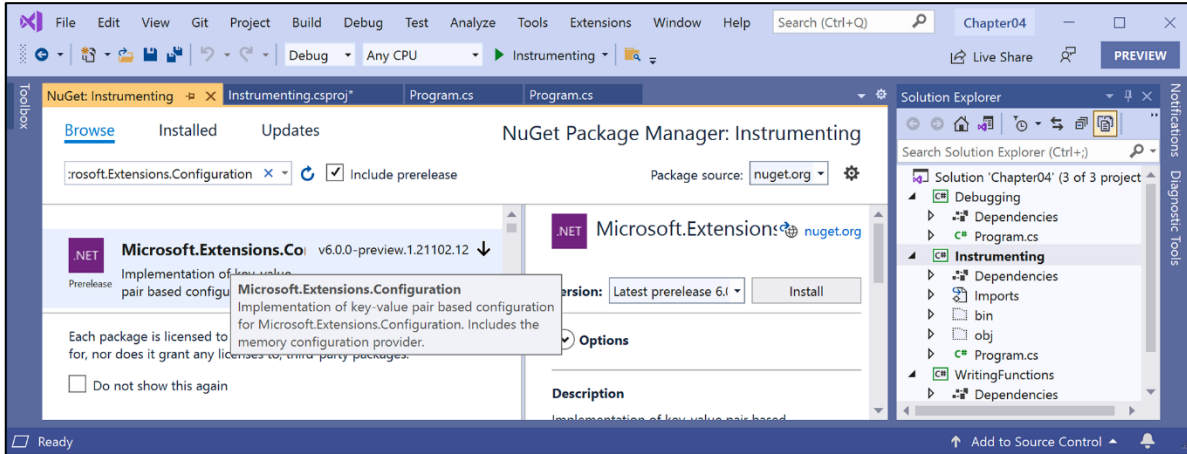
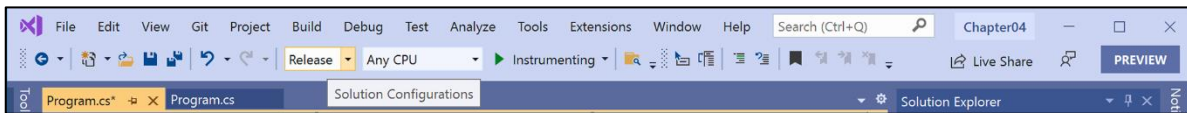
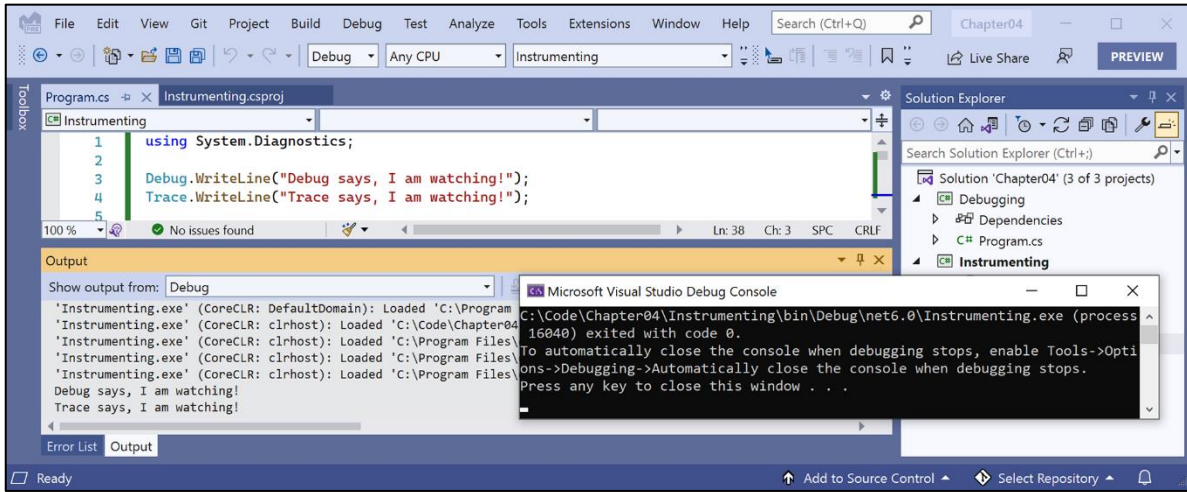
The status bar at the bottom indicates '100 %', 'No issues found', 'Ln: 7', 'Ch: 1', 'SPC', and 'CRLF'. The bottom of the window shows 'Item(s) Saved' and 'Add to Source Control' and 'Select Repository' buttons.

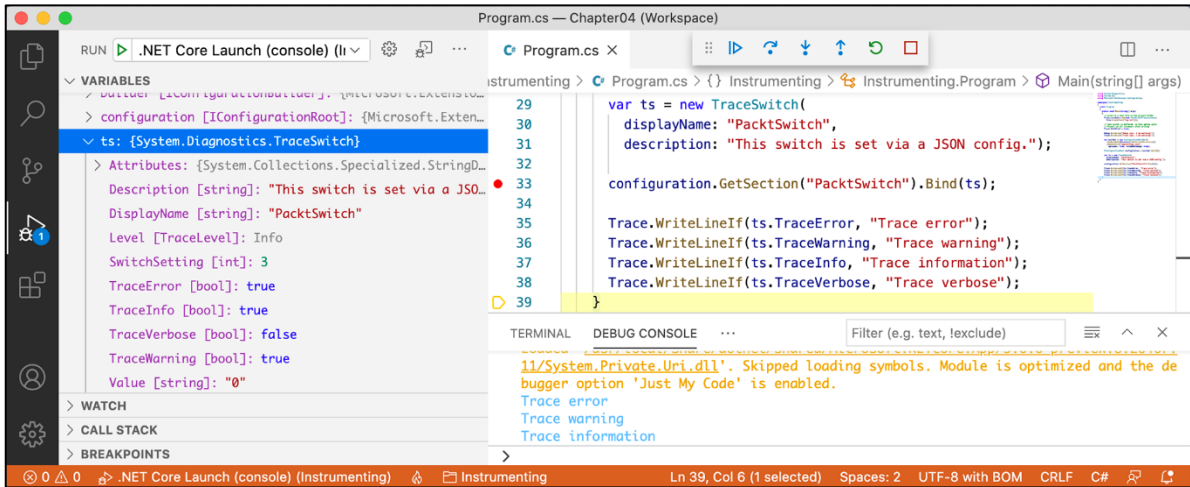
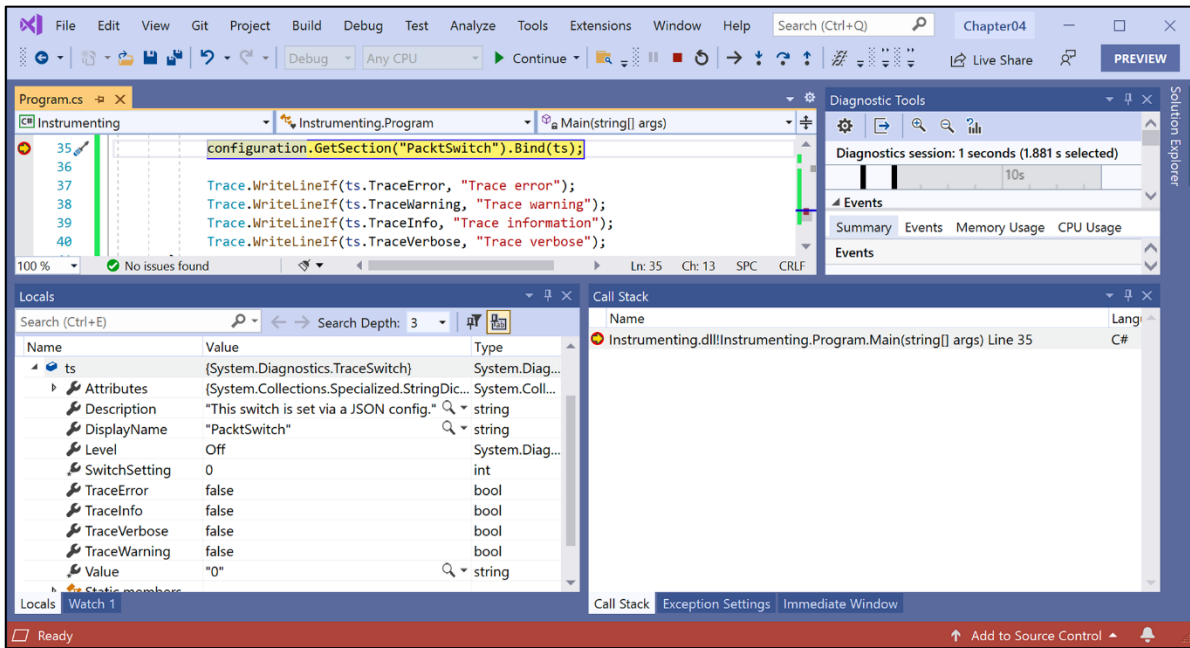












```

CalculatorUnitTests.cs — Chapter04 (Workspace)
EXPLORER
OPEN EDITORS
CalculatorUnitTests.cs Calculato...
CHAPTER04 (WORKSPACE)
log.txt
Program.cs
CalculatorLib
bin
obj
Calculator.cs
CalculatorLib.csproj
CalculatorLibUnitTests
bin
obj
CalculatorLibUnitTests.csproj
CalculatorUnitTests.cs
OUTLINE
NPM SCRIPTS
ILSPY DECOMPILED MEMBERS
TERMINAL
3: bash
Marks-MacBook-Pro-13:CalculatorLibUnitTests markjprice$ dotnet test
Determining projects to restore...
All projects are up-to-date for restore.
You are using a preview version of .NET. See: https://aka.ms/dotnet-core-preview
CalculatorLib -> /Users/markjprice/Code/Chapter04/CalculatorLib/bin/Debug/net5.0/CalculatorLib.dll
CalculatorLibUnitTests -> /Users/markjprice/Code/Chapter04/CalculatorLibUnitTests/bin/Debug/net5.0/CalculatorLibUnitTests.dll
Test run for /Users/markjprice/Code/Chapter04/CalculatorLibUnitTests/bin/Debug/net5.0/CalculatorLibUnitTests.dll (.NETCoreApp,Version=v5.0)
Microsoft (R) Test Execution Command Line Tool Version 16.8.0-preview-20200811-01
Copyright (c) Microsoft Corporation. All rights reserved.

Starting test execution, please wait...
A total of 1 test files matched the specified pattern.
[xUnit.net 00:00:00.64] CalculatorLibUnitTests.CalculatorUnitTests.TestAdding2And3 [FAIL]
Failed CalculatorLibUnitTests.CalculatorUnitTests.TestAdding2And3 [5 ms]
Error Message:
Assert.Equal() Failure
Expected: 5
Actual: 6
Stack Trace:
at CalculatorLibUnitTests.CalculatorUnitTests.TestAdding2And3() in /Users/markjprice/Code/Chapter04/CalculatorLibUnitTests/CalculatorUnitTests.cs:line 37

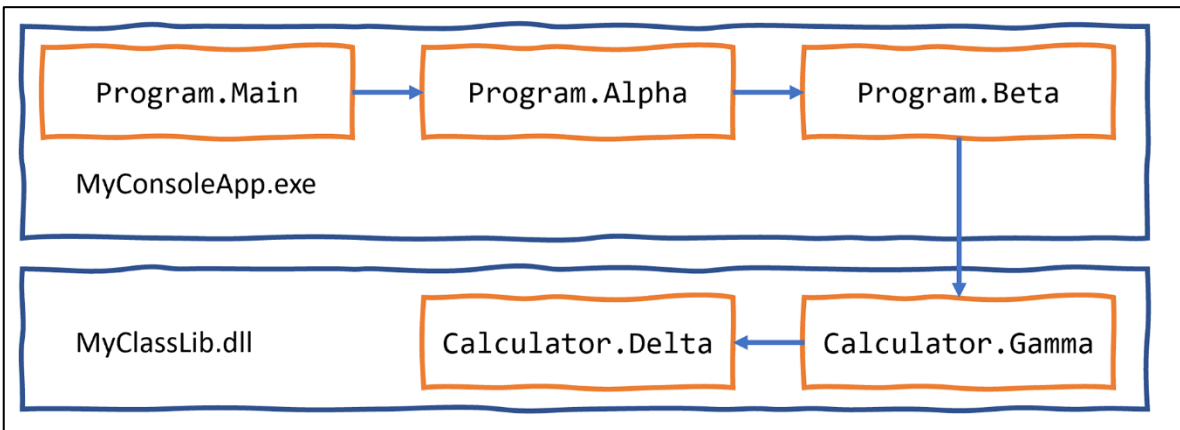
Failed! - Failed: 1, Passed: 1, Skipped: 0, Total: 2, Duration: 7 ms - /Users/markjprice/Code/Chapter04/CalculatorLibUnitTests/bin/Debug/net5.0/CalculatorLibUnitTests.dll (net5.0)
/usr/local/share/dotnet/sdk/5.0.100-preview.8.20417.9/Microsoft.TestPlatform.targets(32,5): error MSB4181: The "Microsoft.TestPlatform.Build.Tasks.VSTestTask" task returned false but did not log an error. [/Users/markjprice/Code/Chapter04/CalculatorLibUnitTests/CalculatorLibUnitTests.csproj]
Marks-MacBook-Pro-13:CalculatorLibUnitTests markjprice$

```

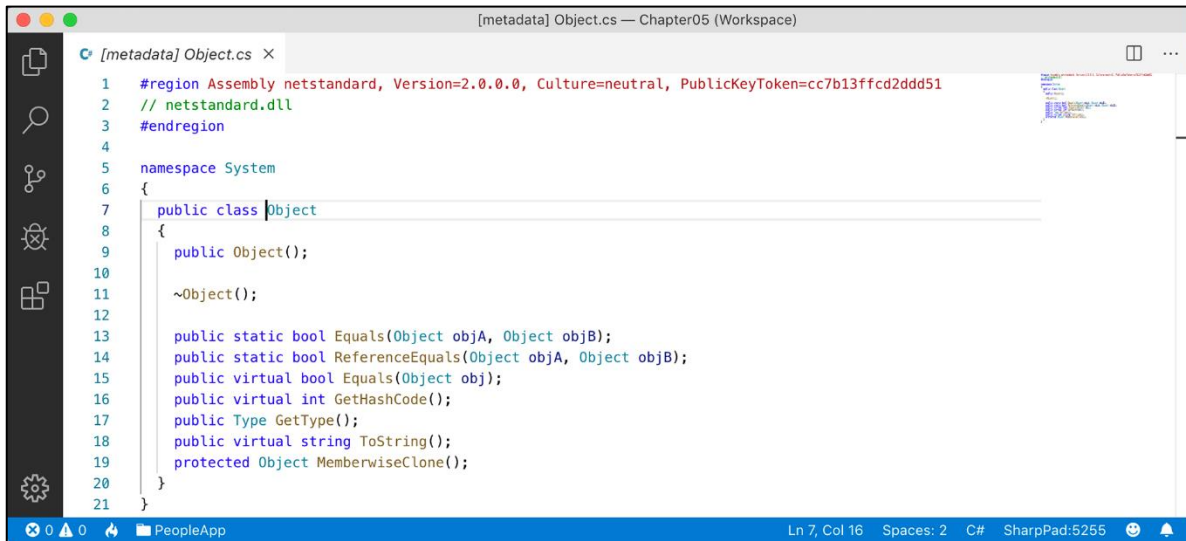
Visual Studio Test Explorer showing test results for CalculatorLibUnitTests. The test 'TestAdding2And3' failed with an Assert.Equal() error. The Group Summary shows 1 Passed and 1 Failed test.

Test	Duration	Traits	Error Message
CalculatorLibUnitTests (2)	10 ms		
CalculatorLibUnitTests (2)	10 ms		
CalculatorUnitTests (2)	10 ms		
TestAdding2And2	1 ms		
TestAdding2And3	9 ms		Assert.Equal() Failure Expected: 5 Actual: 6

Group Summary
CalculatorUnitTests
Tests in group: 2
Total Duration: 10 ms
Outcomes
1 Passed
1 Failed

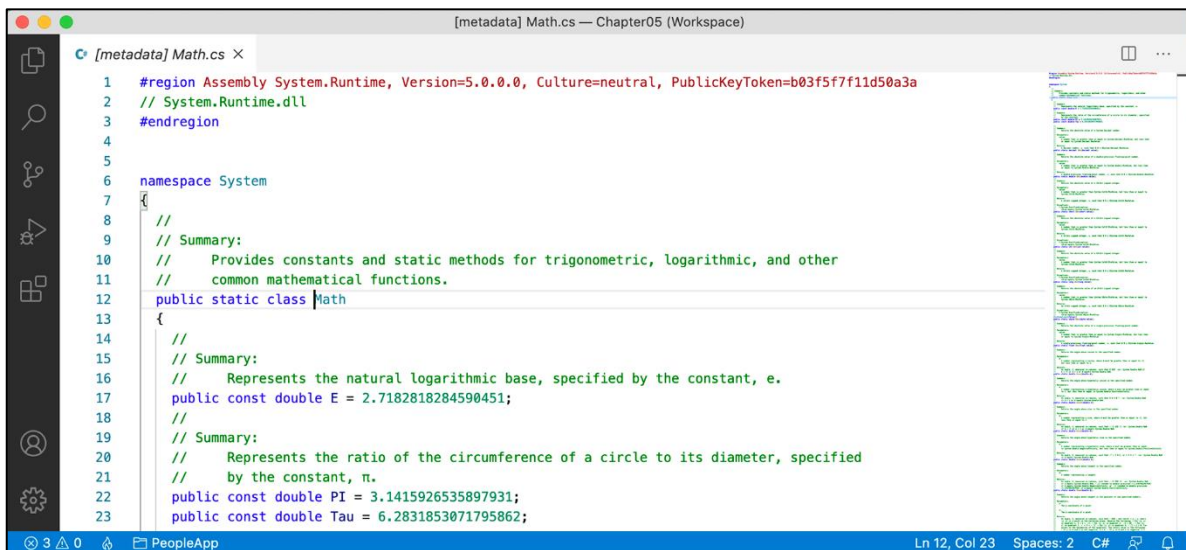


Chapter 5: Building Your Own Types with Object-Oriented Programming



```
[metadata] Object.cs — Chapter05 (Workspace)
[metadata] Object.cs x
1 #region Assembly netstandard, Version=2.0.0.0, Culture=neutral, PublicKeyToken=cc7b13ffcd2ddd51
2 // netstandard.dll
3 #endregion
4
5 namespace System
6 {
7     public class Object
8     {
9         public Object();
10
11         ~Object();
12
13         public static bool Equals(Object objA, Object objB);
14         public static bool ReferenceEquals(Object objA, Object objB);
15         public virtual bool Equals(Object obj);
16         public virtual int GetHashCode();
17         public Type GetType();
18         public virtual string ToString();
19         protected Object MemberwiseClone();
20     }
21 }
```

Ln 7, Col 16 Spaces: 2 C# SharpPad:5255



```
[metadata] Math.cs — Chapter05 (Workspace)
[metadata] Math.cs x
1 #region Assembly System.Runtime, Version=5.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a
2 // System.Runtime.dll
3 #endregion
4
5 namespace System
6 {
7     //
8     // Summary:
9     // Provides constants and static methods for trigonometric, logarithmic, and other
10 // common mathematical functions.
11 //
12     public static class Math
13     {
14         //
15         // Summary:
16         // Represents the natural logarithmic base, specified by the constant, e.
17         public const double E = 2.7182818284590451;
18         //
19         // Summary:
20         // Represents the ratio of the circumference of a circle to its diameter, specified
21         // by the constant, π.
22         public const double PI = 3.1415926535897931;
23         public const double Tau = 6.2831853071795862;
24     }
25 }
```

Ln 12, Col 23 Spaces: 2 C#

Program.cs — Chapter05 (Workspace)

```
EXPLORER
  OPEN EDITORS
    Program.cs PeopleApp
    Person.cs PackLibrary
  CHAPTER05 (WORKSPACE)
    .vscode
    bin

Program.cs x Person.cs
PeopleApp > Program.cs > {} PeopleApp > PeopleApp.Program > Main(string[] args)
139
140 // Defining and passing parameters to methods
141
142 WriteLine(bob.SayHello()) string Person.SayHelloTo(string name)
143 WriteLine(bob.SayHelloTo("Emily"));
144
```

Ln 143, Col 32 Spaces: 2 UTF-8 with BOM CRLF C# SharpPad:5255

Program.cs — Chapter05 (Workspace)

```
EXPLORER
  OPEN EDITORS
    Program.cs PeopleApp
    Person.cs PackLibrary
  CHAPTER05 (WORKSPACE)
    .vscode
    bin

Program.cs x Person.cs
PeopleApp > Program.cs > {} PeopleApp > PeopleApp.Program > Main(string[] args)
139
140 // Defining and passing parameters to methods
141
142 WriteLine(bob.SayHello()) string Person.SayHello(string name)
143 WriteLine(bob.SayHelloTo("Emily"));
144
```

Ln 143, Col 30 Spaces: 2 UTF-8 with BOM CRLF C# SharpPad:5255

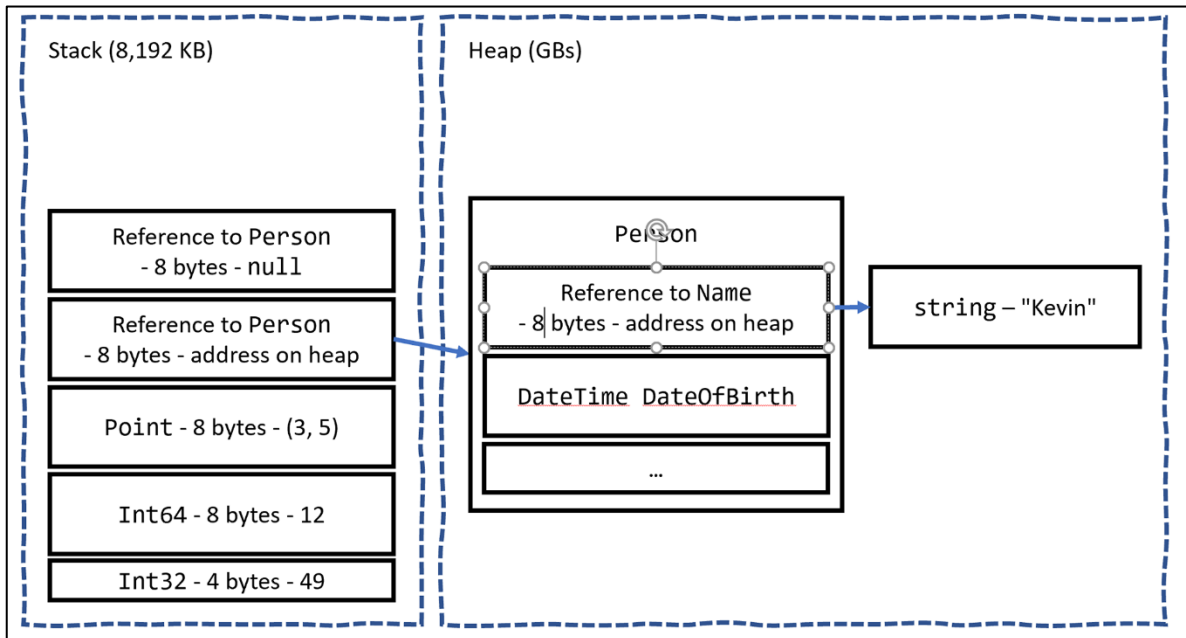
Program.cs — Chapter05 (Workspace)

```
EXPLORER
  OPEN EDITORS
    Program.cs PeopleApp
    Person.cs PackLibrary
  CHAPTER05 (WORKSPACE)
    .vscode
    bin

Program.cs x Person.cs
PeopleApp > Program.cs > {} PeopleApp > PeopleApp.Program > Main(string[] args)
144
145 // Passing optional parameters string Person.OptionalParameters(string command = "Run!",
146 double number = 0, bool active = true)
147 WriteLine(bob.OptionalParameters());
148
```

Ln 147, Col 40 Spaces: 2 UTF-8 with BOM CRLF C# SharpPad:5255

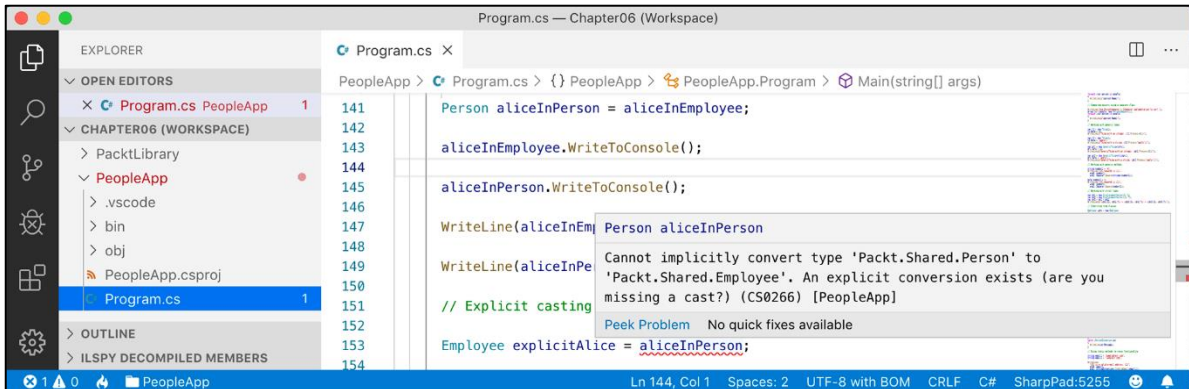
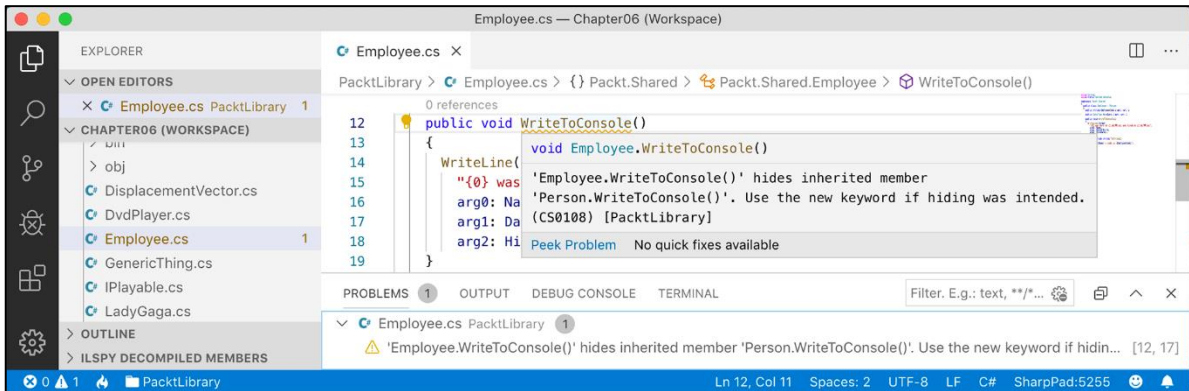
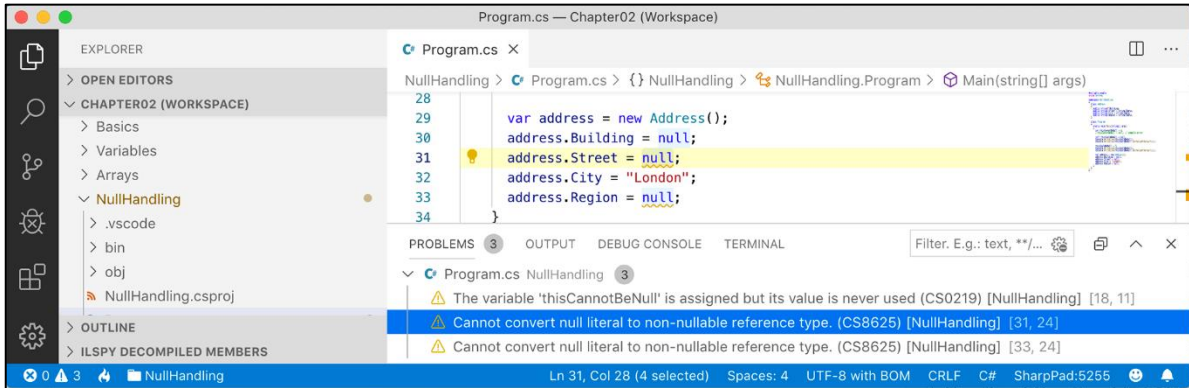
Chapter 6: Implementing Interfaces and Inheriting Classes

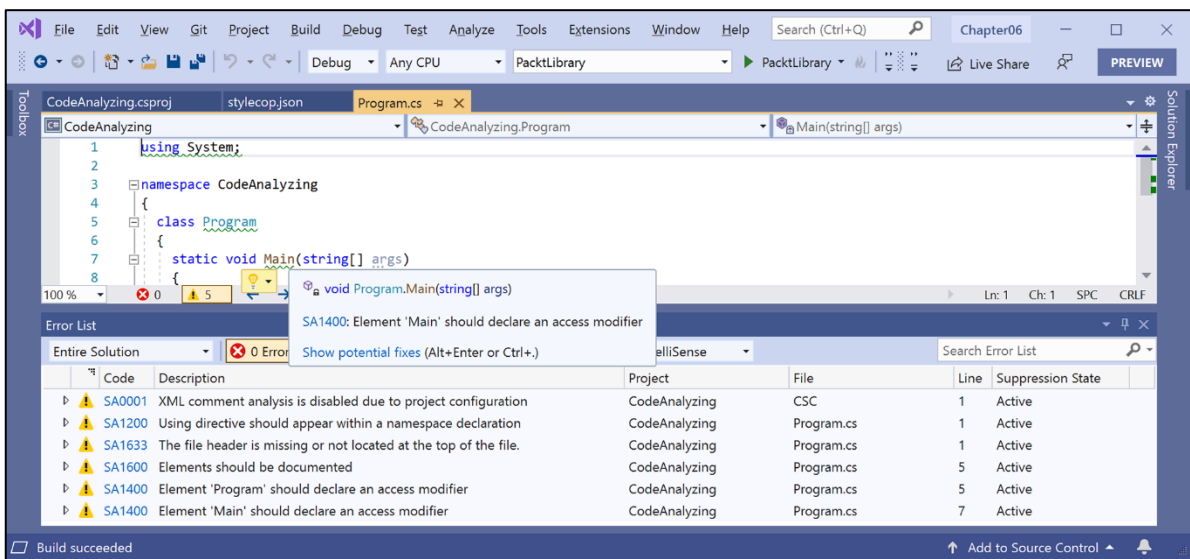
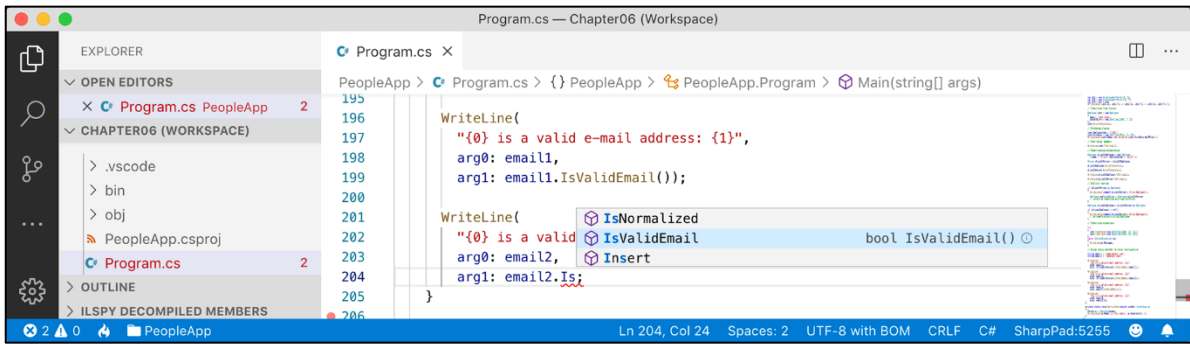


```
6 class Address
7 {
8     public string? Building; // can be null
9     public string Street; // must have a value
```

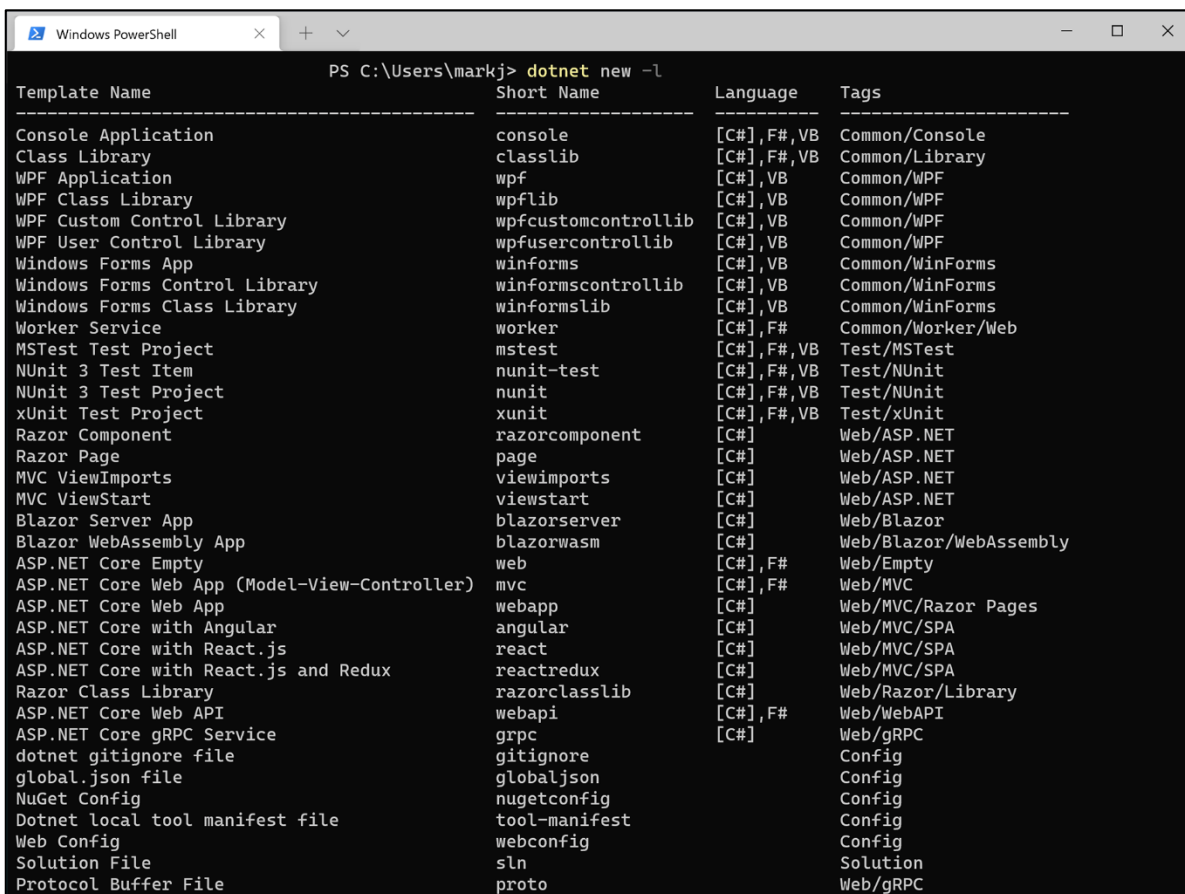
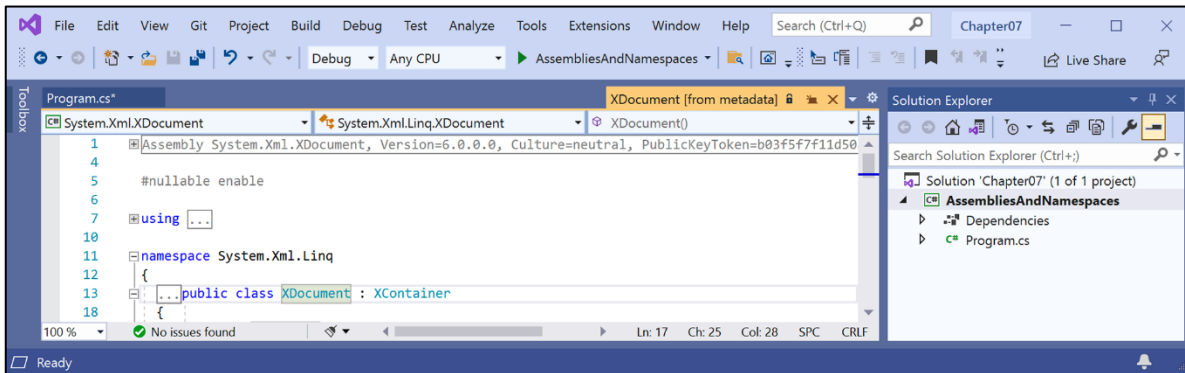
PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL

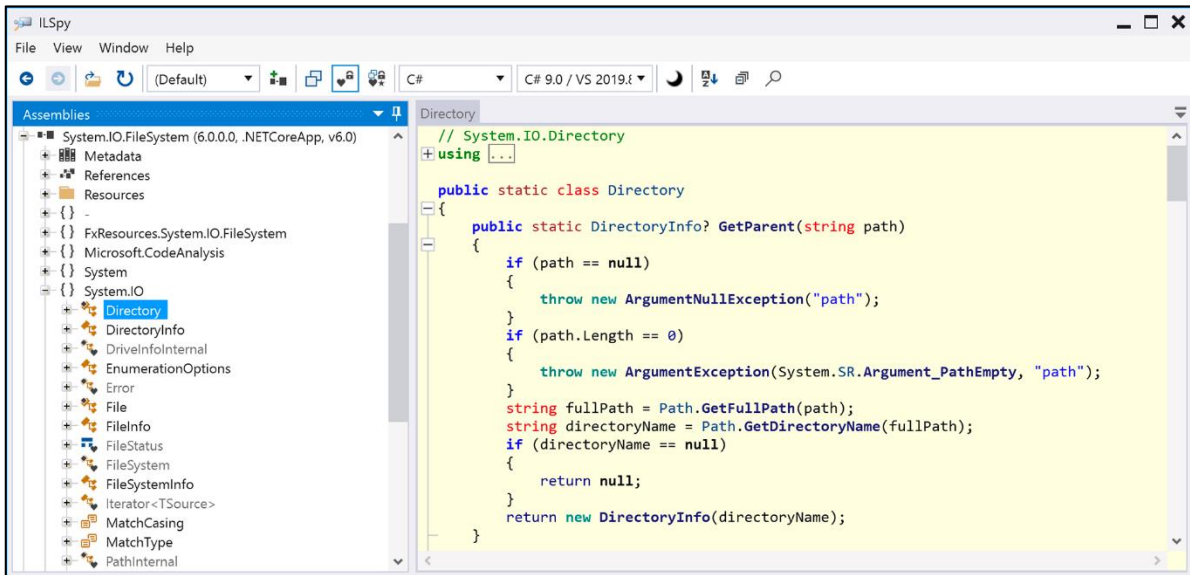
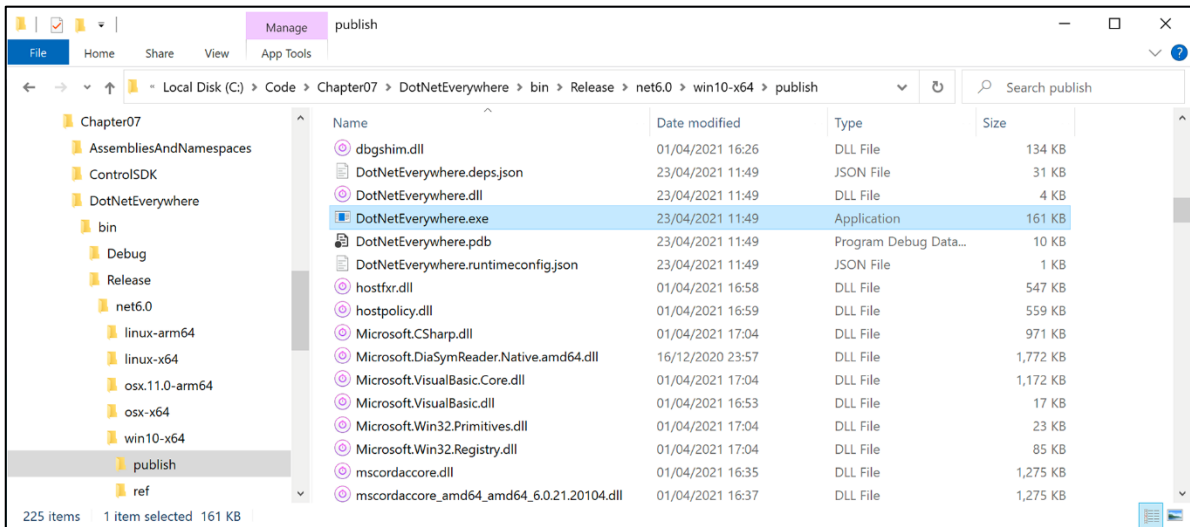
- Non-nullable field 'Street' is uninitialized. Consider declaring the field as nullable. (CS8618) [NullHa... [9, 19]
- Non-nullable field 'City' is uninitialized. Consider declaring the field as nullable. (CS8618) [NullHan... [10, 19]
- Non-nullable field 'Region' is uninitialized. Consider declaring the field as nullable. (CS8618) [NullH... [11, 19]





Chapter 7: Packaging and Distributing .NET Types





```
Visual Studio Code
PROBLEMS TERMINAL OUTPUT DEBUG CONSOLE
Starting ILSpy.Host server at 23/04/2021, 12:42:43

ILSpy.Host server started
Path: c:\Users\markj\.vscode\extensions\icsharpcode.ilspy-vscode-0.9.0\bin\ilspy-host\ILSpy.Host.exe
PID: 1128

ILSpy.Host: --stdio --encoding utf-8
[info]: ILSpy.Host.Startup
ILSpy.Host server running using Stdio.
2021-04-23 12:42:45 INF ILSpy.Host server running using Stdio.
2021-04-23 12:42:46 DBG Hosting starting
2021-04-23 12:42:46 DBG Hosting started
Enqueue Normal request for /addassembly.
Processing Normal queue
makeRequest: /addassembly (1), data={"AssemblyPath": "c:\\\\Code\\\\Chapter07\\\\DotNetEverywhere\\\\bin\\\\Release\\\\net6.0\\\\linux-x64\\\\System.IO.FileSystem.dll"}
2021-04-23 12:42:46 INF "Request starting HTTP/1.1 POST http:///addassembly application/json "
Dequeue Normal request for /addassembly (1).
handleResponse: /addassembly (1)
```

```
Visual Studio Code
1619178129737.cs - Visual Studio Code
EXPLORER
OPEN EDITORS
GROUP 1
1619178129737.cs C:\Users\markj\...
GROUP 2
1619178129737.il C:\Users\markj\A...
NO FOLDER OPENED
You have not yet opened a folder.
Open Folder
You can clone a repository locally.
OUTLINE
ILSPY DECOMPILED MEMBERS
c:\Code\Chapter07\DotNetEv...
C:\Users > markj > AppData > Local > Temp > 1619178129737.cs X
1 // c:\\Code\\Chapter07\\DotNetEver
2 // System.IO.FileSystem, Version=6
3 // Global type: <Module>
4 // Architecture: 64797
5 // This assembly contains unmanage
6 // Runtime: v4.0.30319
7
8 using Microsoft.Win32.SafeHandles;
9 using System;
10 using System.Diagnostics;
11 using System.IO;
12 using System.Reflection;
13 using System.Resources;
14 using System.Runtime.CompilerServices;
15 using System.Runtime.InteropServices;
16 using System.Runtime.Versioning;
17
18 [assembly: CompilationRelaxations(
19 [assembly: RuntimeCompatibility(Wr
C:\Users > markj > AppData > Local > Temp > 1619178129737.il X
1 // c:\\Code\\Chapter07\\DotNetEver
2
3 .module extern libSystem.Native
4 .assembly extern System.Runtime
5 {
6 .publickeytoken = (
7 b0 3f 5f 7f 11 d5 0a 3a
8 )
9 .ver 6:0:0:0
10 }
11 .assembly extern System.Runtime.In
12 {
13 .publickeytoken = (
14 b0 3f 5f 7f 11 d5 0a 3a
15 )
16 .ver 6:0:0:0
17 }
18 .assembly extern System.Memory
19 {
```

```
C:\Users\markj\AppData\Local\Temp\1619178129737.cs
1 // c:\Code\Chapter07\DotNetEver
2 // System.IO.FileSystem, Version=6
3 // Global type: <Module>
4 // Architecture: 64797
5 // This assembly contains unmanage
6 // Runtime: v4.0.30319
7
8 using Microsoft.Win32.SafeHandles;
9 using System;
10 using System.Diagnostics;
11 using System.IO;
12 using System.Reflection;
13 using System.Resources;
14 using System.Runtime.CompilerServices;
15 using System.Runtime.InteropServices;
16 using System.Runtime.Versioning;
17
18 [assembly: CompilationRelaxations(C
19 [assembly: RuntimeCompatibility(Wp

C:\Users\markj\AppData\Local\Temp\1619178129737.il
1 // c:\Code\Chapter07\DotNetEver
2
3 .module extern libSystem.Native
4 .assembly extern System.Runtime
5 {
6     .publickeytoken = (
7         b0 3f 5f 7f 11 d5 0a 3a
8     )
9 }
10 .assembly extern System.Runtime.In
11 {
12     .publickeytoken = (
13         b0 3f 5f 7f 11 d5 0a 3a
14     )
15 }
16 .ver 6:0:0:0
17 }
18 .assembly extern System.Memory
19 }
```

NuGet Gallery | Packt.CSdotnet.S

https://www.nuget.org/packages/Packt.CSdotnet.SharedLibrary/6.0.0

nuget Packages Upload Statistics Documentation Downloads Blog markjprice

Search for packages...

You successfully uploaded Packt.CSdotnet.SharedLibrary 6.0.0.

Packt.CSdotnet.SharedLibrary 6.0.0

Three extension methods to validate a string value.

⚠ This package has not been published yet. It will appear in search results and will be available for install/restore after both validation and indexing are complete. Package validation and indexing may take up to an hour. [Read more.](#)

⚠ The package icon will become available after this package is indexed.

Info


- 🕒 last updated a few seconds ago
- 🌐 [Project Site](#)
- 📄 License: [MS-PL](#)
- ✉ [Contact owners](#)
- ❓ [Contact support](#)

Browser window showing the NuGet package page for Packt.CSdotnet.SharedLibrary 6.0.0. The page is divided into several sections:

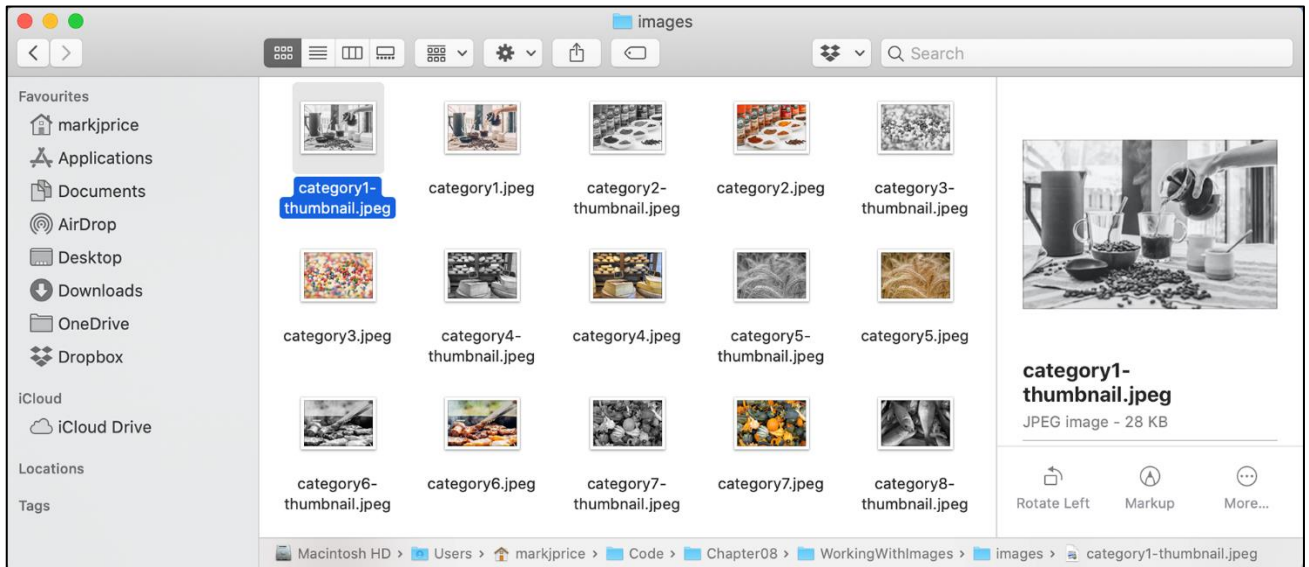
- File:** Metadata (selected) and Dependencies.
- Metadata:** Id: Packt.CSdotnet.SharedLibrary, Version: 6.0.0.
- Digital Signatures:** Repository: NuGet.org Repository by Microsoft, @ Friday, April 23, 2021 1:23:08 PM, by Symantec SHA256 TimeStamping Signer - G3, Owners: markjprice, Service Index: <https://api.nuget.org/v3/index.json>.
- Health:** (Collapsible section).
- Contents:** lib, netstandard2.0, SharedLibrary.dll (selected), packt-csdotnet-sharedlibrary.png.
- SharedLibrary.dll:** Size: 5.0 KB, Assembly Attributes (selected), PDB Info, PDB Metadata, References, PDB Sources.

Assembly Attributes:

- Full Name: SharedLibrary, Version=1.0.0.0, Culture=neutral, PublicKeyToken=null
- Strong Name: No
- AssemblyCompany: Mark J Price
- AssemblyConfiguration: Release
- AssemblyCopyright: Copyright © 2020-2021 Packt Publishing Limited

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Chapter 8: Working with Common .NET Types




Chapter 9: Working with Files, Streams, and Serialization

```
Microsoft Visual Studio Debug Console
Path.PathSeparator           ;
Path.DirectorySeparatorChar  \
Directory.GetCurrentDirectory() C:\Code\Chapter09\WorkingWithFileSystems\bin\Debug\net6.0
Environment.CurrentDirectory C:\Code\Chapter09\WorkingWithFileSystems\bin\Debug\net6.0
Environment.SystemDirectory  C:\WINDOWS\system32
Path.GetTempPath()           C:\Users\markj\AppData\Local\Temp\
GetFolderPath(SpecialFolder
    .System)                  C:\WINDOWS\system32
    .ApplicationData)         C:\Users\markj\AppData\Roaming
    .MyDocuments)             \\Mac\Home\Documents
    .Personal)                 \\Mac\Home\Documents
```

```
Microsoft Visual Studio Debug Console
```

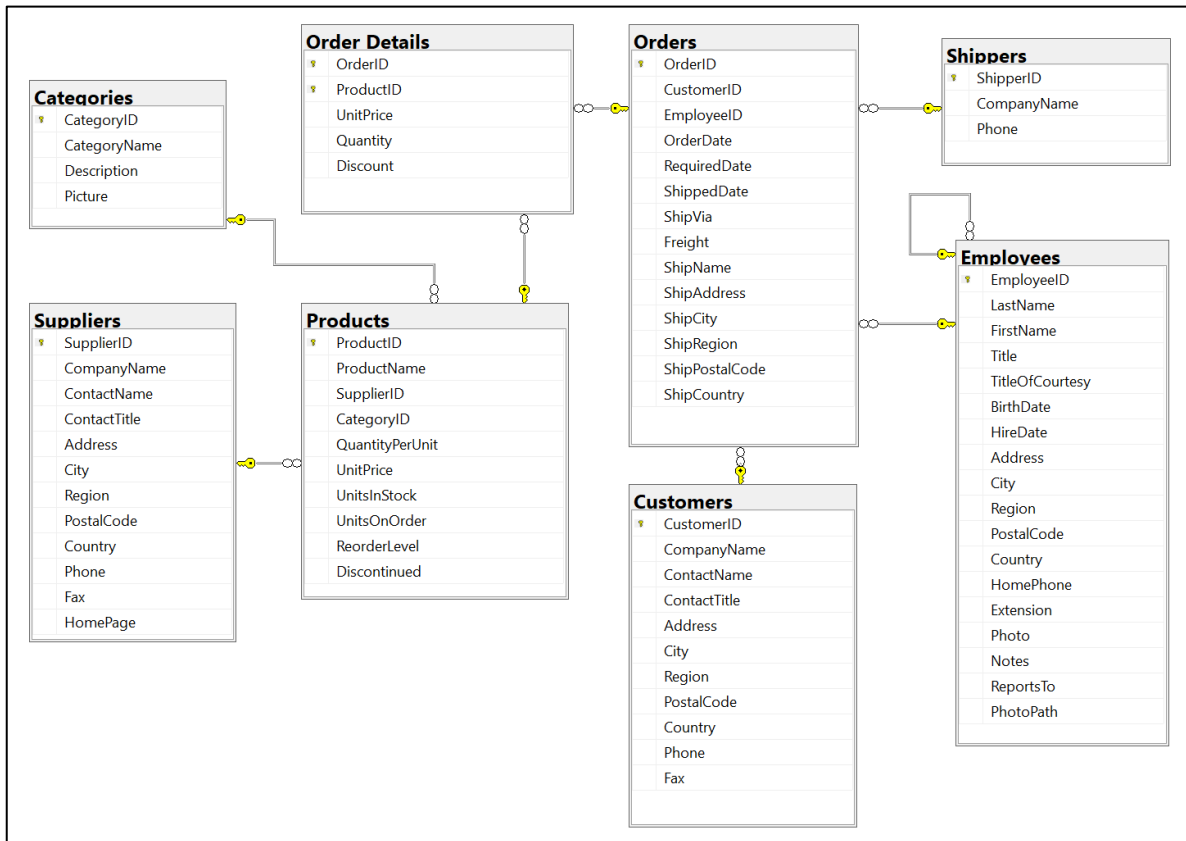
NAME	TYPE	FORMAT	SIZE (BYTES)	FREE SPACE
C:\	Fixed	NTFS	136,314,818,560	23,093,919,744
D:\	CDRom			
E:\	CDRom			
W:\	Network	Pr1SF	499,963,174,912	41,217,667,072
X:\	Network	Pr1SF	499,963,174,912	41,217,667,072
Y:\	Network	Pr1SF	499,963,174,912	41,217,667,072
Z:\	Network	Pr1SF	499,963,174,912	41,217,667,072

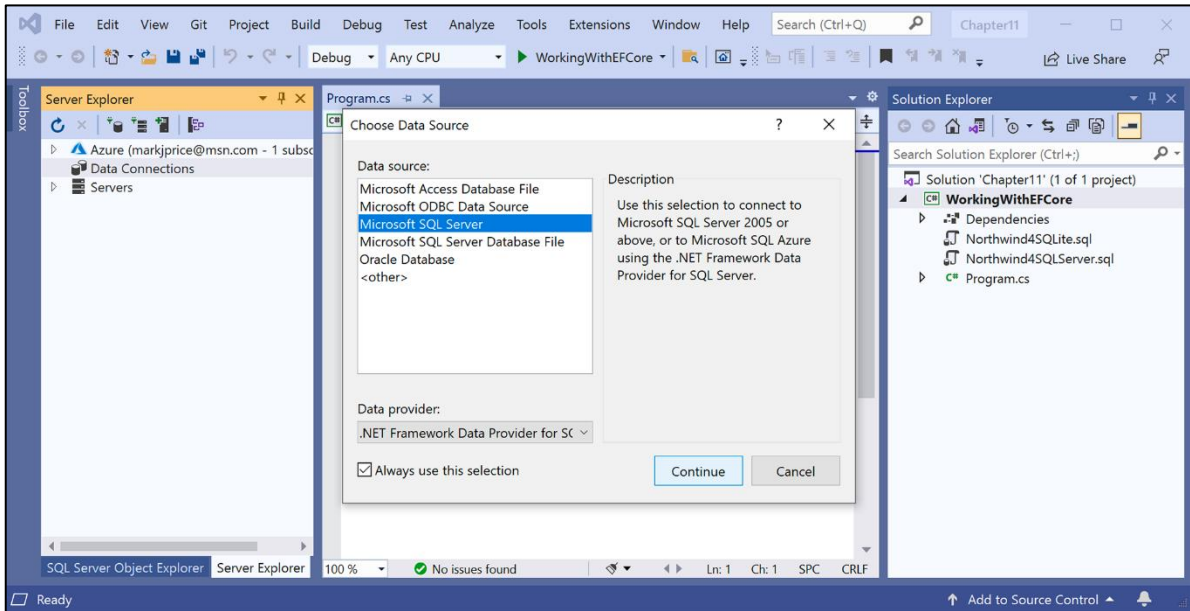
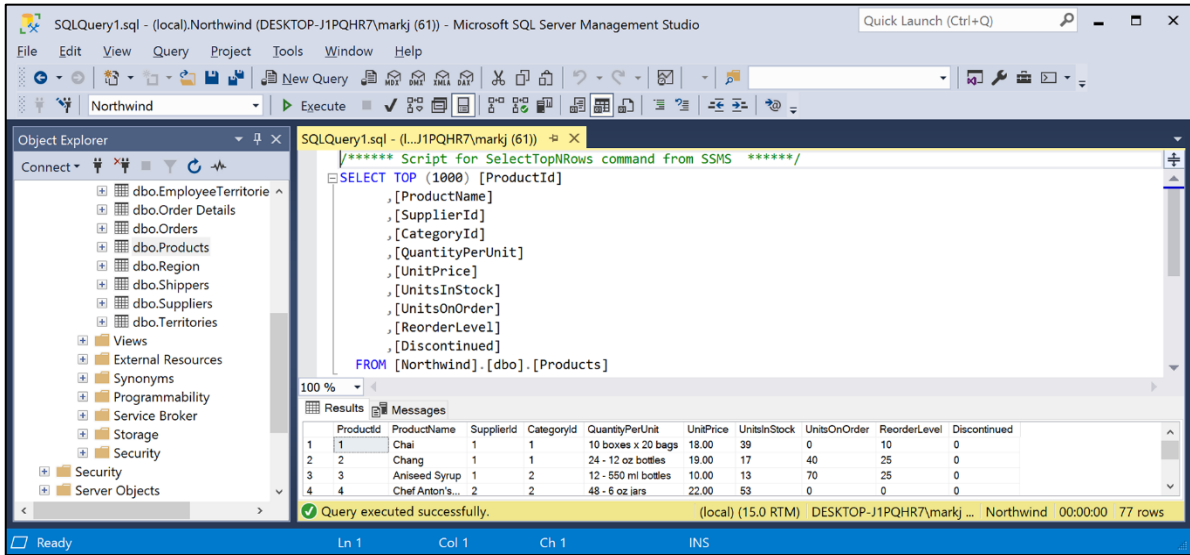
 JamesNK commented on 29 Oct 2018 Member + 🗨️ ⋮

@Thorium Json.NET isn't going away. You aren't losing anything. This is another option for simple and high performance scenarios.

👍 19

Chapter 10: Working with Data Using Entity Framework Core





SQLiteStudio (3.2.1) - [Products (Northwind)]

Database Structure View Tools Help

Databases

Filter by name

- Northwind (SQLite 3)
 - Tables (10)
 - Categories
 - Customers
 - Employees
 - EmployeeTerritories
 - Order Details
 - Orders
 - Products
 - Shippers
 - Suppliers
 - Territories
 - Views

Structure

Table name: Products

	Name	Data type	Primary Key	Foreign Key	Unique	Check	Not NULL	Collate	Default value
1	ProductId	INTEGER	PK						NULL
2	ProductName	nvarchar (40)							NULL
3	SupplierId	"int"		FK					NULL
4	CategoryId	"int"		FK					NULL
5	QuantityPerUnit	nvarchar (20)							NULL
6	UnitPrice	"money"							0
7	UnitsInStock	"smallint"							0
8	UnitsOnOrder	"smallint"							0
9	ReorderLevel	"smallint"							0
10	Discontinued	"bit"							0

Details

Type	Name	Details
1 FOREIGN KEY	FK_Products_Categories (CategoryId)	REFERENCES Categories (CategoryId)
2 FOREIGN KEY	FK_Products_Suppliers (SupplierId)	REFERENCES Suppliers (SupplierId)

Products (Northwind)

SQLiteStudio (3.2.1) - [Products (Northwind)]

Database Structure View Tools Help

Databases

Filter by name

- Northwind (SQLite 3)
 - Tables (10)
 - Categories
 - Customers
 - Employees
 - EmployeeTerritories
 - Order Details
 - Orders
 - Products
 - Shippers
 - Suppliers
 - Territories
 - Views

Structure

Grid view Form view

Filter... % Total rows loaded: 77

	ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice	UnitsInStock	UnitsOnOrder	ReorderLevel	Discontinued
1	1	Chai	1	1	10 boxes x 20 bags	18	39	0	10	0
2	2	Chang	1	1	24 - 12 oz bottles	19	17	40	25	0
3	3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	13	70	25	0
4	4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	53	0	0	0
5	5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	0	0	0	1
6	6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25	120	0	25	0
7	7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30	15	0	10	0
8	8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40	6	0	0	0

Chapter11

Server Explorer

- desktop-j1pqhr7.Academy.dbo
 - Tables
 - Courses
 - CourseId
 - Title
 - CourseStudent
 - CoursesCourseId
 - StudentsStudentId
 - Students
 - StudentId
 - FirstName
 - LastName
 - Views
 - Stored Procedures
 - Functions
 - Synonyms
 - Types
 - Assemblies

dbo.Courses [Data]

CourseId	Title
1	C# 10 and .NET 6
2	Web Development
3	Python for Beginners

Connection Ready | . | DESKTOP-J1PQHR7\markj | Academy

dbo.CourseStudent [Data]

CoursesCourseId	StudentsStude...
1	1
1	2
2	2
1	3

Connection Ready | . | DESKTOP-J1PQHR7\markj | Academy

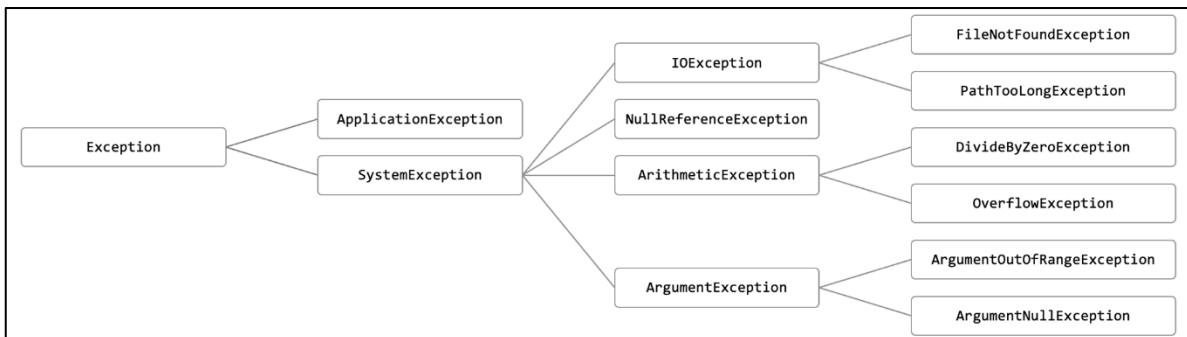
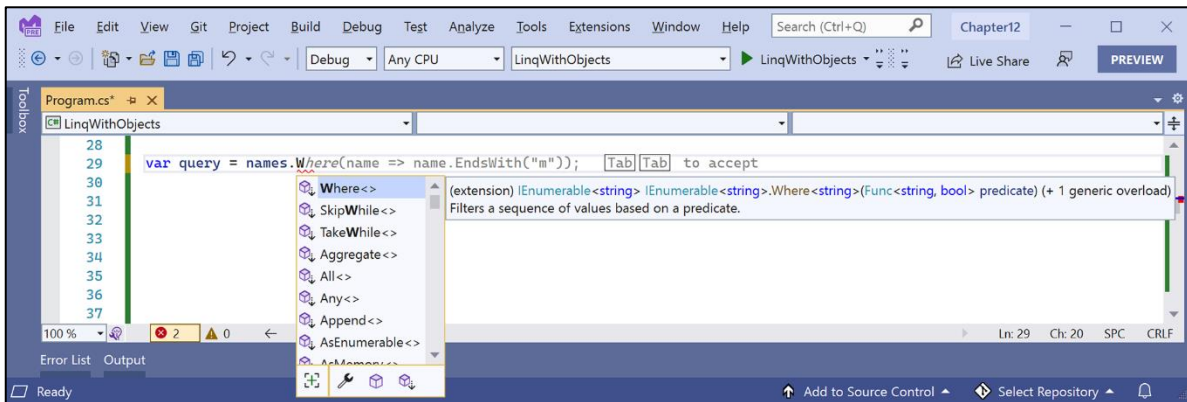
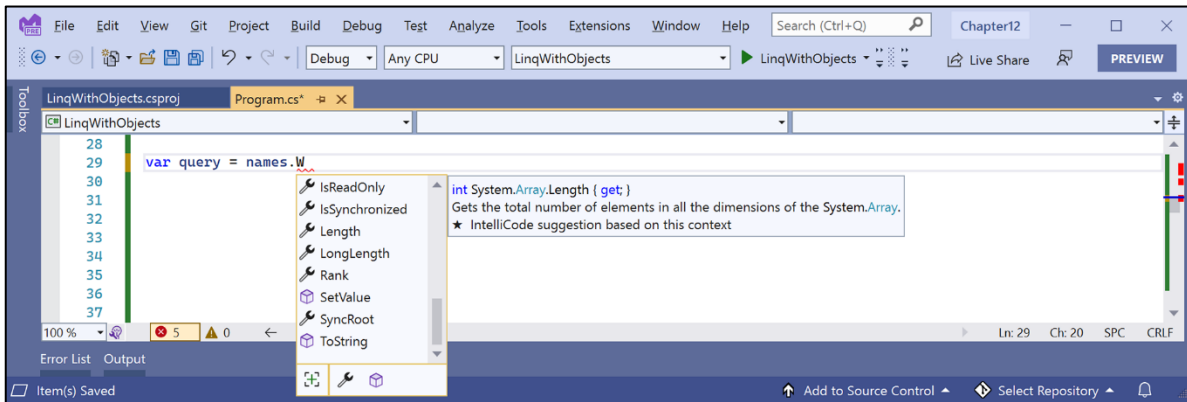
dbo.Students [Data]

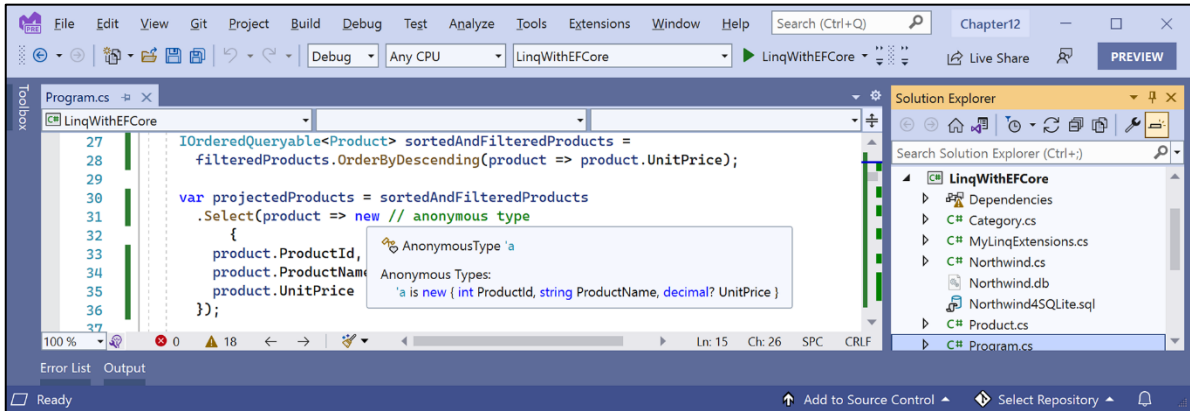
StudentId	FirstName	LastName
1	Alice	Jones
2	Bob	Smith
3	Cecilia	Ramirez

Connection Ready | . | DESKTOP-J1PQHR7\markj | Academy

3 Rows | Cell is Read Only Ln 1 Col 1 Add to Source Control Select Repository

Chapter 11: Querying and Manipulating Data Using LINQ





Chapter 12: Improving Performance and Scalability Using Multitasking

```
Microsoft Visual Studio Debug Console

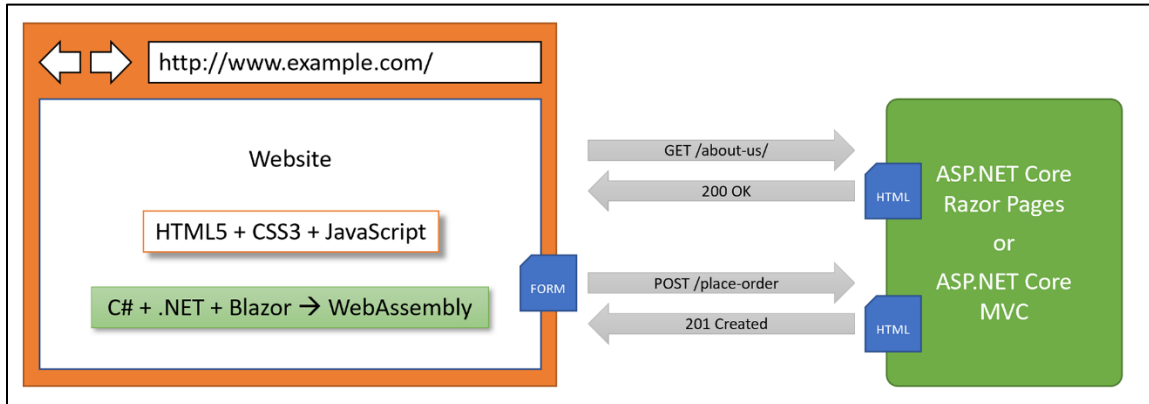
// * Summary *

BenchmarkDotNet=v0.13.1, OS=Windows 10.0.19043.1165 (21H1/May2021Update)
11th Gen Intel Core i7-1165G7 2.80GHz, 1 CPU, 8 logical and 4 physical cores
.NET SDK=6.0.100-preview.7.21379.14
[Host] : .NET 6.0.0 (6.0.21.37719), X64 RyuJIT
DefaultJob : .NET 6.0.0 (6.0.21.37719), X64 RyuJIT

|-----|-----|-----|-----|-----|-----|
| Method | Mean | Error | StdDev | Ratio | RatioSD |
|-----|-----|-----|-----|-----|-----|
| StringConcatenationTest | 413.0 ns | 8.28 ns | 15.96 ns | 1.00 | 0.00 |
| StringBuilderTest | 275.1 ns | 2.31 ns | 2.16 ns | 0.69 | 0.04 |
|-----|-----|-----|-----|-----|-----|

// * Hints *
Outliers
StringBenchmarks.StringConcatenationTest: Default -> 7 outliers were removed, 14 outliers were detected (376.78 ns..391.88 ns, 440.79 ns..506.41 ns)
StringBenchmarks.StringBuilderTest: Default -> 2 outliers were detected (274.68 ns, 274.69 ns)
```

Chapter 13: Introducing Practical Applications of C# and .NET



```

PS C:\Users\markj> dotnet new --list
Template Name                                     Short Name   Language     Tags
-----
Console Application                             console     [C#], F#, VB Common/Console
Class Library                                   classlib    [C#], F#, VB Common/Library
WPF Application                                 wpf         [C#], VB     Common/WPF
WPF Class library                              wpflib     [C#], VB     Common/WPF
WPF Custom Control Library                     wpfcustomcontrollib [C#], VB     Common/WPF
WPF User Control Library                       wpfusercontrollib [C#], VB     Common/WPF
Windows Forms App                              winforms    [C#], VB     Common/winForms
Windows Forms Class Library                   winformslib [C#], VB     Common/winForms
Windows Forms Control Library                 winformscontrollib [C#], VB     Common/winForms
Worker Service                                 worker      [C#], F#     Common/Worker/Web
MSTest Test Project                           mstest     [C#], F#, VB Test/MSTest
NUnit 3 Test Project                           nunit      [C#], F#, VB Test/NUnit
NUnit 3 Test Item                             nunit-test [C#], F#, VB Test/NUnit
xUnit Test Project                             xunit      [C#], F#, VB Test/xUnit
MVC ViewImports                               viewimports [C#]        Web/ASP.NET
Razor Component                               razorcomponent [C#]        Web/ASP.NET
MVC ViewStart                                 viewstart  [C#]        Web/ASP.NET
Razor Page                                    page       [C#]        Web/ASP.NET
Blazor Server App                             blazorserver [C#]        Web/Blazor
Blazor WebAssembly App                       blazorwasm [C#]        Web/Blazor/WebAssembly
ASP.NET Core Empty                            web        [C#], F#    Web/Empty
ASP.NET Core Web App (Model-View-Controller) mvc        [C#], F#    Web/MVC
ASP.NET Core Web App                         webapp     [C#]        Web/MVC/Razor Pages
ASP.NET Core with React.js and Redux          reactredux [C#]        Web/MVC/SPA
ASP.NET Core with Angular                    angular    [C#]        Web/MVC/SPA
ASP.NET Core with React.js                   react      [C#]        Web/MVC/SPA
Razor Class Library                           razorclasslib [C#]        Web/Razor/Library
ASP.NET Core Web API                          webapi     [C#], F#    Web/WebAPI
ASP.NET Core gRPC Service                    grpc       [C#]        Web/gRPC
dotnet gitignore file                       gitignore  globaljson Config
global.json file                             globaljson nugetconfig Config
NuGet Config                                 nugetconfig tool-manifest Config
Dotnet local tool manifest file              webconfig  Config
Web Config                                   sln        Solution
Protocol Buffer File                          proto      Web/gRPC

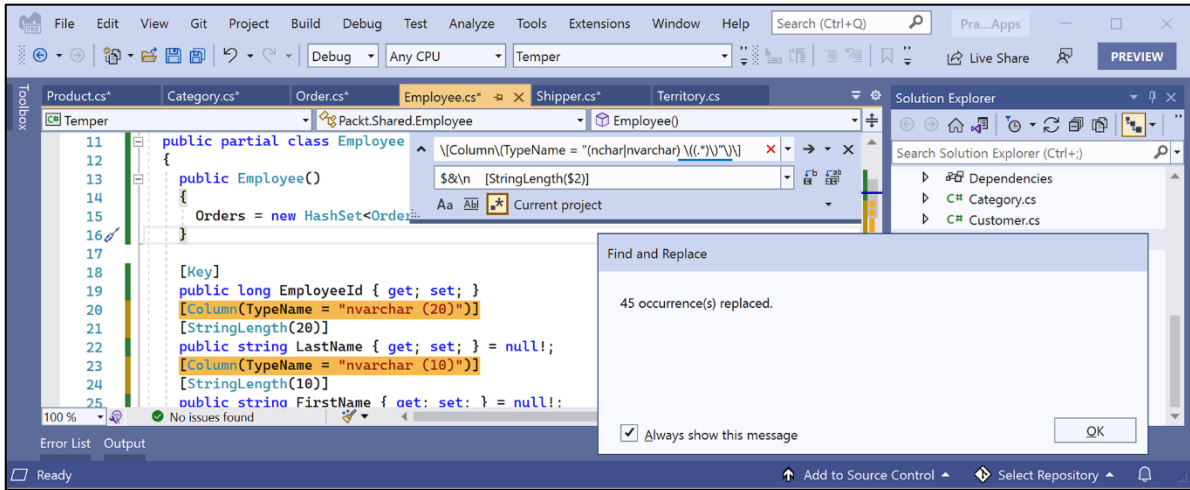
```

dotnet templates

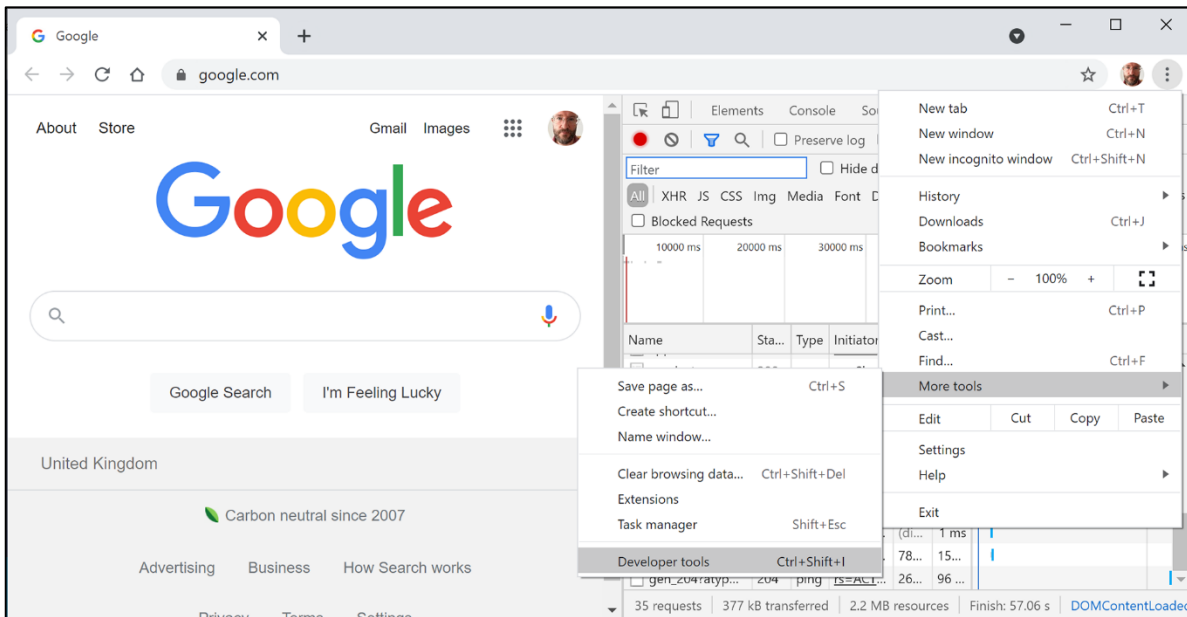
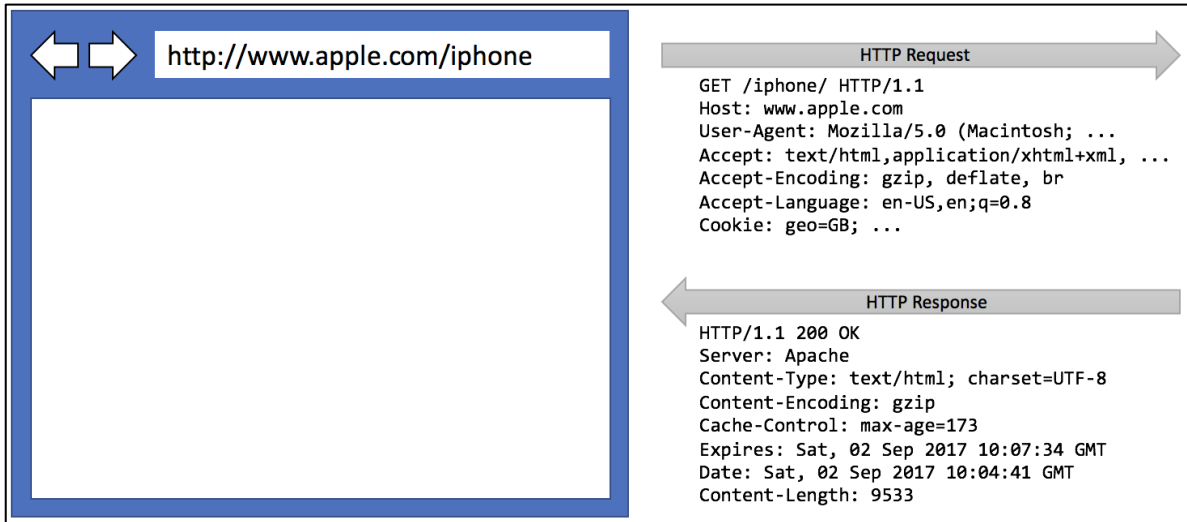
dotnetnew.azurewebsites.net/Search/vue

ASP.NET Core with Vue.js

- by: [Microsoft](#)
- [other templates in this pack](#)
- Tags: language: **C#**; type: **project**;
- Classifications: **Web**; **MVC**; **SPA**;



Chapter 14: Building Websites Using ASP.NET Core Razor Pages



Learn ASP.NET | Free tutorials, co x +

dotnet.microsoft.com/learn/aspnet

Microsoft

.NET

Home > Learning center > Learn ASP.NET

Learn ASP.NET

Free courses, tutorials, videos, and more for learning web development with ASP.NET.

Feedback

Elements Console Sources Network

Filter: Hide data URLs

Blocked Requests

Name	Status	Type	Initiator	Size	Ti...	Waterfall
aspnet	200	document	Other	12.6 ...	3...	
dotnetmdl2-icons-03...	200	font	aspnet	(disk ...	5...	
dotnetmdl2-icons-03...	200	font	aspnet	(disk ...	3...	

64 requests | 688 kB transferred | 2.7 MB resources | Finish: 1.8 min | DOMContentLoaded

Learn ASP.NET | Free tutorials, co x +

dotnet.microsoft.com/learn/aspnet

Microsoft

.NET

Home > Learning center > Learn ASP.NET

Learn ASP.NET

Free courses, tutorials, videos, and more for learning web development with ASP.NET.

Popular learning materials

What is ASP.NET?

Feedback

Elements Console Sources Network Performance Memory

Filter: Hide data URLs

Blocked Requests

Name	Status	Type	Initiator	Size	Ti...	Waterfall
aspnet	200	document	Other	12.6 ...	3...	
dotnetmdl2-icons-032021-2.v	200	font	aspnet	(disk ...	5...	
dotnetmdl2-icons-032021-2.t	200	font	aspnet	(disk ...	5...	
2c-511e5e?ver=2.0&_cf=2021	200	font	aspnet	(disk ...	5...	
override.css?c=7	200	font	aspnet	(disk ...	5...	
bootstrap-custom.min.css?v=	200	font	aspnet	(disk ...	5...	
cookie-consent.min.js?v=-IVL	200	font	aspnet	(disk ...	5...	
general.min.js?v=7G9KUj8Ko	200	font	aspnet	(disk ...	5...	
google-analytics.min.js?v=IGit	200	font	aspnet	(disk ...	5...	
wcp-consent.js	200	font	aspnet	(disk ...	5...	
17-f90ef1?ver=2.0&_cf=2021	200	font	aspnet	(disk ...	5...	
listen-post-message-iframe.m	200	font	aspnet	(disk ...	5...	
RE1Mu3b?ver=5c31	200	font	aspnet	(disk ...	5...	
main.min.js?v=OOcqOBoXUU	200	font	aspnet	(disk ...	5...	
aspnet?domain=https://dotn	200	font	aspnet	(disk ...	5...	
analytics.js	200	font	aspnet	(disk ...	5...	
home-hero-bg.svg	200	font	aspnet	(disk ...	5...	
mwfmdl2-v3.54.woff	200	font	aspnet	(disk ...	5...	
js?id=GTM-KPDDMV7&cid=2	200	font	aspnet	(disk ...	5...	
collect?v=1&_v=90&a=1122	200	font	aspnet	(disk ...	5...	

85 requests | 692 kB transferred

Request URL: https://dotnet.microsoft.com/learn/aspnet

Request Method: GET

Status Code: 200

Remote Address: [2620:1ec:bdf::64]:443

Referrer Policy: strict-origin-when-cross-origin

Response Headers (11)

Request Headers

authority: dotnet.microsoft.com

method: GET

path: /learn/aspnet

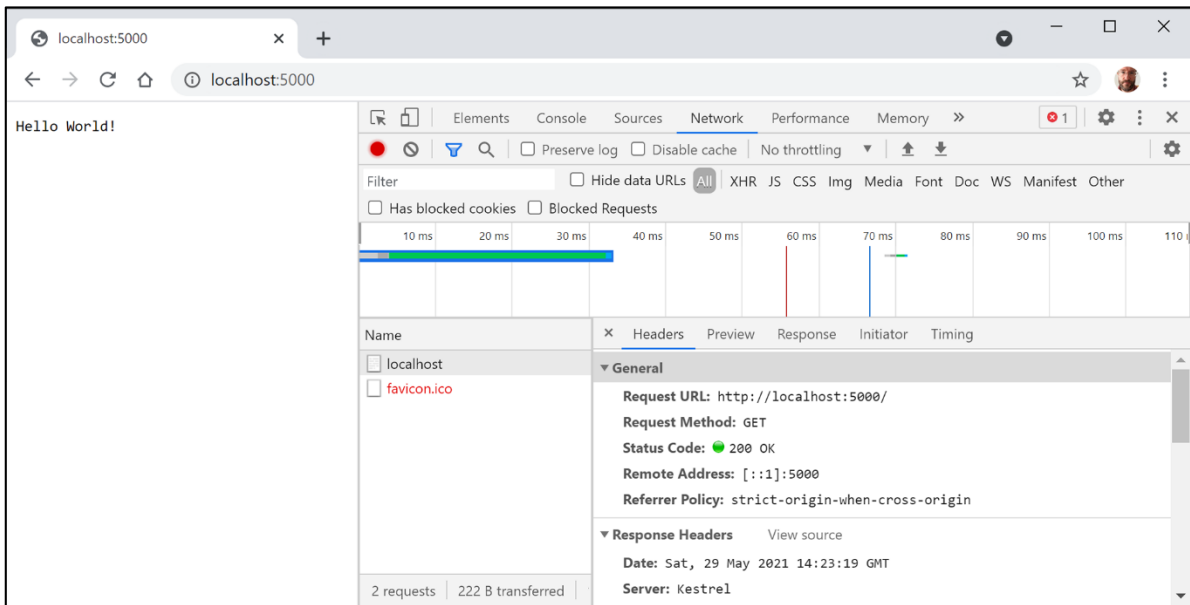
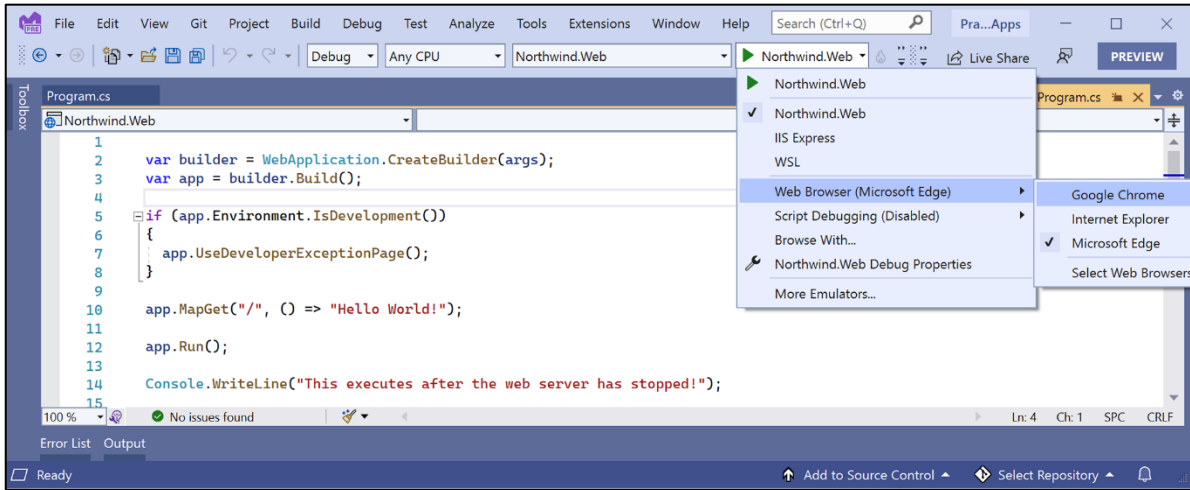
scheme: https

accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9

accept-encoding: gzip, deflate, br

accept-language: en-US,en;q=0.9,sv;q=0.8

cookie: MC1=GUID=54a83491596e42eb9d82baf90b40c0d4&HASH=54a8&LV=202104&V=4&LU=1617522068644; mbox=session#8a46d478da9c43a5845df1d0e4fe86a7#1619507375|PC#8a46d478da9c43a5845df1d0e4fe86a7.37.0#1653692607; ai_user=V



Privacy error

Not Secure | localhost:5001

Your connection is not private

Attackers might be trying to steal your information from **localhost** (for example, passwords, messages or credit cards). [Learn more](#)

NET::ERR_CERT_AUTHORITY_INVALID

[Back to safety](#)

Advanced

Elements Console Sources Network Performance Memory

Filter Hide data URLs

All XHR JS CSS Img Media Font Doc WS Manifest Other

1000 ms 2000 ms 3000 ms 4000 ms 5000 ms 6000 ms

Name	Status	Type	Initiator	Size	Time	Waterfall
data:image/png;bas...	200	png	chrome-er...	(memory cac...	0 ms	
localhost	(failed)	document	Other	0 B	53 ms	
localhost	(failed)	document	Other	0 B	74 ms	

3 requests | 0 B transferred | 1.8 KB resources

https://localhost:5001

localhost:5001

Hello World!

Connection is secure

Your information (for example, passwords or credit card numbers) is private when it is sent to this site. [Learn more](#)

- Certificate (Valid)
- Cookies (0 in use)
- Site settings

Elements Console Sources Network Performance Memory

Preserve log Disable cache | No throttling

Hide data URLs All XHR JS CSS Img Media Font Doc WS Manifest Other

Blocked Requests

ms 30 ms 40 ms 50 ms 60 ms 70 ms 80 ms 90 ms 100 ms 110

Headers Preview Response Initiator Timing

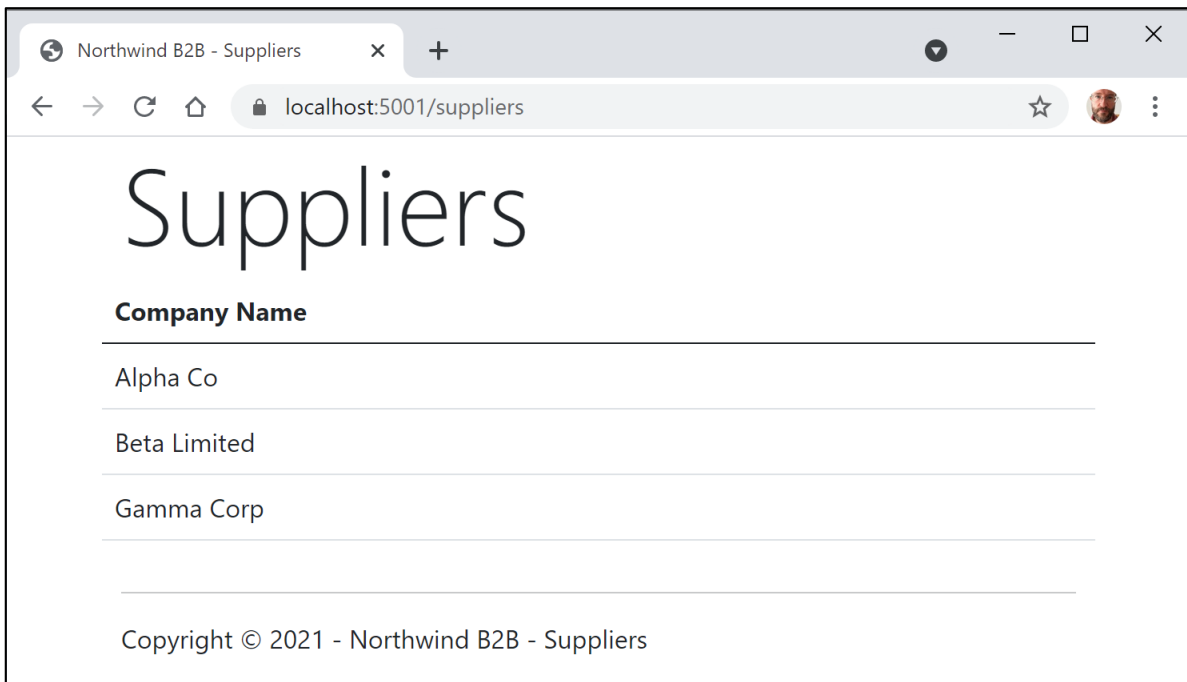
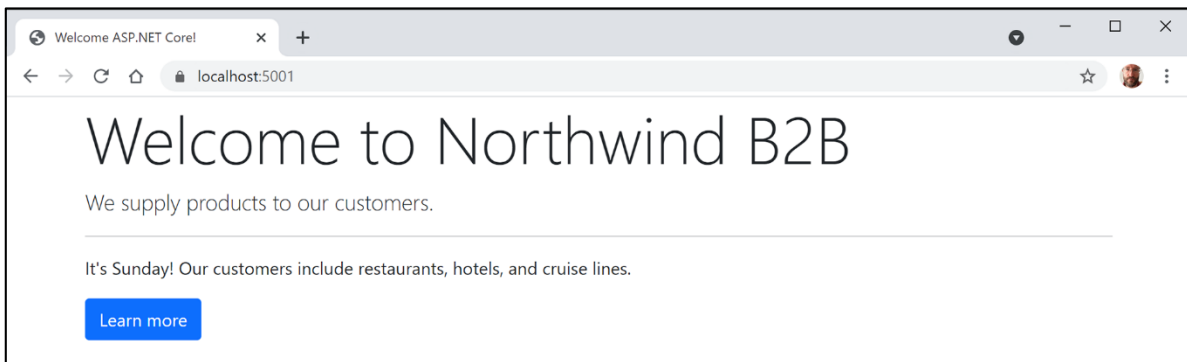
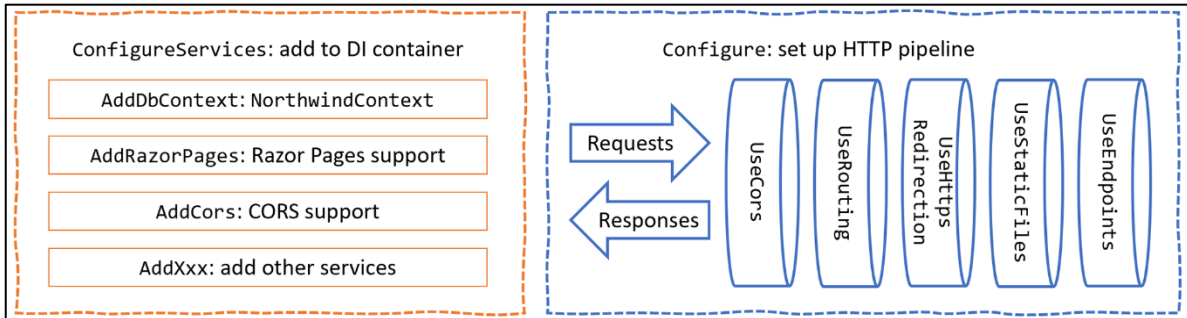
General

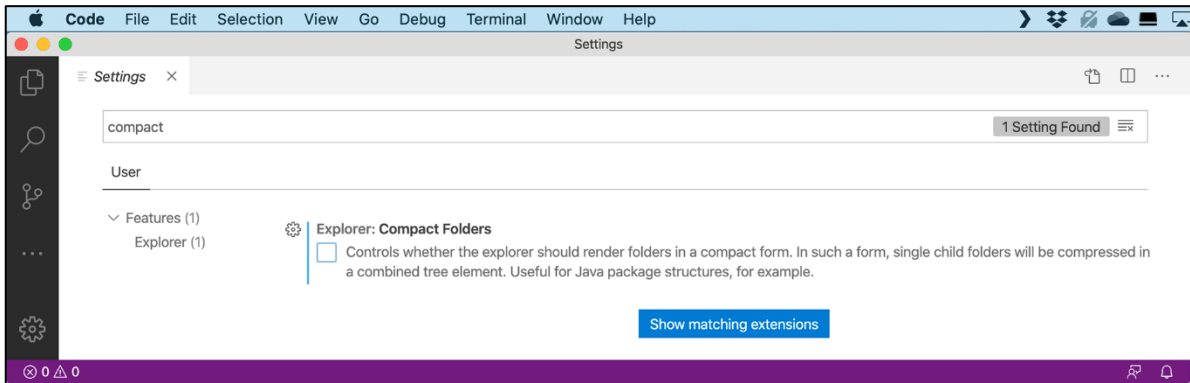
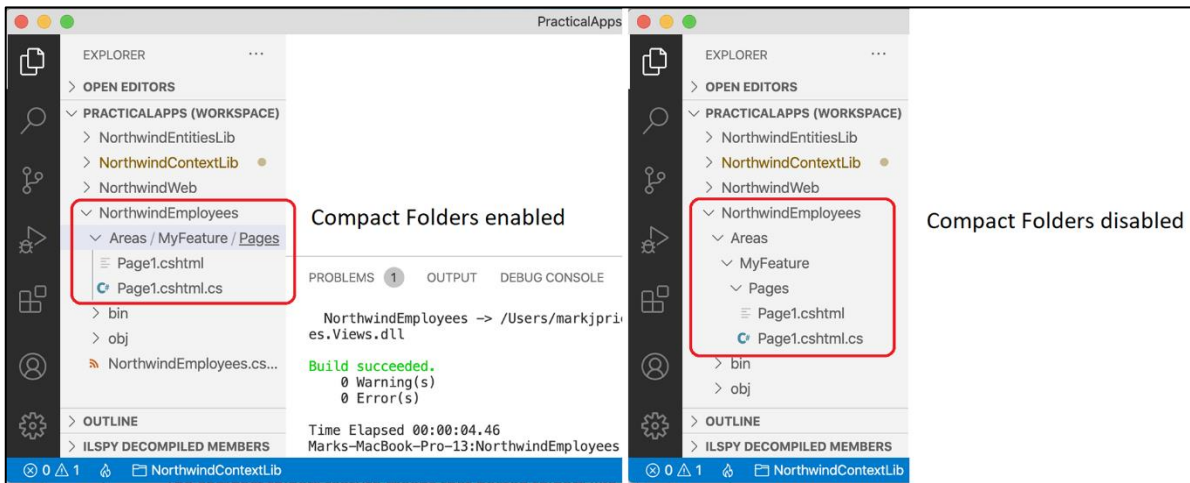
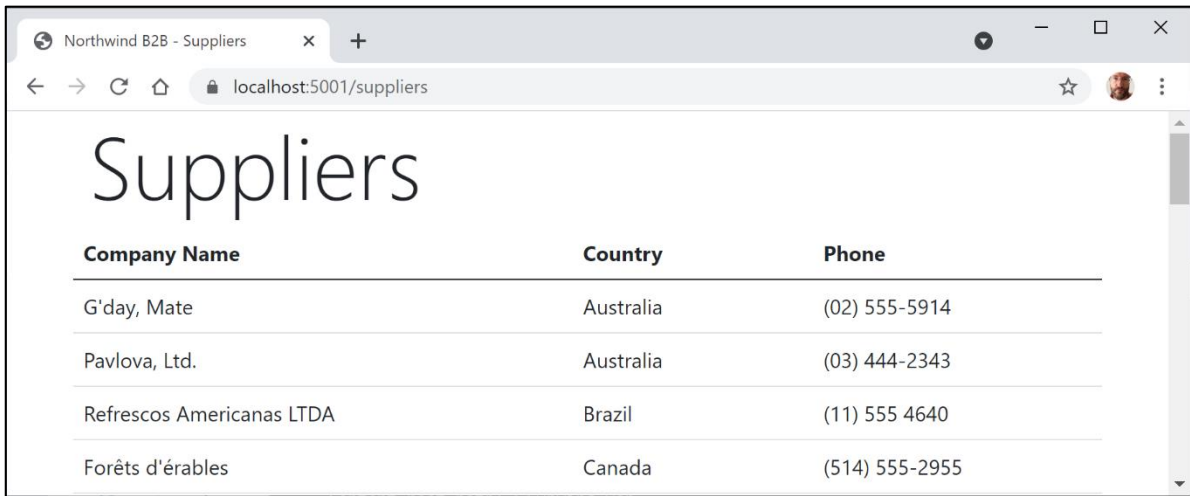
Request URL: http://localhost:5000/
 Request Method: GET
 Status Code: 307 Temporary Redirect
 Remote Address: [::1]:5000
 Referrer Policy: strict-origin-when-cross-origin

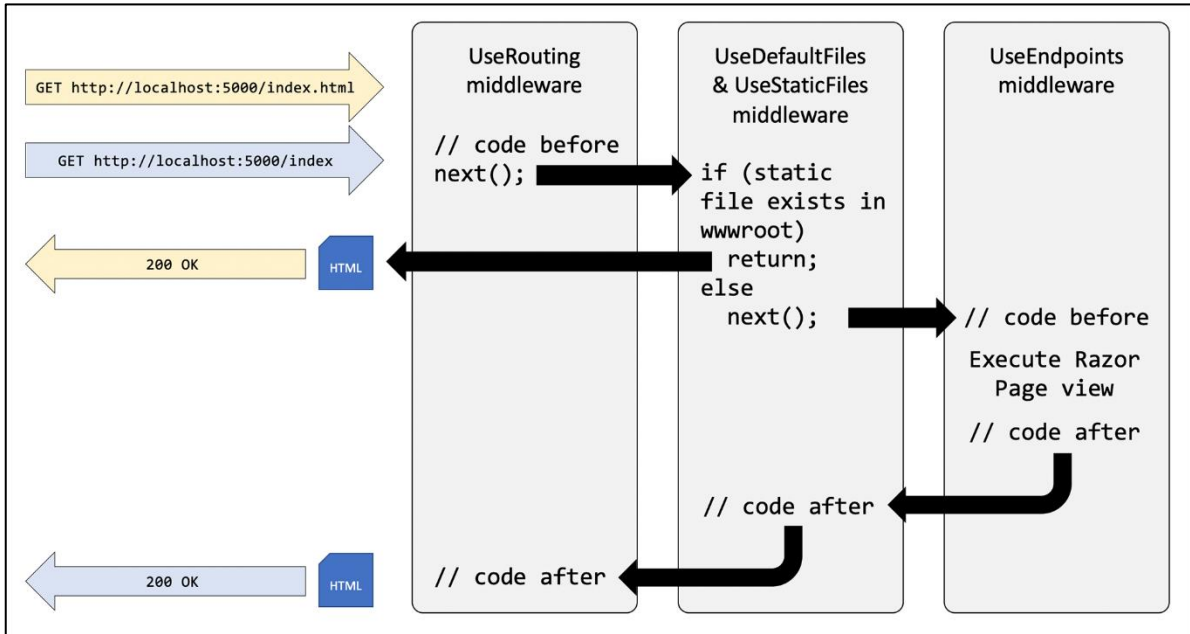
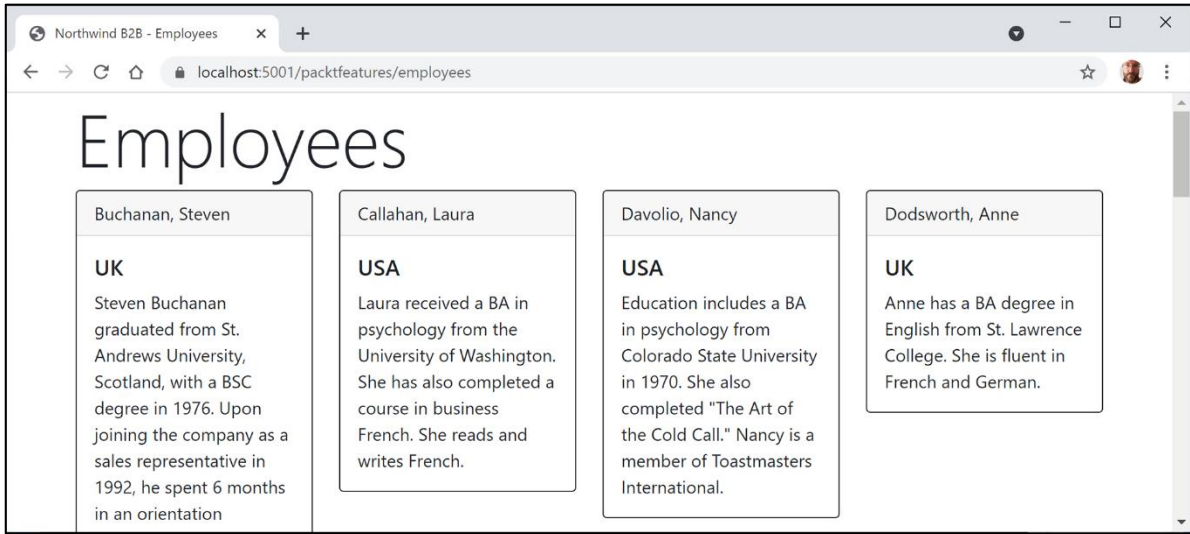
Response Headers View source

Content-Length: 0
 Date: Sat, 29 May 2021 14:38:32 GMT

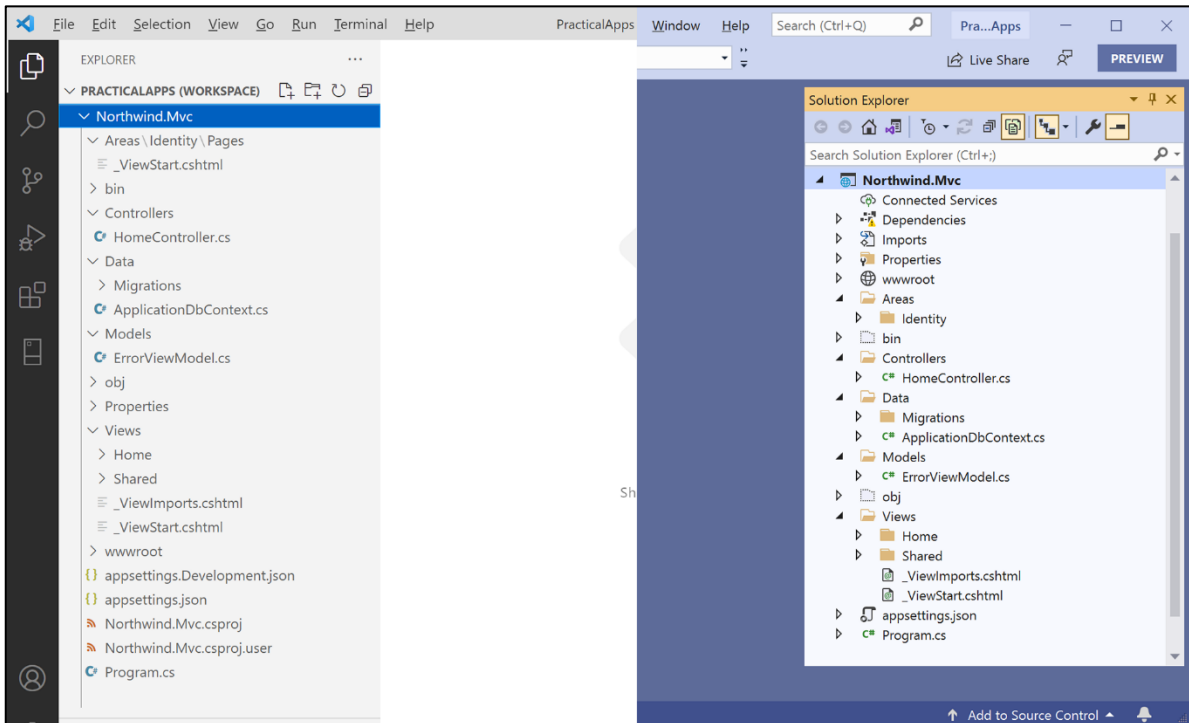
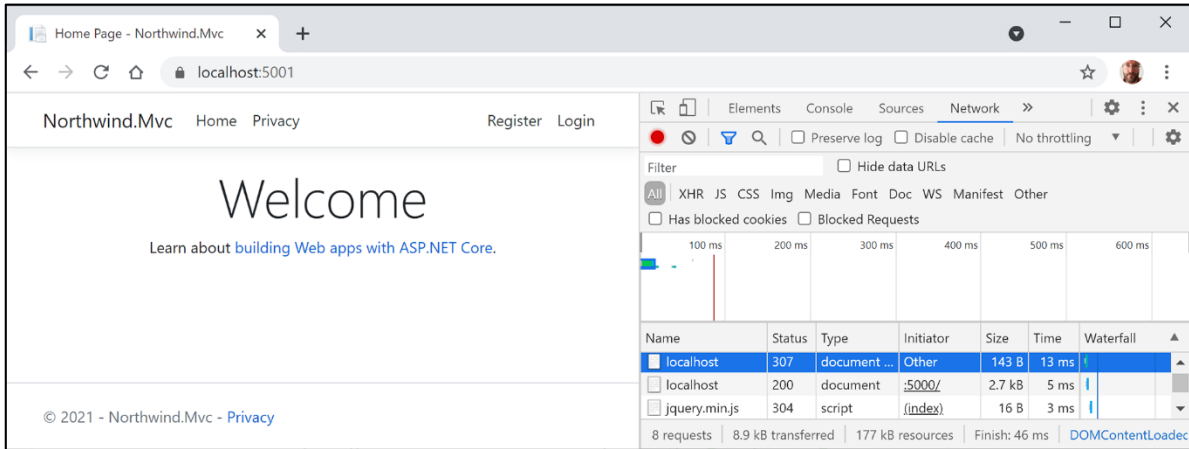
3 requests | 239 B transferred | 12 B resources







Chapter 15: Building Websites Using the Model-View-Controller Pattern



Internal Server Error

localhost:5001/Home/Privacy

An unhandled exception occurred while processing the request.

InvalidOperationException: The view 'Privacy' was not found. The following locations were searched:
 /Views/Home/Privacy.cshtml
 /Views/Shared/Privacy.cshtml
 /Pages/Shared/Privacy.cshtml


```

Microsoft.Hosting.Lifetime[14]
  info: Microsoft.Hosting.Lifetime[14]
    Now listening on: https://localhost:5001
Microsoft.Hosting.Lifetime[14]
  info: Microsoft.Hosting.Lifetime[14]
    Now listening on: http://localhost:5000
Microsoft.Hosting.Lifetime[0]
  info: Microsoft.Hosting.Lifetime[0]
    Application started. Press Ctrl+C to shut down.
Microsoft.Hosting.Lifetime[0]
  info: Microsoft.Hosting.Lifetime[0]
    Hosting environment: Development
Microsoft.Hosting.Lifetime[0]
  info: Microsoft.Hosting.Lifetime[0]
    Content root path: C:\Code\PracticalApps\Northwind.Mvc
Microsoft.AspNetCore.Mvc.ViewFeatures.ViewResultExecutor[3]
  fail: Microsoft.AspNetCore.Mvc.ViewFeatures.ViewResultExecutor[3]
    The view 'Privacy' was not found. Searched locations: /Views/Home/Privacy.cshtml, /Views/Shared/Privacy.cshtml, /Pages/Shared/Privacy.cshtml
Microsoft.AspNetCore.Diagnostics.DeveloperExceptionPageMiddleware[1]
  fail: Microsoft.AspNetCore.Diagnostics.DeveloperExceptionPageMiddleware[1]
    An unhandled exception has occurred while executing the request.
System.InvalidOperationException: The view 'Privacy' was not found. The following locations were searched:
  /Views/Home/Privacy.cshtml
  /Views/Shared/Privacy.cshtml
  /Pages/Shared/Privacy.cshtml
Microsoft.AspNetCore.Mvc.ViewFeatures.ViewResultExecutor[3]
  info: Microsoft.AspNetCore.Mvc.ViewFeatures.ViewResultExecutor[3]
    View rendering completed.
  
```

Stack
 InvalidOp
 /Views/H

Home Page - Northwind.Mvc

localhost:5001



Dairy Products

Cheeses

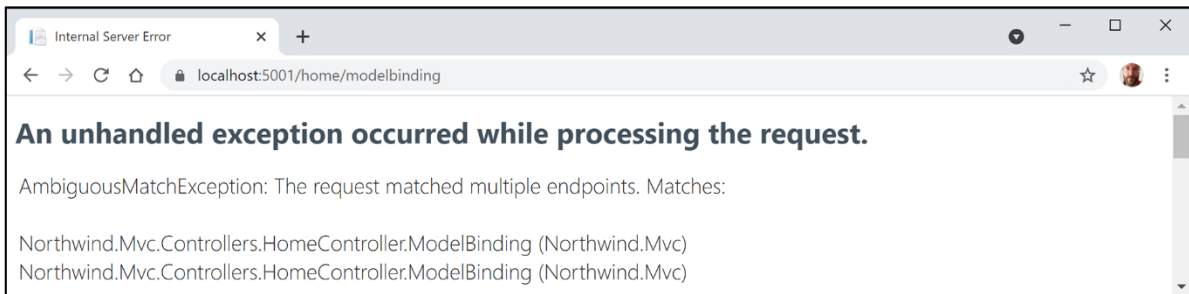
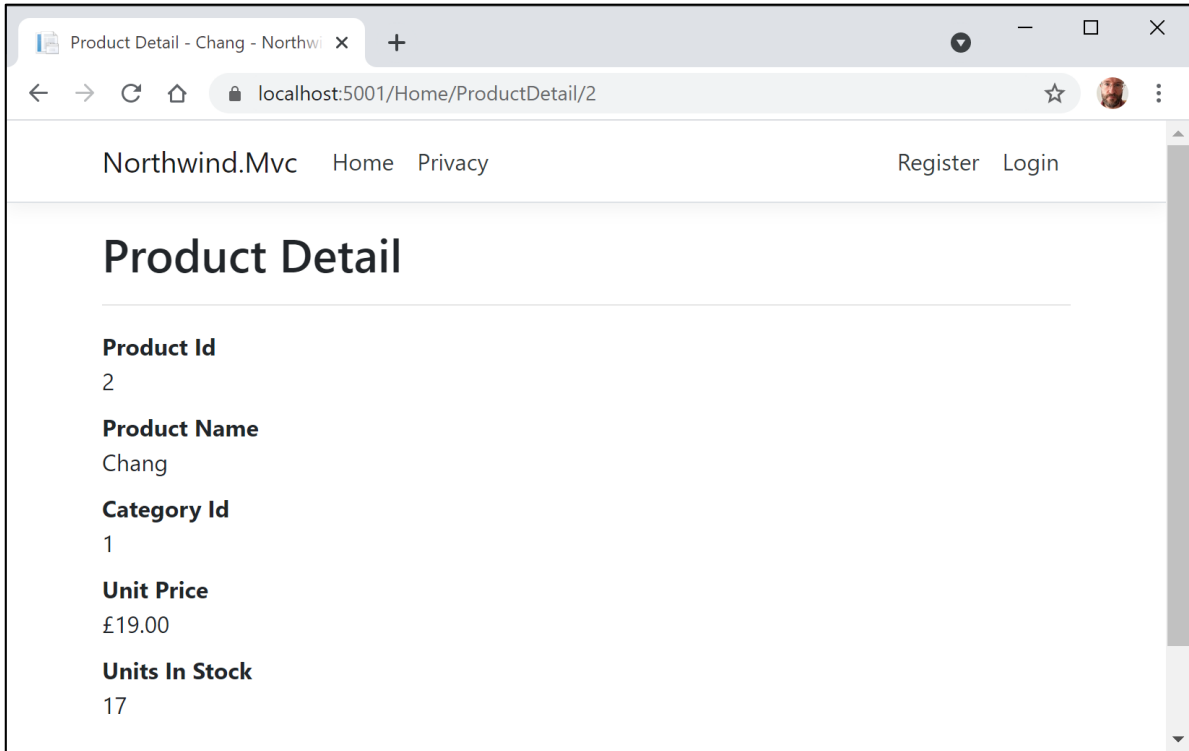
[View](#)

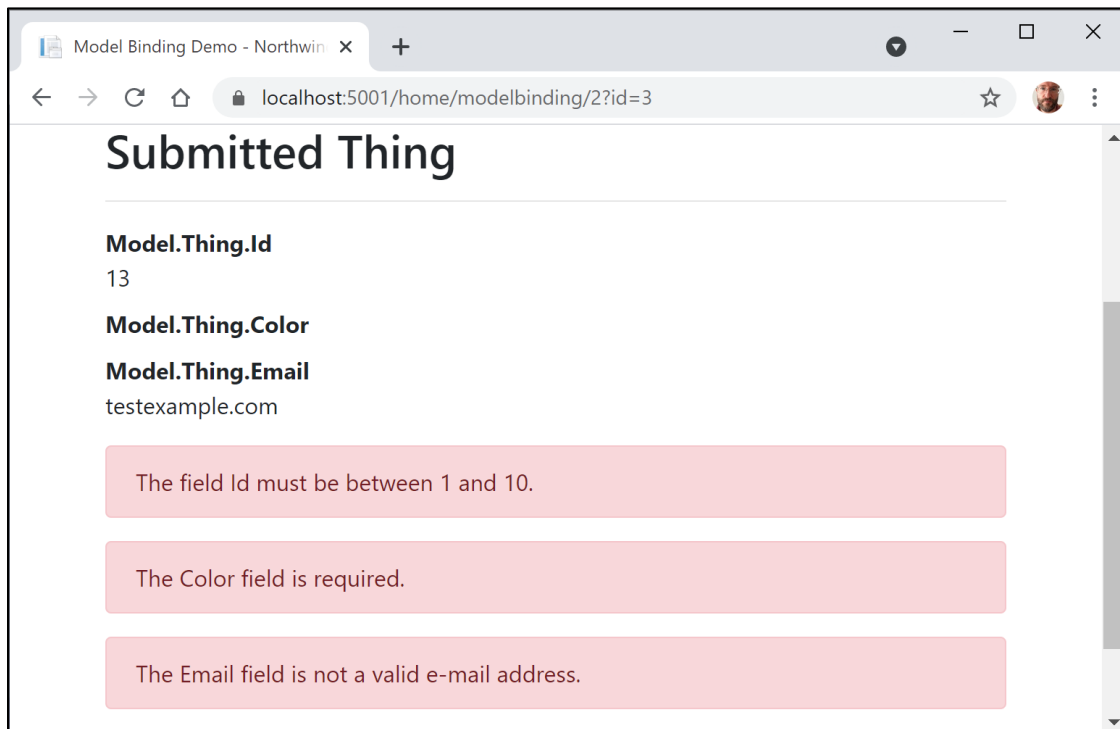
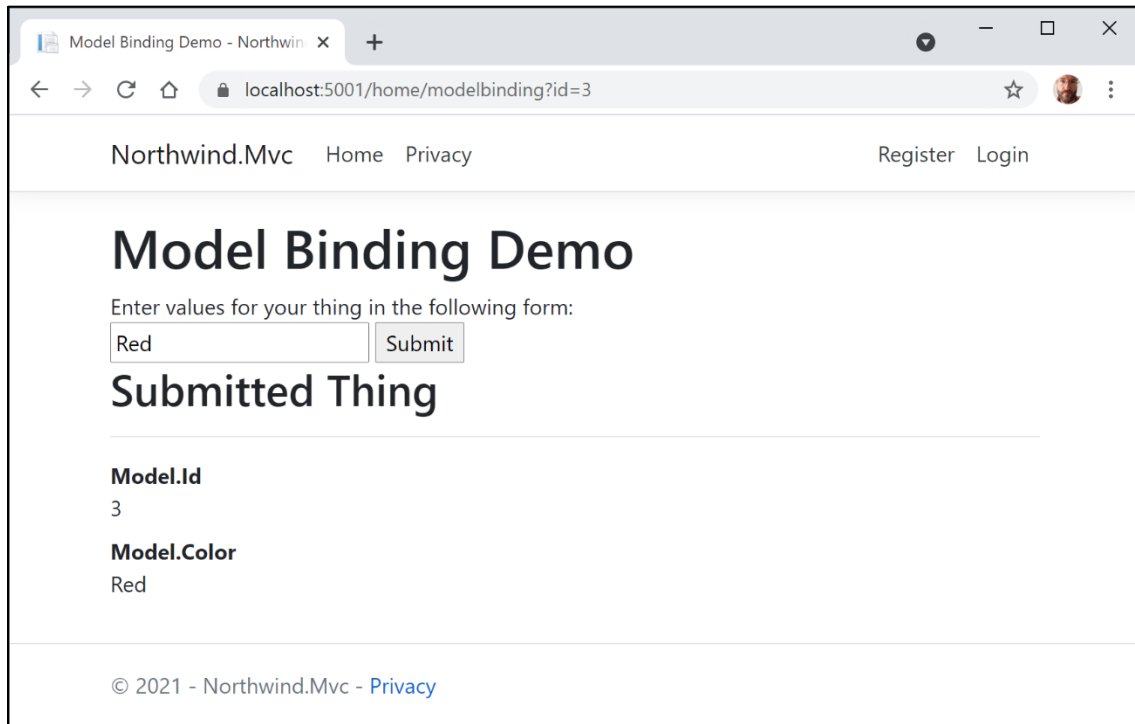
Northwind

We have had 540 visitors this month.

Products

- Chaï costs £18.00
- Chang costs £19.00
- Aniseed Syrup costs £10.00
- Chef Anton's Cajun Seasoning costs £22.00
- NuNuCa Nuß-Nougat-Creme costs £14.00
- Gumbär Gummibärchen costs £31.23
- Schoggi Schokolade costs £43.90
- Perth Pasties costs £32.80
- Tourtière costs £7.45
- Pâté chinois costs £24.00
- Gnocchi di nonna Alice costs £38.00
- Ravioli Angelo costs £19.50





Products That Cost More Than £50.00

localhost:5001/Home/ProductsThatCostMoreThan?price=50

Northwind.Mvc Home Privacy Register Login

Products That Cost More Than £50.00

Category Name	Supplier's Company Name	Product Name	Unit Price	Units In Stock
Meat/Poultry	Tokyo Traders	Mishi Kobe Niku	97.00	29
Seafood	Pavlova, Ltd.	Carnarvon Tigers	62.50	42
Confections	Specialty Biscuits, Ltd.	Sir Rodney's Marmalade	81.00	40

Chapter 16: Building and Consuming Web Services

The screenshot shows a web browser at `https://localhost:5001/weatherforecast`. The page displays a JSON array of weather forecast objects. The Network tab is open, showing a GET request to `https://localhost:5001/weatherforecast` with a status code of 200. The response headers indicate `content-type: application/json; charset=utf-8` and the server is `Kestrel`.

```
[{"date": "2021-06-01T16:42:50.9840675+01:00", "temperatureC": 45, "temperatureF": 112, "summary": "Cool"}, {"date": "2021-06-02T16:42:50.9842307+01:00", "temperatureC": 29, "temperatureF": 84, "summary": "Hot"}, {"date": "2021-06-03T16:42:50.9842319+01:00", "temperatureC": 3, "temperatureF": 37, "summary": "Warm"}, {"date": "2021-06-04T16:42:50.9842322+01:00", "temperatureC": 52, "temperatureF": 125, "summary": "Scorching"}, {"date": "2021-06-05T16:42:50.9842324+01:00", "temperatureC": 30, "temperatureF": 85, "summary": "Mild"}]
```

The screenshot shows a web browser at `https://localhost:5001/weatherforecast/14`. The page displays a JSON array of 14 detailed weather forecast objects, each including date, temperature in Celsius and Fahrenheit, and a summary.

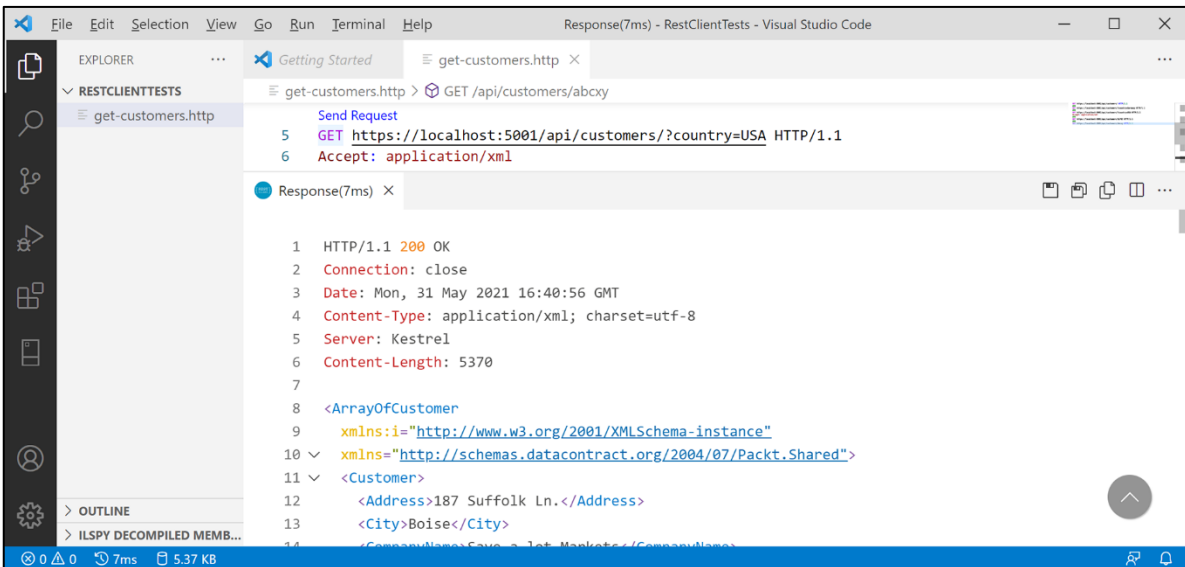
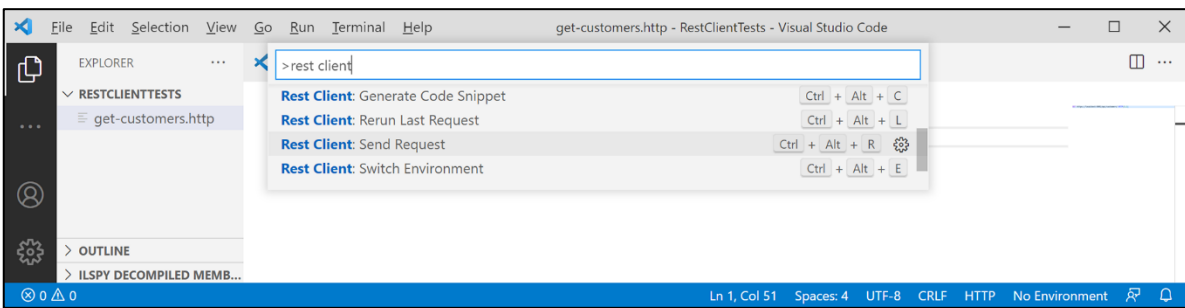
```
[{"date": "2021-06-01T16:47:12.079066+01:00", "temperatureC": 6, "temperatureF": 42, "summary": "Balmy"}, {"date": "2021-06-02T16:47:12.0790729+01:00", "temperatureC": 24, "temperatureF": 75, "summary": "Freezing"}, {"date": "2021-06-03T16:47:12.0790731+01:00", "temperatureC": 13, "temperatureF": 55, "summary": "Cool"}, {"date": "2021-06-04T16:47:12.0790733+01:00", "temperatureC": 26, "temperatureF": 78, "summary": "Bracing"}, {"date": "2021-06-05T16:47:12.0790735+01:00", "temperatureC": 50, "temperatureF": 121, "summary": "Warm"}, {"date": "2021-06-06T16:47:12.0790756+01:00", "temperatureC": 43, "temperatureF": 109, "summary": "Sweltering"}, {"date": "2021-06-07T16:47:12.0790758+01:00", "temperatureC": 12, "temperatureF": 53, "summary": "Warm"}, {"date": "2021-06-08T16:47:12.079076+01:00", "temperatureC": -8, "temperatureF": 18, "summary": "Sweltering"}, {"date": "2021-06-09T16:47:12.0790767+01:00", "temperatureC": 8, "temperatureF": 46, "summary": "Chilly"}, {"date": "2021-06-10T16:47:12.0790769+01:00", "temperatureC": 53, "temperatureF": 127, "summary": "Sweltering"}, {"date": "2021-06-11T16:47:12.0790771+01:00", "temperatureC": -11, "temperatureF": 13, "summary": "Scorching"}, {"date": "2021-06-12T16:47:12.0790773+01:00", "temperatureC": 8, "temperatureF": 46, "summary": "Hot"}, {"date": "2021-06-13T16:47:12.0790774+01:00", "temperatureC": 46, "temperatureF": 114, "summary": "Balmy"}, {"date": "2021-06-14T16:47:12.0790776+01:00", "temperatureC": 37, "temperatureF": 98, "summary": "Sweltering"}]
```

The screenshot shows a web browser at `https://localhost:5001/api/customers`. The page displays a JSON array of customer objects, each containing details like customer ID, company name, contact name, address, and phone number.

```
[{"customerId": "SANT6", "companyName": "Santé Gourmet", "contactName": "Jonas Bergulfsen", "contactTitle": "Owner", "address": "Erling Skakkes gate 78", "city": "Stavern", "region": null, "postalCode": "4110", "country": "Norway", "phone": "07-98 92 35", "fax": "07-98 92 47", "customerCustomerDemos": [], "orders": []}, {"customerId": "FRANS", "companyName": "Franchi S.p.A.", "contactName": "Paolo Accorti", "contactTitle": "Sales Representative", "address": "Via Monte Bianco 34", "city": "Torino", "region": null, "postalCode": "10100", "country": "Italy", "phone": "011-4988260", "fax": "011-4988261", "customerCustomerDemos": [], "orders": []}, {"customerId": "EASTC", "companyName": "Eastern Connection", "contactName": "Ann Devon", "contactTitle": "Sales Agent", "address": "35 King George", "city": "London", "region": null, "postalCode": "WX3 6FW", "country": "UK", "phone": "(171) 555-0297", "fax": "(171) 555-3373", "customerCustomerDemos": [], "orders": []}, {"customerId": "SPECD", "companyName": "Spécialités du"}]
```

```
https://localhost:5001/api/customers/?country=Germany
[{"customerId":"DRACD","companyName":"Drachenblut Delikatessen","contactName":"Sven Ottlieb","contactTitle":"Order Administrator","address":"Walserweg 21","city":"Aachen","region":null,"postalCode":"52066","country":"Germany","phone":"0241-039123","fax":"0241-059428","customerCustomerDemos":[],"orders":[]}, {"customerId":"WANDK","companyName":"Die Wandernde Kuh","contactName":"Rita Müller","contactTitle":"Sales Representative","address":"Adenauerallee 900","city":"Stuttgart","region":null,"postalCode":"70563","country":"Germany","phone":"0711-020361","fax":"0711-035428","customerCustomerDemos":[],"orders":[]}, {"customerId":"FRANK","companyName":"Frankenversand","contactName":"Peter Franken","contactTitle":"Marketing Manager","address":"Berliner Platz 43","city":"München","region":null,"postalCode":"80805","country":"Germany","phone":"089-0877310","fax":"089-
```

```
https://localhost:5001/api/customers/alfki
{"customerId":"ALFKI","companyName":"Alfreds Futterkiste","contactName":"Maria Anders","contactTitle":"Sales Representative","address":"Obere Str. 57","city":"Berlin","region":null,"postalCode":"12209","country":"Germany","phone":"030-0074321","fax":"030-0076545","customerCustomerDemos":[],"orders":[]}
```

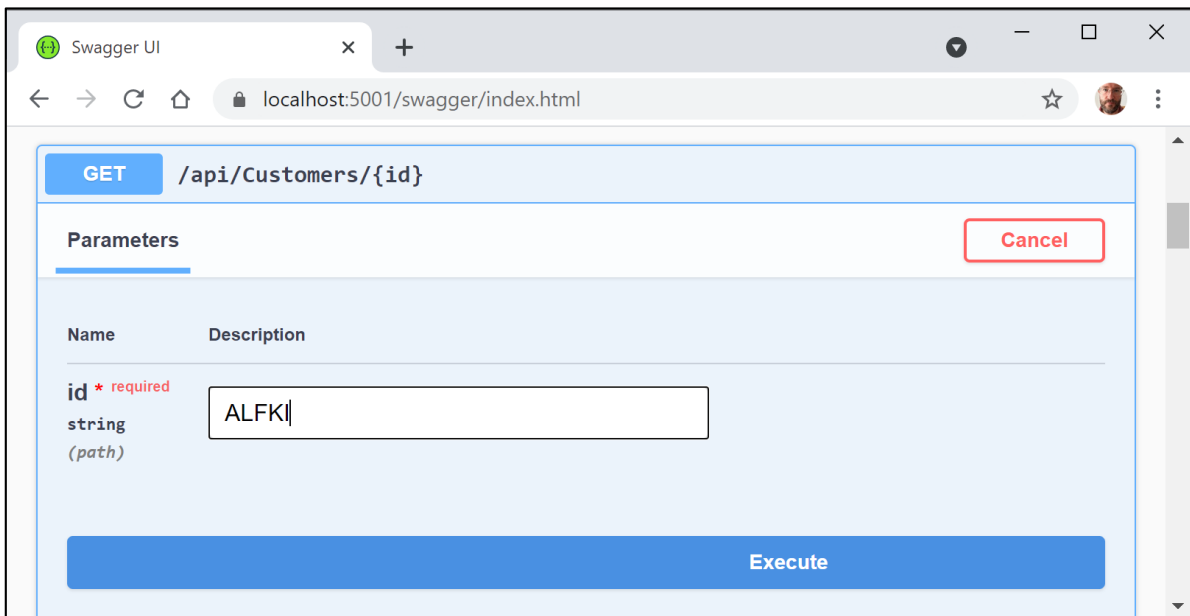
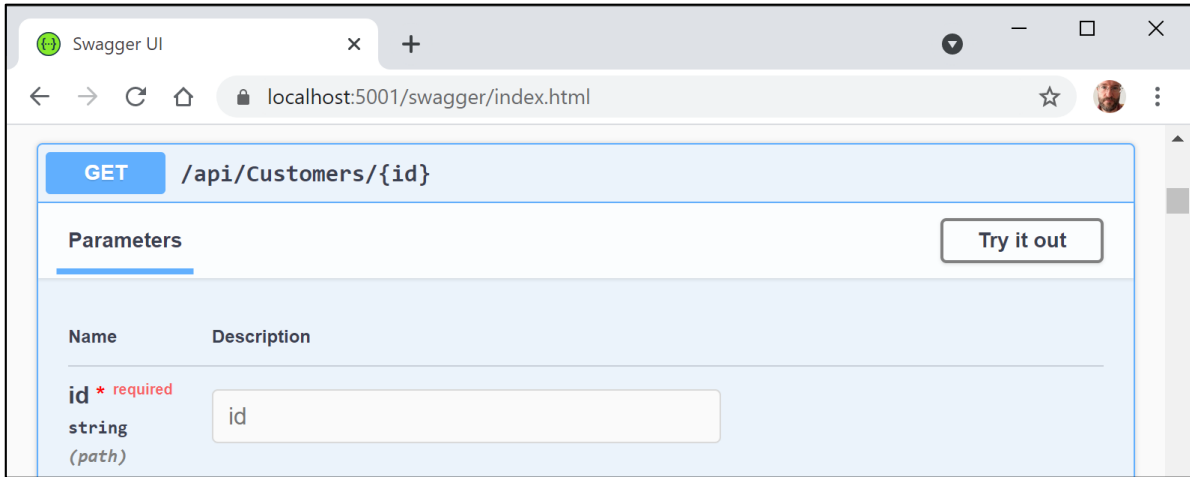


```
File Edit Selection View Go Run Terminal Help create-customer.http - RestClientTests - Visual Studio Code
EXPLORER RESTCLIENTTESTS
  create-customer.http
  get-customers.http
create-customer.http x POST /api/customers/
Send Request
1 POST https://localhost:5001/api/customers/ HTTP/1.1
2 Content-Type: application/json
3 Content-Length: 301
4
5 {
6   "customerID": "ABCXY",
7   "companyName": "ABC Corp",
8   "contactName": "John Smith",
9   "contactTitle": "Sir",
10  "address": "Main Street",
11  "city": "New York",
12  "region": "NY",
13  "postalCode": "90210",
14  "country": "USA",
15  "phone": "(123) 555-1234",
16  "fax": null,
17  "orders": null
18 }
```

Ln 18, Col 2 (301 selected) Spaces: 4 UTF-8 CRLF HTTP No Environment

```
File Edit Selection View Go Run Terminal Help Response(141ms) - RestClientTests - Visual Studio Code
EXPLORER RESTCLIENTTESTS
  create-customer.http
  get-customers.http
create-customer.http x POST /api/customers/
Send Request
1 POST https://localhost:5001/api/customers/
2 Content-Type: application/json
3 Content-Length: 301
4
5 {
6   "customerID": "ABCXY",
7   "companyName": "ABC Corp",
8   "contactName": "John Smith",
9   "contactTitle": "Sir",
10  "address": "Main Street",
11  "city": "New York",
12  "region": "NY",
13  "postalCode": "90210",
14  "country": "USA",
15  "phone": "(123) 555-1234",
16  "fax": null,
17  "orders": null
18 }
Response(141ms) x
1 HTTP/1.1 201 Created
2 Connection: close
3 Date: Mon, 31 May 2021 16:47:53 GMT
4 Content-Type: application/json; charset=utf-8
5 Server: Kestrel
6 Transfer-Encoding: chunked
7 Location: https://localhost:5001/api/Customers/abcxy
8
9 {
10  "customerID": "ABCXY",
11  "companyName": "ABC Corp",
12  "contactName": "John Smith",
13  "contactTitle": "Sir",
14  "address": "Main Street",
15  "city": "New York",
16  "region": "NY",
17  "postalCode": "90210"
18 }
```

141ms 449 B



Swagger UI

localhost:5001/swagger/index.html

Request URL

```
https://localhost:5001/api/Customers/ALFKI
```

Server response

Code	Details
200	<p>Response body</p> <pre>{ "customerId": "ALFKI", "companyName": "Alfreds Futterkiste", "contactName": "Maria Anders", "contactTitle": "Sales Representative", "address": "Obere Str. 57", "city": "Berlin", "region": null, "postalCode": "12209", "country": "Germany", "phone": "030-0074321", "fax": "030-0076545", "customerCustomerDemos": [], "orders": [] }</pre> <p>Download</p> <p>Response headers</p> <pre>content-type: application/json; charset=utf-8 date: Mon31 May 2021 17:00:28 GMT server: Kestrel</pre>

Swagger UI

localhost:5001/swagger/index.html

Request URL

```
https://localhost:5001/api/Customers
```

Server response

Code	Details
201	<p>Response body</p> <pre>{ "customerId": "SUPER", "companyName": "Super Company", "contactName": "Rasmus Ibensen", "contactTitle": "Sales Leader", "address": "Rotterslef 23", "city": "Billund", "region": null, "postalCode": "4371", "country": "Denmark", "phone": "31 21 43 21", "fax": "31 21 43 22", "customerCustomerDemos": [], "orders": [] }</pre> <p>Download</p> <p>Response headers</p> <pre>content-type: application/json; charset=utf-8 date: Mon31 May 2021 17:02:58 GMT location: https://localhost:5001/api/Customers/super server: Kestrel</pre>

Swagger UI

localhost:5001/swagger/index.html

Request URL

```
https://localhost:5001/api/Customers?country=Denmark
```

Server response

Code	Details
200	<p>Response body</p> <pre>"phone": "31 12 34 56", "fax": "31 13 35 57", "customerCustomerDemos": [], "orders": [] }, { "customerId": "SUPER", "companyName": "Super Company", "contactName": "Rasmus Ibensen", "contactTitle": "Sales Leader", "address": "Rotterslef 23", "city": "Billund", "region": null, "postalCode": "4371", "country": "Denmark", "phone": "31 21 43 21", "fax": "31 21 43 22", "customerCustomerDemos": [], "orders": [] }, { "customerId": "VAFFE", "companyName": "Vaffeljernet", "contactName": "Palle Ibsen", "contactTitle": "Sales Manager", "address": "Smagsloget 45", "city": "Århus", "region": null, "postalCode": "8200"</pre> <p>Download</p>

Swagger UI

localhost:5001/swagger/index.html

Request URL

```
https://localhost:5001/api/Customers/super
```

Server response

Code	Details
204	<p>Response headers</p> <pre>date: Mon31 May 2021 17:06:28 GMT server: Kestrel</pre>

Swagger UI

localhost:5001/swagger/index.html

Request URL

```
https://localhost:5001/api/Customers/super
```

Server response

Code	Details
404	<p>Error:</p> <p>Response body</p> <pre>{ "type": "https://tools.ietf.org/html/rfc7231#section-6.5.4", "title": "Not Found", "status": 404, "traceId": "00-220afd91a1f9eb48649566eb3b31554-1cb427958344f3b4-00" }</pre> <p>Download</p>

Swagger UI

localhost:5001/swagger/index.html

Request URL

```
https://localhost:5001/api/Customers/bad
```

Server response

Code	Details
400	Error:

Response body

```
{
  "type": "https://localhost:5001/customers/failed-to-delete",
  "title": "Customer ID bad found but failed to delete.",
  "status": 400,
  "detail": "More details like Company Name, Country and so on.",
  "instance": "/api/Customers/bad"
}
```

Response headers

```
content-type: application/problem+json; charset=utf-8
date: Mon31 May 2021 17:08:35 GMT
server: Kestrel
```

Customers in UK - Northwind.Mvc

localhost:5001/Home/Customers?country=UK

Northwind.Mvc Home Privacy Register Login

Customers in UK

Company Name	Contact Name	Address	Phone
Seven Seas Imports	Hari Kumar	90 Wadhurst Rd. London UK OX15 4NB	(171) 555-1717
Consolidated Holdings	Elizabeth Brown	Berkeley Gardens 12 Brewery London UK WX1 6LT	(171) 555-2282
North/South	Simon Crowther	South House 300 Queensbridge London UK SW7 1RZ	(171) 555-7733

Browser window showing the network tab for the URL `https://localhost:5002/weatherforecast`. The console displays the following JSON response:

```

[{"date": "2021-06-01T18:48:56.348679+01:00", "temperatureC": 42, "temperatureF": 107, "summary": "Balmy"}, {"date": "2021-06-02T18:48:56.3488564+01:00", "temperatureC": 34, "temperatureF": 93, "summary": "Warm"}, {"date": "2021-06-03T18:48:56.3488584+01:00", "temperatureC": 20, "temperatureF": 67, "summary": "Bracing"}, {"date": "2021-06-04T18:48:56.3488587+01:00", "temperatureC": 40, "temperatureF": 103, "summary": "Bracing"}, {"date": "2021-06-05T18:48:56.348859+01:00", "temperatureC": 13, "temperatureF": 55, "summary": "Cool"}]

```

The network tab shows the response headers for the `weatherforecast` request:

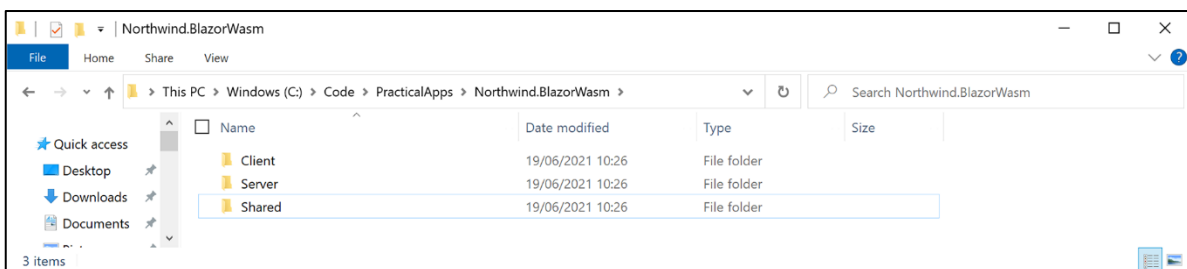
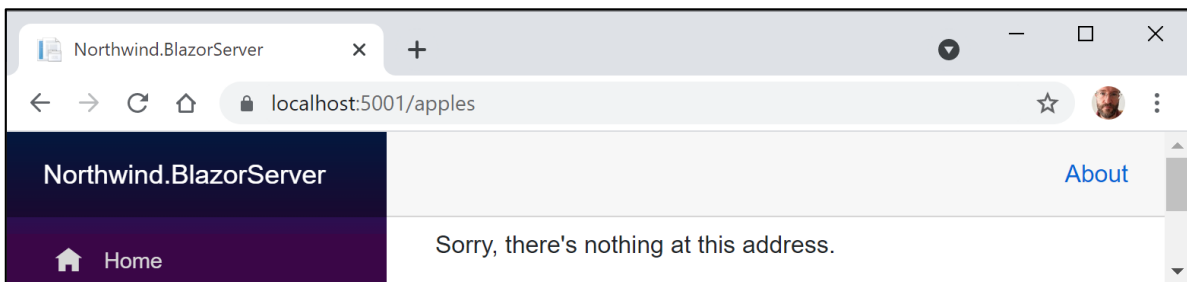
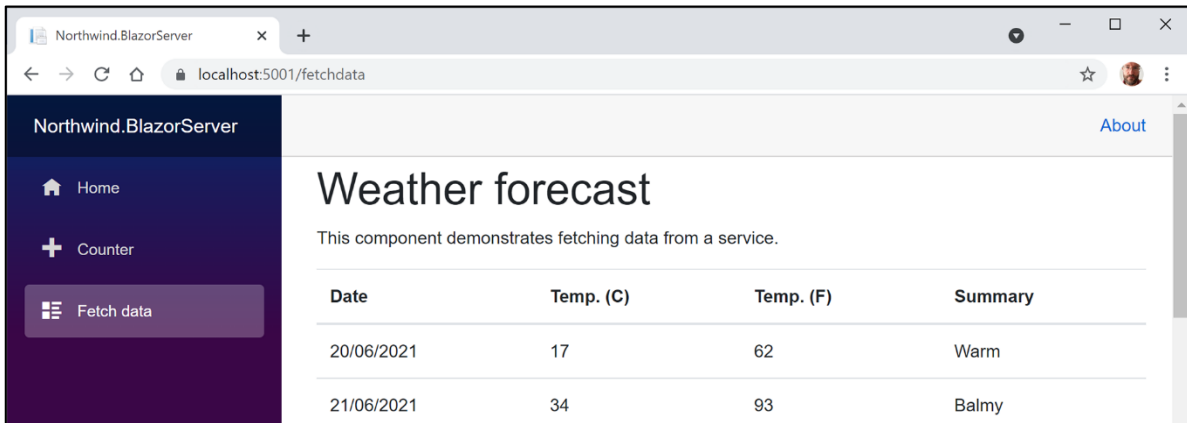
- General**
- Response Headers**
 - `content-type: application/json; charset=utf-8`
 - `date: Mon, 31 May 2021 17:48:55 GMT`
 - `server: Kestrel`
- super-secure: enable**

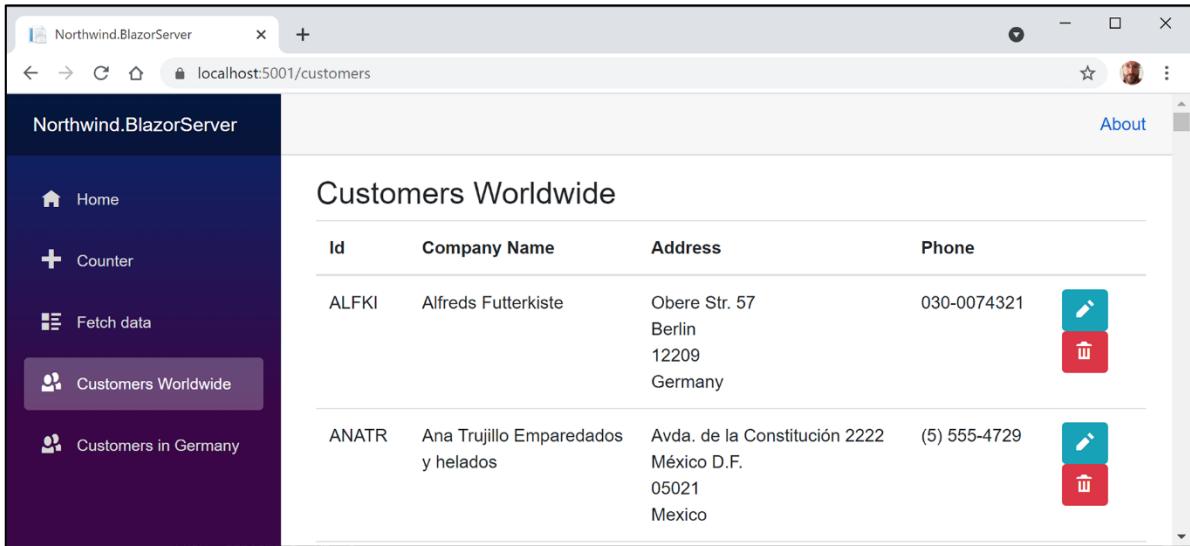
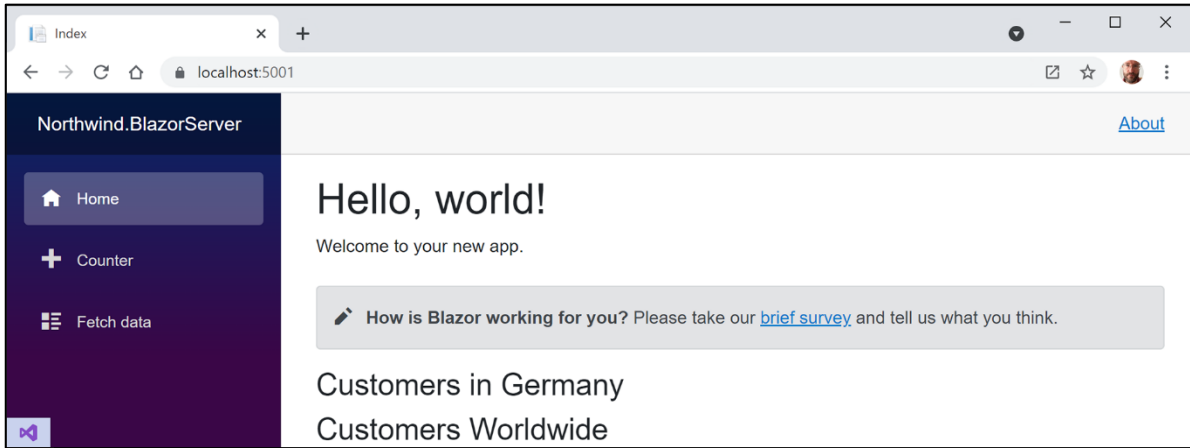
Additional information: 2 requests, 637 B transferred, 49 ms.

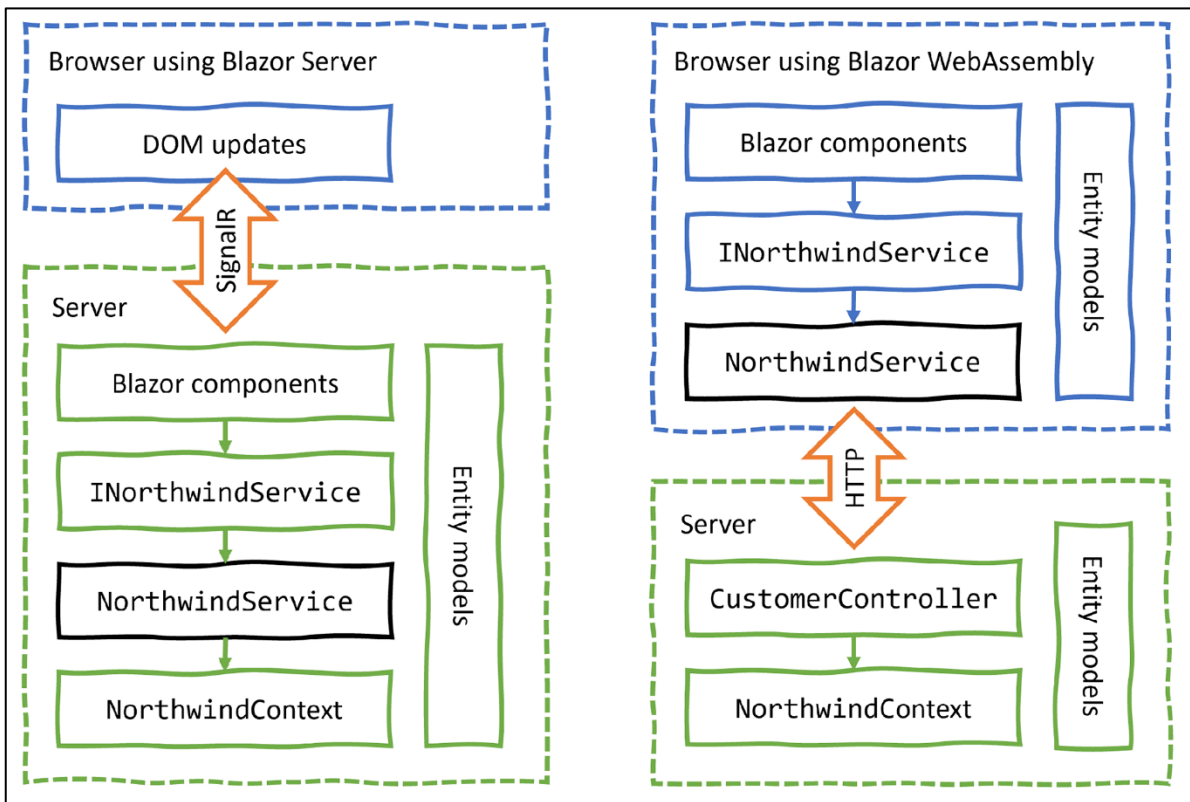
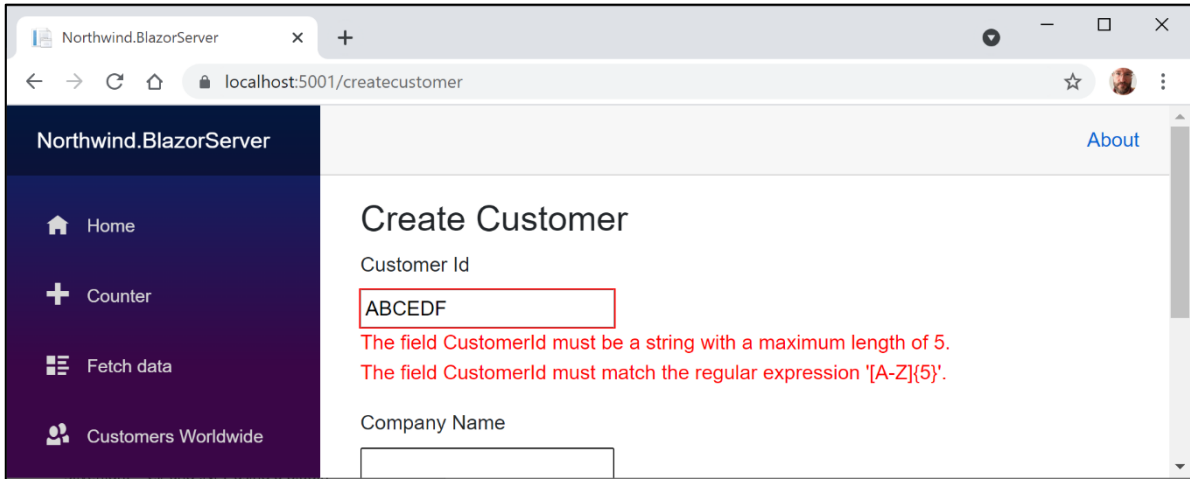
Browser window showing the rendered page at `localhost:5001`. The page title is "Home Page - Northwind.Mvc". The main content is a "Five-Day Weather Forecast" displayed in a light blue box:

Day	Forecast
Thu 3 Jun	will be Sweltering
Fri 4 Jun	will be Freezing
Sat 5 Jun	will be Cool
Sun 6 Jun	will be Warm
Mon 7 Jun	will be Chilly

Chapter 17: Building User Interfaces Using Blazor







Northwind.BlazorWasm

localhost:5001

Home
Counter
Fetch data
Customers Worldwide

Hello, world!

Welcome to your new app.

How is Blazor working for you? Please take our [brief survey](#) and tell us what you think.

blazor.webassembly.js:1
blazor.webassembly.js:1
blazor.webassembly.js:1
blazor.webassembly.js:1

Loaded 10.06 MB resources
This application was built with linking (tree shaking) disabled. Published applications will be significantly smaller.

Loaded 10.06 MB resources from cache

(index)	responseBytes
Microsoft.AspNetCore.Authorization.dll	21215
Microsoft.AspNetCore.Components.dll	77251
Microsoft.AspNetCore.Components.Forms.dll	16991
Microsoft.AspNetCore.Components.Web.dll	42652

Northwind.BlazorWasm

localhost:5001/customers

Home
Counter
Fetch data
Customers Worldwide

Customers Worldwide

+ Create New

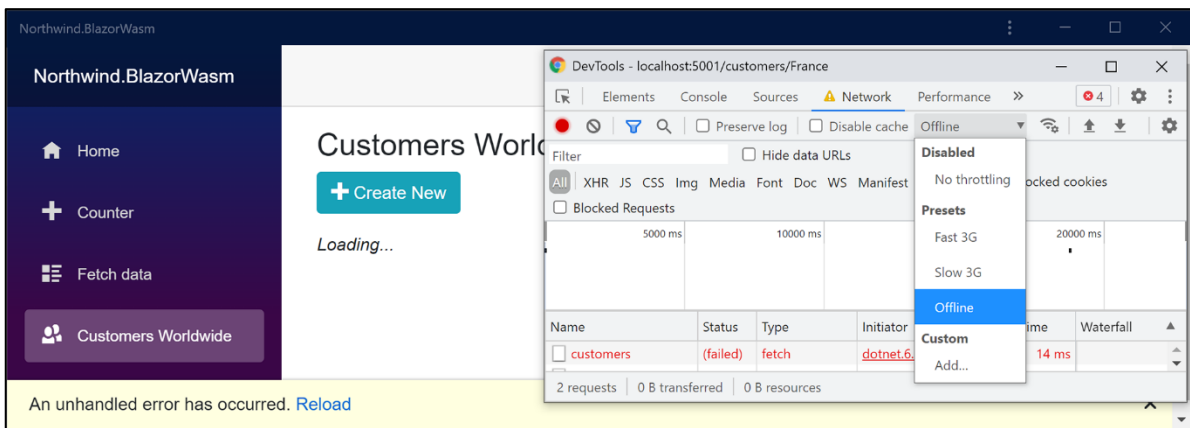
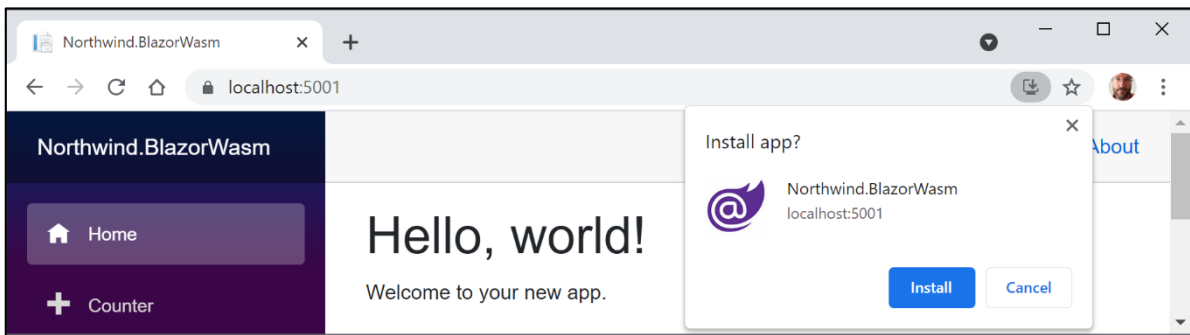
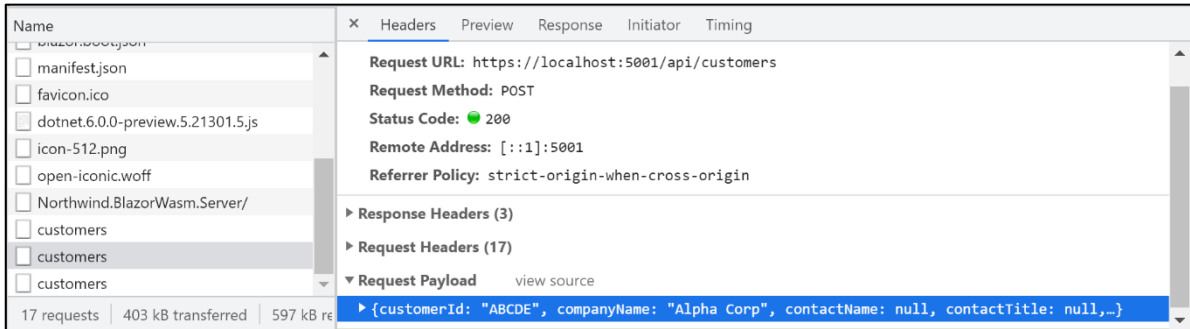
Id	Company Name	Address	Phone
ALFKI	Alfreds Futterkiste	Obere Str. 57 Berlin	030-0074321

Northwind.BlazorWasm.Server/

customers

1 [{"customerId": "ALFKI", "companyName": "Alfreds Futterkiste", "contactName": "Maria Anders", "contactTitle": "Sales Represent"}]

15 requests | 376 kB transferred | 571 kB received | Line 1, Column 1



The screenshot shows a web browser window displaying a Blazor application. The browser's address bar shows the URL `localhost:5001`. The application's header includes the text "Northwind.BlazorServer" and an "About" link. A sidebar on the left contains navigation links for "Home" and "Counter". The main content area features a blue button labeled "Poke the browser", a text input field containing the value "red", and two buttons labeled "Set Color" and "Get Color".

The browser's developer tools are open to the "Application" tab. The left sidebar shows the "Storage" section expanded to "Local Storage" for the URL `https://localhost:5001`. The main pane displays a table of stored items:

Key	Value
color	red
i18nextLng	en-US
1	red

The "1" key and its corresponding "red" value are highlighted in yellow. The status bar at the bottom of the developer tools indicates "Line 1, Column 1".