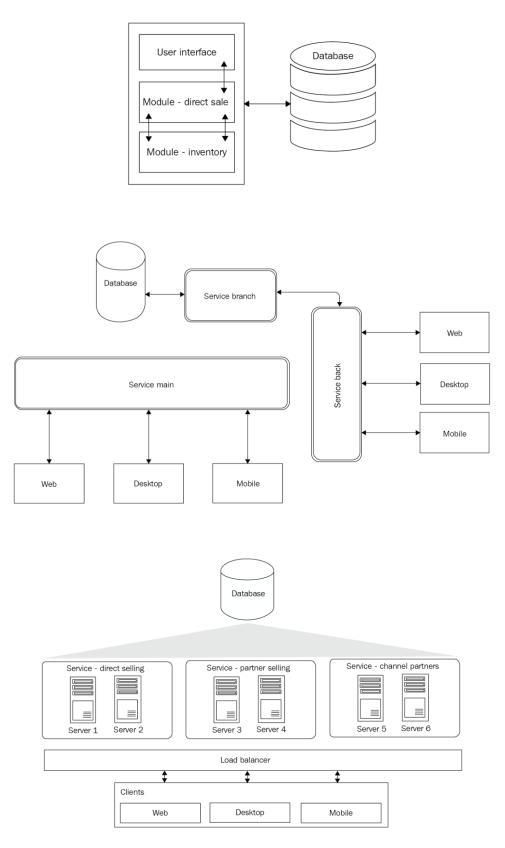
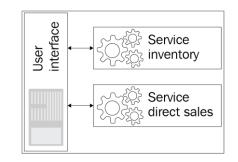
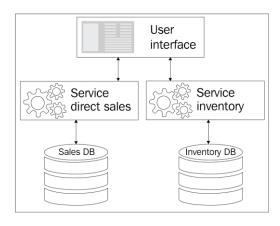
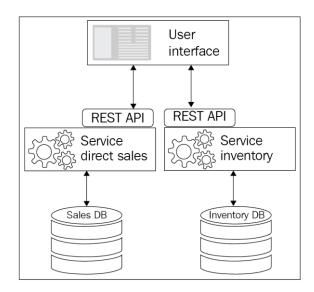
### **Chapter 1: An Introduction to Microservices**

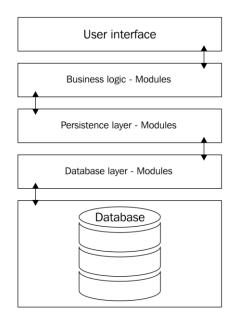


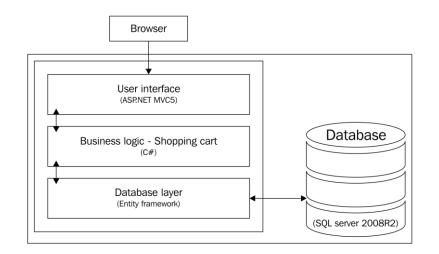


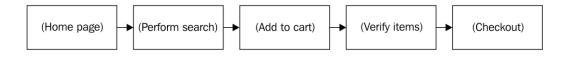


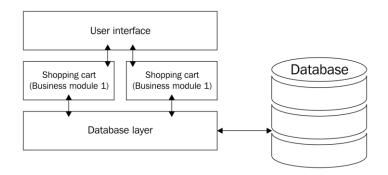


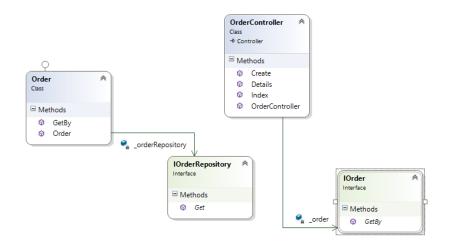


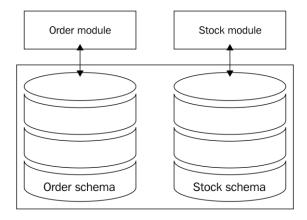


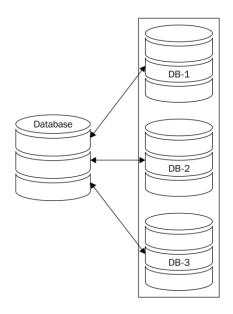


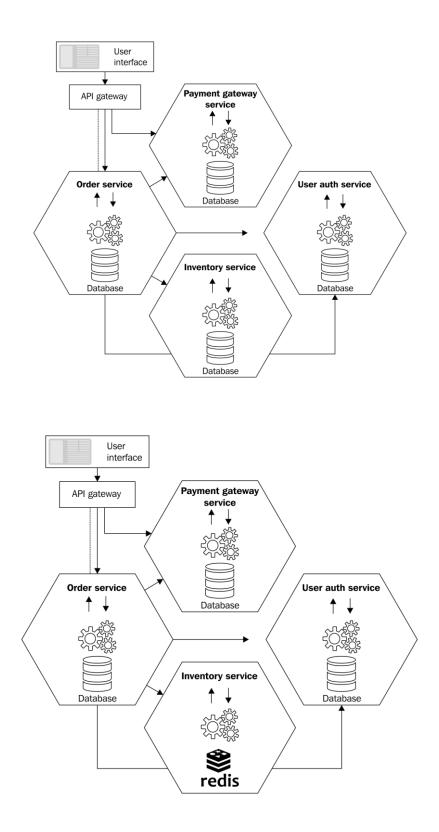




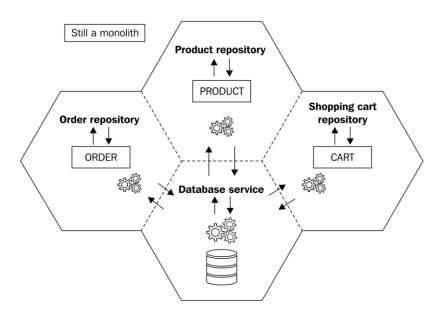




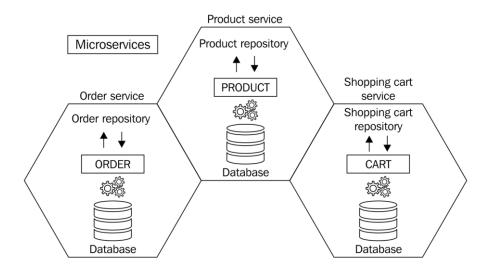


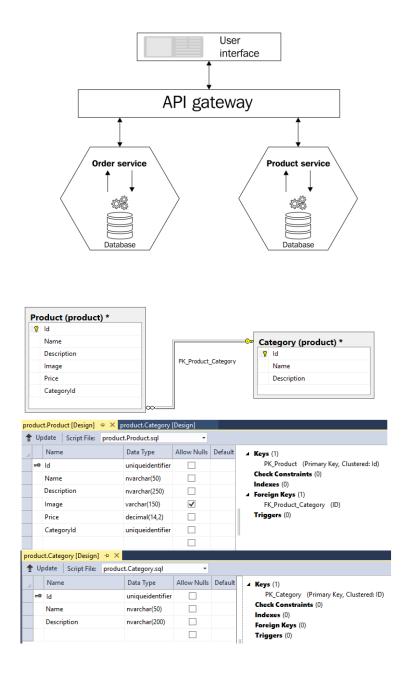


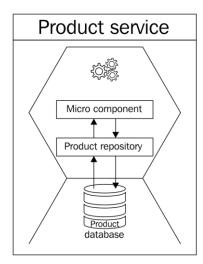
### **Chapter 2: Implementing Microservices**



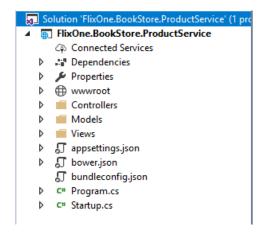
Databa	se		Database	
ORDER	PRODUCT	Removing	ORDER	PRODUCT
OrderID ProductID	ProductID	foreign	OrderID ProductID	ProductID
OrderID ProductID	ProductID	keys	OrderID ProductID	ProductID
OrderID ProductID	ProductID		OrderID ProductID	ProductID







Empty	web API	Web Application	Web Application (Model-View- Controller)	Angular	A project template for creating an ASP.NET Core application with example ASP.NET Core MVC Views a Controllers. This template can also be used for RESTfr HTTP services. Learn more
React.js	React.js and Redux				Change Authentication Authentication <b>No Authentication</b>
OS: V Require	ocker Support Vindows s <u>Docker for Win</u> support can also		⊻ rr <u>Learn more</u>		OK Cancel



FlixOne.BookStore.ProductS	Service ⇔ ×			
Application Build	Configuration: Active (Del	oug) v Platform: Act	tive (Any CPU) $\lor$	
Build Events Package Debug Signing TypeScript Build Resources	Allow unsate code  Optimize code  Errors and warnings  Warning level: Suppress warnings:  Treat warnings as errors  None All  Specific warnings:	Advanced Build Settings General Language version: Internal compiler error reporting: Check for arithmetic overflow Output Debugging information: File alignment: Library base address:		
	Output Output path: XML documentation Register for COM in Generate serialization as	terop	OK Cancel	v >

tor) tcture	Test     ReSharper     Analyze     Window     Help       ▶ IIS Express ▼ C     ▼     月     ↓     ↓     ↓	4	Build Rebuild Clean View	,	1+Q P _	₽ ×
		₽ az	Pack Publish Overview Scope to This New Solution Explorer View Show on Code Map Edit FlixOne.BookStore.ProductService.csproj		To → S @ D ↓ rer (Ctrl+;) e.BookStore.ProductService KStore.ProductService ad Services ncies s	Properties
*o *o	New from Template New Item Existing Item New Scaffolded Item New Folder	₩	Add Manage NuGet Packages Manage Bower Packages Manage User Secrets Set as StartUp Project	•	s rs gs.json	Team Explorer
**************************************	From Cookiecutter Application Insights Telemetry Docker Support Reference Connected Service	¥ ×	Debug License Headers Cut Remove Rename	Ctrl+X Del	on Infig.json cs 5	Class View Notifications
**	Class Shift+Alt+C	50 40 T	Unload Project Find Code Issues Find Symbols External to Scope Find Code Dependent on Module Show Type Dependency Diagram Show Project Dependency Diagram Show Project Hierarchy			

Add New Item - FlixO	ne.BookStore.ProductS	ervice					?	×
<ul> <li>Installed</li> </ul>		Sort by:	Default			Search (Ctrl+E)		ρ-
ASP.NET Core Code	٦. (پ	Class	ASP.NET Core		Type: ASP.NET Core Web API Controller Class			
General ▷ Web		•0	Interface	ASP.NET Core				
▶ Online		i li	Assembly Information File	ASP.NET Core				
		Ę.	MVC Controller Class	ASP.NET Core				
			Web API Controller Class	ASP.NET Core				
		@	Razor Page	ASP.NET Core				
		@	MVC View Page	ASP.NET Core				
		P	ASP.NET Configuration File	ASP.NET Core	l			
		D	Resources File	ASP.NET Core				
		Ē	Text File	ASP.NET Core				
		$\square$	HTML Page	ASP.NET Core				
		<b>L</b> l2	JavaScript File	ASP.NET Core	-			
Name:	ProductController.cs							
						Add	Can	cel

FlixOne.BookStore.ProductS	ervice 🗢 🗙			•
Application Build	Configuration: Active (Del	bug) v Platform: Act	tive (Any CPU) V	•
Build Events Package Debug Signing TypeScript Build Resources	Allow unsate code  Optimize code  Errors and warnings  Warning level: Suppress warnings:  Treat warnings as errors  None All  Specific warnings:  Output Output path: XML documentation Register for COM in Generate serialization as	terop		-
	<			×

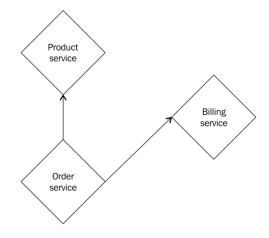
#### NuGet: FlixOne.Boo...tore.ProductService 😕 🗙 Browse Installed Updates NuGet Package Manager: FlixOne.BookStore.ProductService Swashbuckle.AspNetCore × - 🕹 🖌 Include prerelease Package source: nuget.org -Swashbuckle.AspNetCore Swashbuckle.AspNetCore by Swashbuckle.AspNetCore, 587K downloads Swagger tools for documenting APIs built on ASP.NET Core Version: Latest stable 1.0.0 • Install Swashbuckle.AspNetCore.SwaggerGen by Swashbuckle.AspNetCore.SwaggerGen, 630K downloads v1.0.0 Swagger Generator for API's built on ASP.NET Core • Options Swashbuckle.AspNetCore.Swagger by Swashbuckle.AspNetCore.Swagger, 629K downloads Middleware to expose Swagger JSON endpoints from API's built on ASP.INET Core v1.0.0 Description Swagger tools for documenting APIs built on ASP.NET Core Version: 1.0.0 Swashbuckle.AspNetCore.SwaggerUi by Swashbuckle.AspNetCore.SwaggerUI, 626K downloads Middleware to expose an embedded version of the swagger-ui from an ASP.NET Core application v1.0.0 Author(s): Swashbuckle.AspNetCore License: https://raw.githubusercontent.com/domaindriv Swashbuckle.AspNetCore/master/LICENSE Date published: Friday, April 21, 2017 (4/21/2017) Carable.Swashbuckle.AspNetCore.DocumentWithCode by Carable.Swashbuckle.AspNetCore.DocumentWithCode v1.0.0 Allows you to customize your swagger documentation using code Project URL: https://github.com/domaindrivendev/ Swashbuckle.AspNetCore Report Abuse: https://www.nuget.org/packages/ Swashbuckle.AspNetCore/1.0.0/ReportAbuse Swashbuckle.AspNetCore.Examples by Matt Frear, 2.55K downloads v2.2.2 discovery, swagger, help, aspnetcore, webapi, documentation, aspnet Tags: Each package is licensed to you by its owner. NuGet is not responsible for, nor does it grant any licenses to, third-party packages. Do not show this again Dependencies

Preview	×
Review Changes Visual Studio is about to make changes to this solution. Click OK to proceed with changes listed below.	the
FlixOne.BookStore.ProductService Installing: Swashbuckle.AspNetCore.1.0.0 Swashbuckle.AspNetCore.Swagger.1.0.0 Swashbuckle.AspNetCore.SwaggerGen.1.0.0 Swashbuckle.AspNetCore.SwaggerUl.1.0.0	•
Do not show this again OK Canc	el

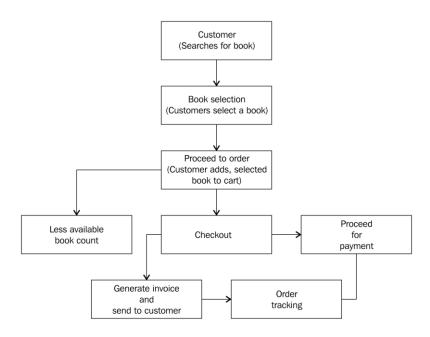
localhost:43552/swagger				□ ☆
⊖ swagger	http://localhost:43552/swagger/v1/swagger.json			Product API V1 $  imes $
Product APIs				
Product		Show/Hide	List Operations	Expand Operations
GET /api/product/productlist				
GET /api/product/product/{productid}				
POST /api/product/addproduct				
PUT /api/product/updateproduct/{product	ctid}			
DELETE /api/product/deleteproduct/{product	tid}			

[BASE URL: / , API VERSION: v1]

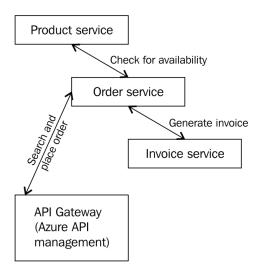
### **Chapter 3: Integration Techniques and Microservices**

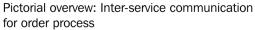


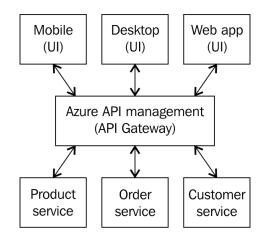
Rest API - Pictorial overview of sync communication



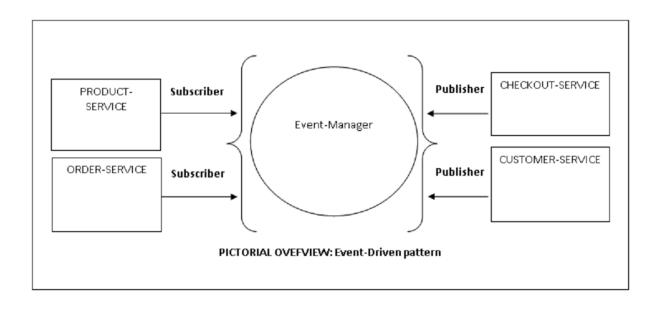
Pictorial view: Process of purchasing a book

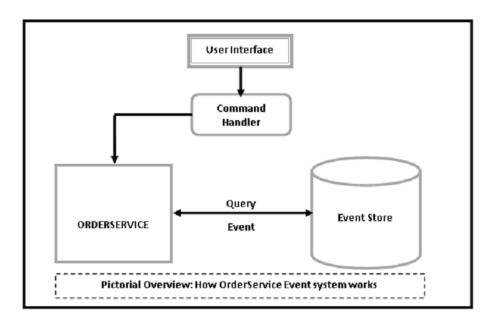


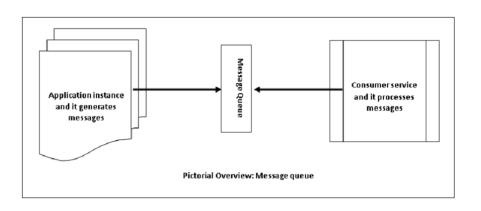


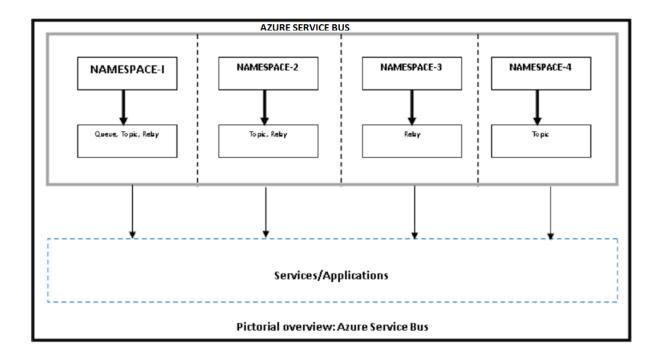


Pictorial overview: API Gateway









oflixone - Shared access pol	licies		* _ 🗆 ×
Service Bus	🕂 Add		
	Shared access policies		
Access control (IAM)	Search to filter items		×
Tags	POLICY	^ CLAIMS	^
X Diagnose and solve problems	RootManageSharedAccessKey	Manage, Send, Listen	
SETTINGS  Shared access policies  Scale			
Properties			
Locks			
😫 Automation script			
ENTITIES			
Queues			
Topics			

flixone - Queues
X Diagnose and solve problems
SETTINGS
Shared access policies
🔀 Scale
Properties
Locks
👱 Automation script
ENTITIES
🔄 Queues
Topics

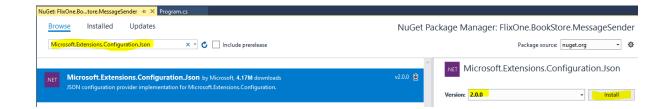
Create queue	-	∎ ×
* Name flixonequeue		~
Max size		~
Message time to live (default)	days	~
Lock duration	seconds	~
Move expired messages to subqueue Enable duplicate detection		letter
Enable sessions  Enable partitioning		
Create		



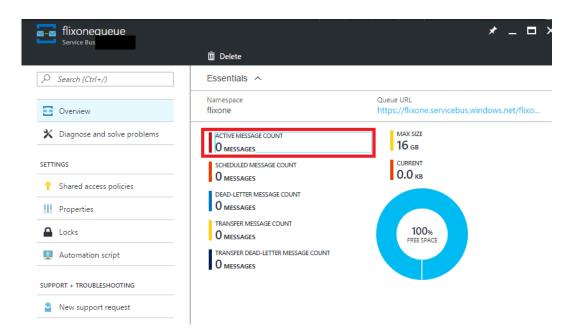
Starting	
Sending message: #0:A message from FlixOne.BookStore.MessageSender.	
Sending message: #1:A message from FlixOne.BookStore.MessageSender.	
Sending message: #2:A message from FlixOne.BookStore.MessageSender.	
Sending message: #3:A message from FlixOne.BookStore.MessageSender.	
Sending message: #4:A message from FlixOne.BookStore.MessageSender.	
Sending message: #5:A message from FlixOne.BookStore.MessageSender.	
Sending message: #6:A message from FlixOne.BookStore.MessageSender.	
Sending message: #7:A message from FlixOne.BookStore.MessageSender.	
Sending message: #8:A message from FlixOne.BookStore.MessageSender.	
Sending message: #9:A message from FlixOne.BookStore.MessageSender.	
Ending	
Press any key	

			terminal is in the t
	🗰 Delete		
Overview	Essentials 🔨		
Diagnose and solve problems	Namespace flixone	D	Queue URL https://flixone.servicebus.windows.net/flixonequeue
SETTINGS	ACTIVE MESSAGE COUNT 10 messages	MAX SIZE	
Shared access policies	SCHEDULED MESSAGE COUNT	CURRENT	
Properties	O MESSAGES DEAD-LETTER MESSAGE COUNT	2.1 KB	
Locks	O messages		
🛃 Automation script	TRANSFER MESSAGE COUNT O messages	100% FREE SPACE	
SUPPORT + TROUBLESHOOTING	TRANSFER DEAD-LETTER MESSAGE COUNT O MESSAGES		
New support request			

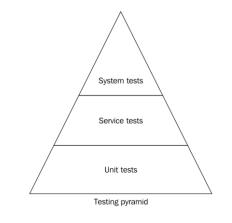


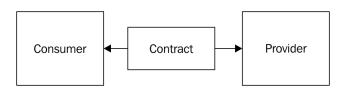


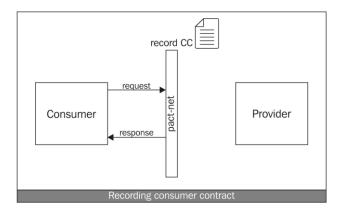
Starting			
Sending message:	#0:A message	from	FlixOne.BookStore.MessageSender.
Sending message:	<pre>#1:A message</pre>	from	FlixOne.BookStore.MessageSender.
Sending message:	<pre>#2:A message</pre>	from	FlixOne.BookStore.MessageSender.
Sending message:	#3:A message	from	FlixOne.BookStore.MessageSender.
Sending message:	#4:A message	from	FlixOne.BookStore.MessageSender.
Sending message:	#5:A message	from	FlixOne.BookStore.MessageSender.
Sending message:	#6:A message	from	FlixOne.BookStore.MessageSender.
Sending message:	<pre>#7:A message</pre>	from	FlixOne.BookStore.MessageSender.
Sending message:	#8:A message	from	FlixOne.BookStore.MessageSender.
Sending message:	#9:A message	from	FlixOne.BookStore.MessageSender.
Ending			
Press any key			

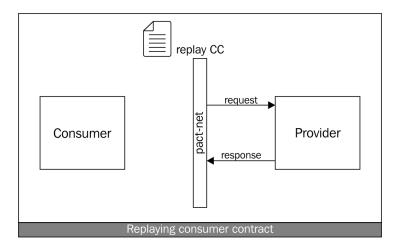


### **Chapter 4: Testing Microservices**









_	ReSharper Analyze Windov xpress • 🕐 -   🎜		Build Solution Rebuild Solution Clean Solution Analyze Batch Build Live Test Configuration Manager Manage NuGet Packages Configure Continuous Delivery New Solution Explorer View Show on Code Map Calculate Code Metrics	F6 , ,	Gaurav Aroraa ▼ v → v → v ion Explorer (Ctrl+:) orer v → v → v → v → v → v → v → v → v → v
	New Project		Add	•	xpl or
	Existing Project	Φ	Set StartUp Projects		er
	New Web Site		License Headers	•	lass
	Existing Web Site	Ð	View History		View
<b>*</b> D	New Item		Compare with Unmodified		2
	Existing Item Shift+.	7	Blame (Annotate)		dific
-	New Solution Folder	â	Paste	Ctrl+V	ation
		I	Rename		
			Find Code Issues		
			Show Project Dependency Diagram		
		ç	Open Folder in File Explorer		
			Refactor	•	
Γ_			Cleanup Code	Ctrl+E, Ctrl+C	
Γ			Go to File Nearby		
			Collapse All		• • •
lest S	essions Unit Test Explorer		Enable Lightweight Solution Load		
		J.	Properties	Alt+Enter	> microservices 🛛 🖓 master 🔺 🕓 🔵

Add New Project			? ×
▶ Recent	.NET Framework 4.7 Sort by: Default	• # 🗉	Search (Ctrl+E)
<ul> <li>✓ Installed</li> <li>✓ Visual C≢</li> <li>Windows Classic Desktop</li> <li>WEE</li> <li>WEE Core</li> <li>JNET Standard</li> <li>Cloud</li> <li>Test</li> <li>WCF</li> <li>▷ Other Languages</li> <li>Dependency Validation</li> </ul>	Console App (.NET Core)         Class Library (.NET Core)         Unit Test Project (.NET Core)         Vulit Test Project (.NET Core)         ASP.NET Core Web Application	Visual C# Visual C# Visual C# Visual C# Visual C#	Type: Visual C# A project that contains xUnit.net tests that can run on .NET Core on Windows, Linux and MacOS.
Online Not finding what you are looking for? Open Visual Studio Installer			
	roductService.UnitTests		Browse
Location: D:\GitHub\microsel		OK Cancel	

Toolbox	FlixOne.BookStore.ProductS	Service 🕫 🗙 ProductData.cs*						-
	Application Build	Configuration: Active (Debug)	V Platform: Active (A	ny CPU) 🗸 🗸				
Test Explorer Server Explorer	Build Events Package Debug Signing TypeScript Build	Allow unsate code     Optimize code     Errors and warnings     Warning level:	Advanced Build Settings General Language version: Internal compiler error reporting:	C# 7.0 prompt	?	× ~	,	
let.	Resources	Suppress warnings: Treat warnings as errors None All Specific warnings:	Check for arithmetic overflow/ Output Debugging information: File alignment: Library base address:	underflow           portable           512           0x00400000		~		
	Specific warnings:     Output     Output path:     XML documentation f     Register for COM intee     Generate serialization asse				OK Cand	el		
		<	Call Hierarchy Unit Test Sessions U	laik Tank Fundanan	Advanced	_		

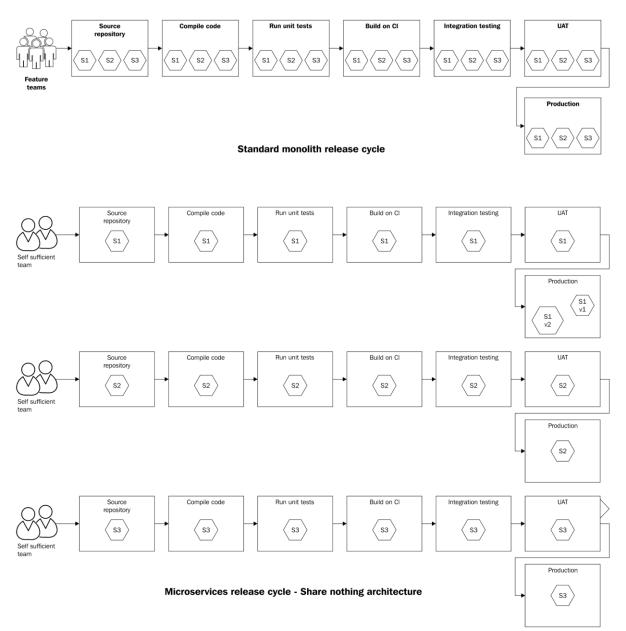


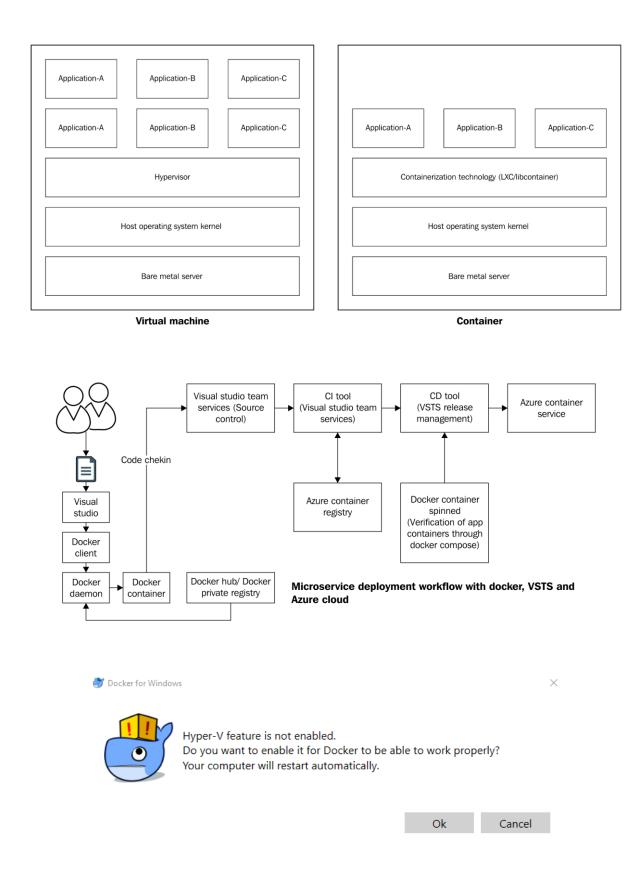
moq	× - 🖉 🔽 Include prerelease			Package source: nuget.org -
Moq by	Daniel Cazzulino, Izu, 16.5M downloads	v4.7.137	noq 🕤 👔	
Moq is the	most popular and friendly mocking framework for .NET		Version: Lates	t stable 4.7.137 🔹 install
	ntrib by kzunet, 76.2K downloads ad features and third-party integration for Moq.	v0.3.0	• Options	
	loq by Ian Johnson, 9.05K downloads i is a companion library for Grace and Moq	v2.4.2	Description Mog is the mos	t popular and friendly mocking framework for .NET
	i s a companion initiary for offace and woop	v0.0.3	Version: Author(s):	4.7.137 Daniel Cazzulino, kzu
-	loq - this.Log logging extension using Moq		License:	https://raw.githubusercontent.com/moq/moq4/master/ License.bt
Testing he	m.Testing.Moq by Mendham.Testing.Moq, 1.14K downloads Ipers using Moq	v1.0.0-beta7	Date published Project URL:	https://github.com/moq/moq4
lease ch package is lid	censed to you by its owner. NuGet is not responsible for, nor does it grant any licenses to, third-party packa	ges.	Tags:	https://www.nuget.org/packages/Moq/4.7.137/ ReportAbuse tdd, moq, mocking, mocks, unittest, unittesting, agile
Do not show t	this again	-	Dependencies	

			_	-
Add New Project				? ×
▶ Recent		.NET Framework 4.7 Sort by: Default	• # E	Search (Ctrl+E)
Installed     Visual C#     Windows Classic     Web     NET Core     .NET Standard     Cloud     Test     WCF     Other Languages		Console App (.NET Core)         Image: Class Library (.NET Core Web Application)	Visual C# Visual C# Visual C# Visual C# Visual C#	Type: Visual C# A project that contains xUnit.net tests that can run on .NET Core on Windows, Linux and MacOS.
Dependency Validati ▷ Online Not finding what you Open Visual Stuc	are looking for?			
Name: F	FlixOne.BookStore.Pr	oductService.IntegrationTests vices\Second Edition\Source Code\Chapter-04		Browse

Too	NuGet: FlixOne.	Booce.Integrati	ionTests 🕫 🗙 Proc	luctTest.cs						-	Diag
box	Browse	Installed	Updates 3			NuGet Packa	age Manager:	FlixOne.Boo	kStore.ProductService.IntegrationTes	sts	Diagnostic Tools
Toolbox Test Explorer	Microsoft.4	AspNetCore.Test	Host	× - 🖒 🖌 Inclu	lude prerelease				Package source: nuget.org	¢	
	NET Mic	rosoft.AspN	letCore.TestHos	by Microsoft, <b>842K</b> dow	vnloads		v2.0.0	.NET Micro	osoft.AspNetCore.TestHost	Î	Properties
Server Explorer		NET Core web s	erver for writing and i	unning tests.				Version: Latest	stable 2.0.0		Solution Explorer
								• Options		1	Explorer
								Description		1	Team Explorer
									eb server for writing and running tests.		plorer
								Version:	2.0.0		
								Author(s): License:	Microsoft https://raw.githubusercontent.com/aspnet/Home/2.0.0	,	Class View
								cicense.	LICENSE.txt	· .	
								Date published:	Friday, August 11, 2017 (8/11/2017)		Notifications
								Project URL:	https://asp.net/		icati
							-	Report Abuse:	https://www.nuget.org/packages/ Microsoft.AspNetCore.TestHost/2.0.0/ReportAbuse		suo
	Each packag	ge is licensed to y	you by its owner. Nu	iet is not responsible for, n	nor does it grant any licenses to, third-	party packages.		Tags:	hosting, testing, aspnetcore		
	Do not s	show this again						Dependencies		-	
	Error List Outpu	ut Package Mai	nager Console C# Ir	teractive Call Hierarchy	v Unit Test Sessions Unit Test Explore	er					

## **Chapter 5: Deploying Microservices**





nettings 🕈		×
General	Shared Drives	
Shared Drives	Select the local drives you want to be available to	
Advanced	your containers.	
Network	Shared Drive	
Proxies		
Docker Daemon		
Diagnose & Feedback	Microsoft PowerShell > docker runrm -v c:/Users:/data alpine ls /data	- 🗆 ×
Reset	-> uuckei runrm -v C./osers:/uata aipine is /uata	
Docker is running	Reset credentials	Apply

New Project							?	×
▷ Recent		.NET Fr	amework 4.7   Sort by: Default	• # E	Search (Ctrl+E)			<i>۹</i> - م
▲ Installed		<del>ر</del> ې،	Console App (.NET Core)	Visual C#	Type: Visual C#			
▲ Visual C# Windows Class Web	ic Desktop		Class Library (.NET Core)	Visual C#	Project templates Core applications macOS using .NE	for Windows	s, Linux	
.NET Core .NET Standard		アゴ	Unit Test Project (.NET Core)	Visual C#	Framework.			
Cloud Test		٦Ĵ	xUnit Test Project (.NET Core)	Visual C#				
WCF D Other Languages D Other Project Types Dependency Validation		<b>#</b>	ASP.NET Core Web Application	Visual C#				
◊ Online								
Not finding what yo Open Visual Sto	-							
Name:	FlixOne.BookStore.Pr	roductSer	vice	_				
Location:	D:\GitHub\microserv	vices\Seco	ond Edition\Source Code\Chapter-05	-	Browse			
Solution name:	FlixOne.BookStore.Pr	roductSer	vice		Create directory f			
						ОК	Cano	cel

New ASP.NET C	ore Web Applica	<mark>tion</mark> - FlixOne.B	ookStore.Produc	tService	? ×
.NET Core	~ A	SP.NET Core 2.0	) × <u>Learn n</u>	nore	
Empty	•••• Web API	Web Application	Web Application (Model-View- Controller)	Angular	A project template for creating an ASP.NET Core application with example ASP.NET Core MVC Views and Controllers. This template can also be used for RESTful HTTP services. Learn more
	B				
React.js	React.js and Redux				Change <u>A</u> uthentication Authentication <b>No Authentication</b>
OS: V	ocker Support Vindows s <u>Docker for Win</u> support can also		v r <u>Learn more</u>		
					OK Cancel

#### € Solution 'FlixOne.BookStore.ProductService' (2 projects)

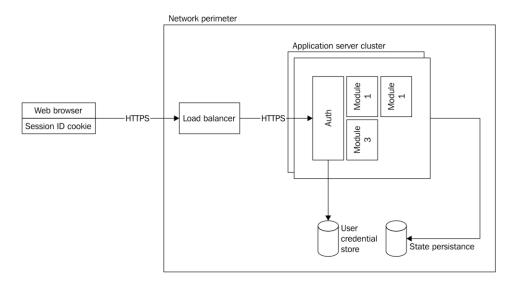
- 🔺 🍃 docker-compose
  - \* 🗋 docker-compose.ci.build.yml
  - 🕨 \* 🗋 docker-compose.yml
- ▲ + . FlixOne.BookStore.ProductService
  - Connected Services
  - Dependencies
  - ▷ a Properties
     ▷ a ⊕ wwwroot

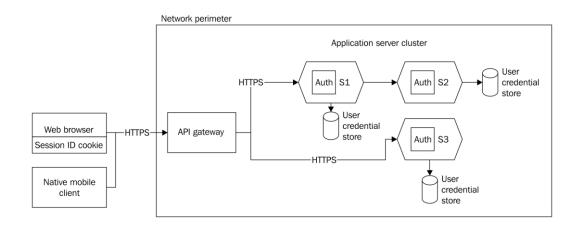
  - ▲ a Gontrollers
  - ♦ + C# HomeController.cs
  - 🔺 🖬 🚄 Models
    - ♦ + C# ErrorViewModel.cs
  - 🔺 🖬 🚄 Views
    - 👂 a 📕 Home
    - 👂 a 💼 Shared
    - \* 🖻 \_ViewImports.cshtml
    - + 🗟 \_ViewStart.cshtml
  - ↓ + appsettings,json
    ↓ + bower,json

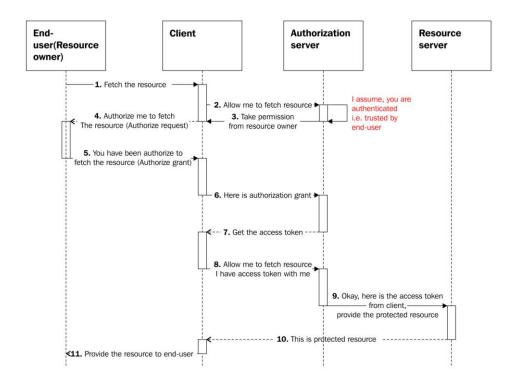
  - + 🗊 bundleconfig.json
  - 🕨 + 🗋 Dockerfile
  - \* c\* Program.cs
  - ♦ + C# Startup.cs

🖬 🕢 S	olution 'FlixOne.BookStore.ProductService' (2 projects)
۵ 🛓	docker-compose
4 🦉	FlixOne.BookStore.ProductService
	∠⇒ Connected Services
Þ	Dependencies
Þ	🔑 Properties
⊳	www.root
⊳	Contexts
	Controllers
	C* HomeController.cs
	C* ProductController.cs
⊳	Migrations
	🛁 Models
	C# Category.cs
	C# ErrorViewModel.cs
	C# Product.cs
	▷ C# ProductViewModel.cs
	Persistence
	C# IProductRepository.cs
	C# ProductRepository.cs
Þ	Views
Þ	🗸 appsettings.json
⊳	🗸 bower.json
	🗸 bundleconfig.json
Þ	Dockerfile
Þ	C# Program.cs
Þ	C# Startup.cs

### **Chapter 6: Securing Microservices**





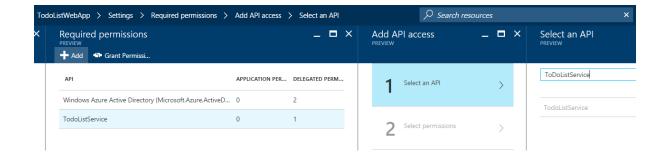


	Tenant Name (Default Director Azure Active Directory - PREVIEW		Create _ 🗖 🗙
+	Q Search (Ctrl+/)	+ Add 🗄 Endpoints	
<u>9</u>	Search (Ctrl+/)	To view and manage your registrations for converged applications, please visit the Microsoft Application Console.	* Name ❶ ToDoListService ✓
•	Overview	Search by name or AppId   All apps	Application Type 🛛
<b>2</b>	🥳 Quick start	DISPLAY NAME APPLICATION TYPE APPLICATION ID	Web app / API
<b>@</b>	MANAGE	No results.	* Sign-on URL https://localhost:44321γ ✓
Ŷ	۹ <sup>۹</sup> Users and groups	HO REGULES.	
•	Enterprise applications		
0	App registrations		
	Azure AD Connect		

	_	
TodoListService* 😐 🗙		
Application		
Build	Servers	
Web*	Apply server setti	ngs to all users (store in project file)
Package/Publish Web	UC Furners	
Package/Publish SQL	IIS Express	~
Silverlight Applications	Project Url	https://localhost:44321/
Build Events	Override applica	ation root <u>U</u> RL
Resources	https://leastheast	440047
Settings	https://localhost:	44521/
Reference Paths		
Signing		
Code Analysis		

≡ +	* _ <b>□</b> ×	TodoListService Registered app - PREVIEW ✿ Settings 🖍 Manifest 📋 Delete	*	_ 🗆 ×	Settings PREVIEW	_ 🗆 ×	Properties _ C × PREVIEW Save X Discard
(*)	plications, please visit the Microsoft	Essentials A			○ Filter settings		* Name  TodoListService
	✓ All apps ✓	Display Name TodoListService	Application ID		GENERAL		Object Id •
•	ON TYPE APPLICATION ID	Application Type Web app / API	Object ID		<sup>4</sup> 1 <sup>4</sup> Properties	>	
8	/ API	Home Page https://localhost:44321	Managed Application In Local Directory TodoListService		a Reply URLs	>	Application ID
٥	/ API			All settings 🗲	Swners	>	* App ID URI 🛛
					API ACCESS		https://mytenant.onmicrosoft.com/TodoLi 🗸
					Required permissions	>	Logo
					📍 Keys	>	ТО
Ŷ							
•							Upload new logo
0							Home page URL
0							https://localhost/44321
0							Logout URL
2							Application Type
M							Web app / API
							Multi-tenanted  Yes No
2							

= + ⊡	🖈 🗕 🗖 🗙 Delete	Settings _ 🗖 ×	Properties _ C X PREVIEW Save X Discard
(*)	Application ID		* Name ● TodoListWebApp
	Object ID	GENERAL	Object Id 🛛
•	Managed Application In Local Directory TodoListWebApp	Reply URLs	Application ID
8	All settings →	🗳 Owners 📏	
2		API ACCESS	* App ID URI  https://mytenant.onmicrosoft.com/TodoList\
		Required permissions	Logo
		🕈 Keys 🖒	то
•			
•			Upload new logo 0 Select a file
0			Home page URL 🖲
٢			https://localhost:44322/
0			https://localhost:44322/Account/EndSession
			Application Type Web app / API
M .			Multi-tenanted <b>O</b>
			Yes No



ettings REVIEW	_ <b>D</b> ×	Keys PREVIEW R Save X Discard				_ □
○ Filter settings		DESCRIPTION	EXPIRES	VALUE		
SENERAL		АррКеу	12/27/2017	Hidden		
Properties	>	Key description	Duration	✓ Value will be displaye	ed on save	
Reply URLs	>					
Owners	>					
I ACCESS						
<ul> <li>Required permissions</li> </ul>	>					
Keys	>					
Application name Home	About Conta	ict Profile To Do List		Hello,	@hotmail.com!	Sign out
ASP.NET is a free JavaScript. Learn more »		work for building gre	eat Web sites and <sup>1</sup>	Web applications using	HTML, CSS and	

### Getting started

ASP.NET MVC gives you a powerful, patterns-based way to build dynamic websites that enables a clean separation of concerns and gives you full control over markup for enjoyable, agile development.

Learn more »

### Get more libraries

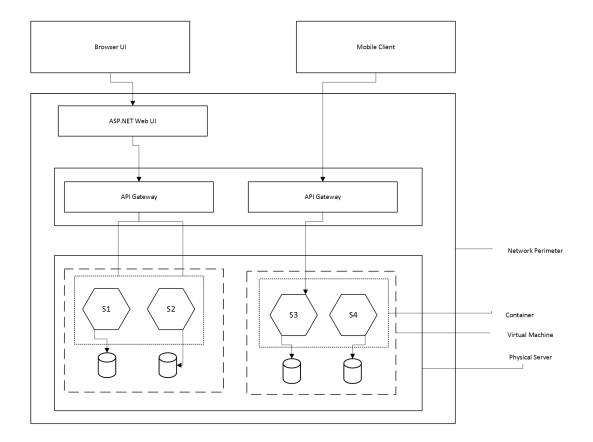
NuGet is a free Visual Studio extension that makes it easy to add, remove, and update libraries and tools in Visual Studio projects.

Learn more »

#### Web Hosting

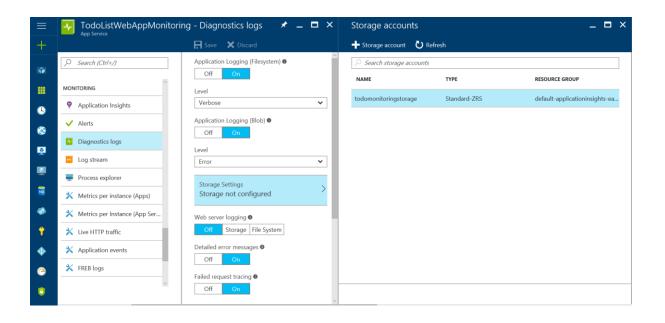
You can easily find a web hosting company that offers the right mix of features and price for your applications.

Learn more »

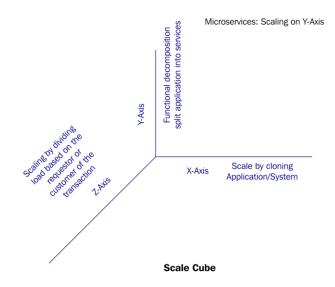


Micr	OSOFT Azure App Services > TodoList	WebAppMonitoring - Diagnostics logs
	TodoListWebAppMonitori	ng - Diagnostics logs 🛛 🖈 💶 🗙
+		🛱 Save 🗙 Discard
	Search (Ctrl+/)	Application Logging (Filesystem)  Off On
	ΑΡΙ	Level
ß	API definition	Verbose 🗸
8	😲 CORS	Application Logging (Blob)  Off On
<b>Q</b>	MONITORING	Level
	Application Insights	Error
SQL	✓ Alerts	Storage Settings
	Diagnostics logs	Storage not configured
• •	₩ Log stream	Web server logging  Off Storage File System
	Process explorer	Detailed error messages <b>0</b>
•	X Metrics per instance (Apps)	Off On
<u>ک</u>	X Metrics per Instance (App Ser	Failed request tracing  Off On

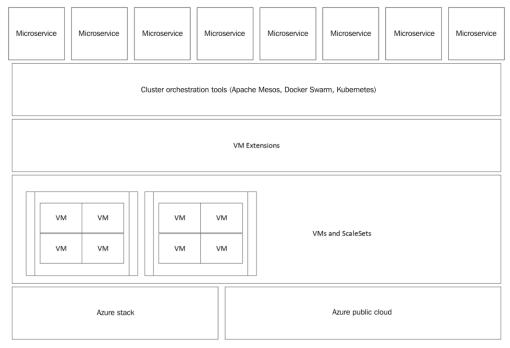
### **Chapter 7: Monitoring Microservices**



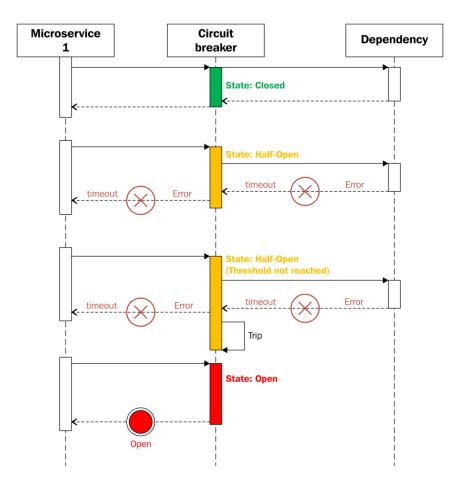
### **Chapter 8: Scaling Microservices**



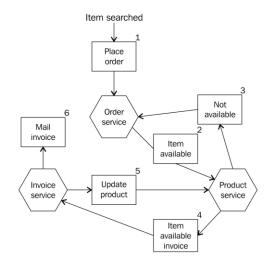
Ref: "The Art of Scalability: Scalable Web Architecture, Processes, and Organizations for the Modern Enterprise", Second Edition Martin L. Abbott; Michael T. Fisher



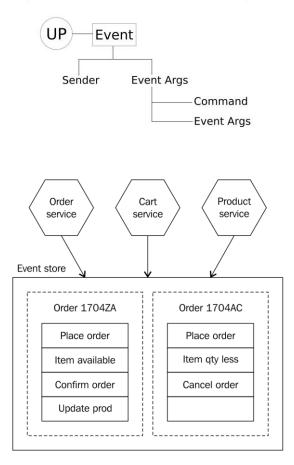
Microservices infrastructure



# **Chapter 9: Introduction to Reactive Microservices**



Event	Function
Login	Auth/Login
UpdateProduct	Product/Update



UpdateProduct += {BaseURL}/Product/Update

			<	Order service	
	Order		Order	🚽 🗸 Deta	ils
ID	ID Status Client ID		Order ID	Item ID	Qty
1704AC	Cancel	#	1704ZA	HP_lap_24	2
1704ZA	Placed	#	1704AC		

New Project		-			? ×
▶ Recent		.NET Fr	amework 4.7   Sort by: Default		Search (Ctrl+E)
▲ Installed		5	Console App (.NET Core)	Visual C#	Type: Visual C#
<ul> <li>Visual C#</li> <li>Windows Classic Desktop</li> <li>Web</li> <li>.NET Core</li> <li>.NET Standard</li> </ul>			Class Library (.NET Core)	Project templates for creating ASP.NET Core applications for Windows, Linux and macOS using .NET Core or .NET	
		匠	Unit Test Project (.NET Core)		Framework.
Cloud	1	٣	xUnit Test Project (.NET Core)	Visual C#	
WCF V Other Languages		€	ASP.NET Core Web Application	Visual C#	
<ul> <li>Other Project Typ</li> <li>Dependency Valid</li> </ul>	es				
▷ Online					
Not finding what y	ou are looking for?				
Open Visual S	tudio Installer				
<u>N</u> ame:	FlixOne.BookStore.P	roductSer	vice		
Location:	D:\GitHub\microsen	vices\Sou	rce Code\02\Chapter-09	•	Browse
Solution name:	FlixOne.BookStore.P	roductSer	vice		Create directory for solution
					Create new <u>G</u> it repository
					OK Cancel

ET Core	~ <mark>A</mark>	SP.NET Core 2.0	) × <u>Learn n</u>	tService	
Empty	Web API	Web Application	Web Application (Model-View- Controller)	Angular	A project template for creating an ASP.NET Core application with example ASP.NET Core MVC Views a Controllers. This template can also be used for RESTfu HTTP services. Learn more
<b>*</b>	<b>B</b>				
React.js	React.js and Redux				
					Authentication No Authentication
<u>Enable D</u>	ocker Support				
OS: V	Vindows		v		
Require	s Docker for Win	ndows			
		be enabled late			

Application	Configuration: Active (Debug)	V Platform: Active (Any CPU)	~	Ţ
Build Events Build Events Package Debug Signing TypeScript Build Resources	Allow unsafe code     Optimize code     Optimize code  Errors and warnings Warning level: Suppress warnings: Treat warnings as errors     O None     O All	Advanced Build Settings General Language version: Internal compiler error reporting: Check for arithmetic overflow/r Output Debugging information:	C# 7.1 C C# 7.1 C C# Jatest major version (default) C# latest major version (default)	^
	Specific warnings: Output Output path:     XML documentation file:     Register for COM interop	Library base address:	C#7.1	
	Generate serialization assembly: ge Manager Console C# Interactive Call H	Auto V	Advanced	*

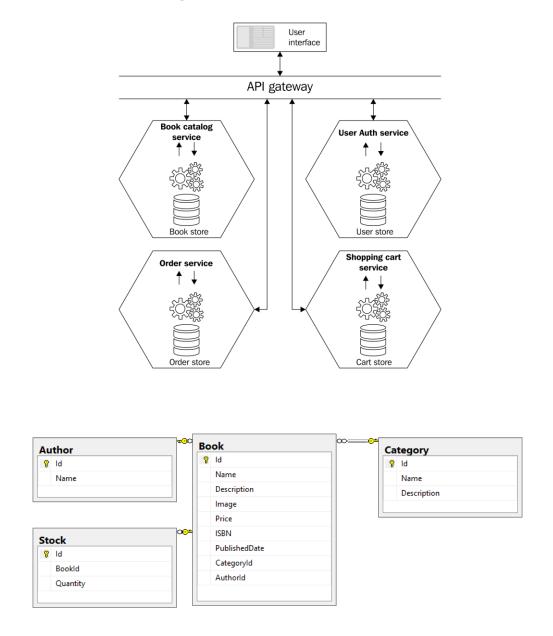
	· ·
NuGet Package Manager: FlixOne.BookStore.ProductServic	:e
Package source: nuget.org •	Φ
v4.00-preview00001	
Version: Latest prerelease 4.0.0-preview00001 - Install	
: v3.1.1 ♥ Options	
Description	
Reactive Extensions (Rx) for .NET - v3 compatibility facade for System.Reactive.Core	
Version: 4.0.0-preview00001	
Author(s): .NET Foundation and Contributors	
License: http://go.microsoft.com/fwlink/?LinklD=261272	
Date published: Saturday, May 27, 2017 (5/27/2017)	
Project URL: http://go.microsoft.com/fwlink/?Linkld=261273	
Report Abuse: https://www.nuget.org/packages/ System.Reactive.Core/4.0.0-preview00001/ReportAbuse	
rty packages. Tags:	
Dependencies	-
	v4.0.0-preview00001       Image: System.Reactive.Core         v4.0.0-preview00001       Image: System.Reactive.Core         version:       Latest prerelease 4.0.0-preview00001       Image: Image: System.Reactive.Core         version:       Latest prerelease 4.0.0-preview00001       Image: System.Reactive.Core         version:       Version:       Latest prerelease 4.0.0-preview00001         Description       Reactive.Extensions (Rv) for .NET - v3 compatibility facade for System.Reactive.Core         Version:       4.0.0-preview00001         Author(s):       .NET Foundation and Contributors         License:       http://go.microsoft.com/winkl/Linkld=261272         Date published:       Saturday, May 27, 2017 (S/27/2017)         Project URI:       http://go.microsoft.com/winkl/Linkld=261273         Report Abuse:       http://www.nuget.org/packages/         System.Reactive.Core/4.0.0-preview00001/ReportAbuse       Tags:

Add New Item - FlixOne.BookStore.ProductService						
<ul> <li>Installed</li> </ul>	Sort by: Default	Search (Ctrl+E)		ρ.		
▲ ASP.NET_Core Code General ▷ Web	Class €€ Interface	ASP.NET Core Type: ASP.NET Core Web API Controller Class				
▷ Online	Assembly Information File	ASP.NET Core				
	MVC Controller Class	ASP.NET Core				
	Web API Controller Class	ASP.NET Core				
	Razor Page	ASP.NET Core				
	MVC View Page	ASP.NET Core				
	ASP.NET Configuration File	ASP.NET Core				
	Resources File	ASP.NET Core				
	Text File	ASP.NET Core				
	HTML Page	ASP.NET Core				
	JavaScript File	ASP.NET Core 💌				
Name: ProductController.	<mark>CS</mark>	Add	Can	cel		

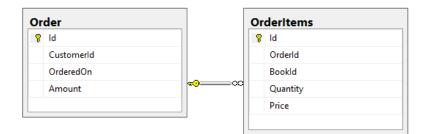
Solution 'FlixOne.BookStore.ProductService' (1 project)
▲ √⊕ FlixOne.BookStore.ProductService
Cap Connected Services
Dependencies
👂 a 🔑 Properties
▷ 🖬 🕀 www.root
🔺 🛁 Contexts
V C* ProductContext.cs
🔺 a 🚍 Controllers
C# HomeController.cs
V C* ProductController.cs
🔺 🖬 🔙 Models
C# Category.cs
C# ErrorViewModel.cs
V C* Product.cs
🔺 🛁 Persistence
C# IProductRepository.cs
V C# ProductRepository.cs
Views
appsettings.json
I bower.json
🎵 bundleconfig.json

- C# Program.cs
- C# Startup.cs

### **Chapter 10: Creating a Complete Microservice Solution**



Cartitems		<del>∞</del> <del>°</del> *	Са	rt	
8	ld		8	ld	
	CartId			Customerld	
	Bookld				
	Quantity				
	Price				



Us	User				
P	ld				
	FirstName				
	LastName				
	Userld				
	Password				
	Emailld				