

20487: Developing Windows Azure and Web Services (5 Days)

About this Course

In this course, students will learn how to design and develop services that access local and remote data from various data sources. Students will also learn how to develop and deploy services to hybrid environments, including on-premises servers and Windows Azure.

Audience Profile

This course is intended for both novice and experienced .NET developers who have a minimum of six months programming experience, and want to learn how to develop services and deploy them to hybrid environments.

At Course Completion

After completing this course, students will be able to:

- Query and manipulate data with Entity Framework
- Use ASP.NET Web API to create HTTP-based services and consume them from .NET and non-.NET clients
- Extend ASP.NET Web API services using message handlers, model binders, action filters, and media type formatters
- Create SOAP-based services with the Windows Communication Foundation (WCF) and consume them from .NET clients
- Apply design principles to service contracts and extend WCF services using custom runtime components and behaviors
- Secure WCF services using transport and message security
- Use Windows Azure Service Bus for relayed messaging and brokered messaging using queues and topics
- Host services on on-premises servers, and on various Windows Azure environments, such as Web Roles, Worker Roles, and Web Sites
- Deploy services to both on-premises servers and Windows Azure
- Store and access data in Windows Azure Storage, and configure storage access rights
- Monitor and log services, both on-premises and in Windows Azure
- Implement federated authentication by using ACS with ASP.NET Web API services
- Create scalable, load-balanced services

Prerequisites

Before attending this course, students must have:

- Experience with C# programming, and concepts such as Lambda expressions, LINQ, and anonymous types.
- Understanding the concepts of n-tier applications.
- Experience with querying and manipulating data with ADO.NET.
- Knowledge of XML data structures

COURSE OUTLINE

Module 1: Overview of service and cloud technologies

- Key Components of Distributed Applications
- Data and Data Access Technologies
- Service Technologies
- Cloud Computing
- Exploring the Blue Yonder Airlines' Travel Companion Application

Module 2: Querying and Manipulating Data Using Entity Framework

- ADO.NET Overview
- Creating an Entity Data Model
- Querying Data
- Manipulating Data

Module 3: Creating and Consuming ASP.NET Web API Services

- HTTP Services
- Creating an ASP.NET Web API Service
- Handling HTTP Requests and Responses
- Hosting and Consuming ASP.NET Web API Services

Module 4: Extending and Securing ASP.NET Web API Services

- The ASP.NET Web API Pipeline
- Creating OData Services
- Implementing Security in ASP.NET Web API Services
- Injecting Dependencies into Controllers

Module 5: Creating WCF Services

- Advantages of Creating Services with WCF
- Creating and Implementing a Contract
- Configuring and Hosting WCF Services
- Consuming WCF Services

Module 6: Hosting Services

- Hosting Services On-Premises
- Hosting Services in Windows Azure

Module 7: Windows Azure Service Bus

- Windows Azure Service Bus Relays
- Windows Azure Service Bus Queues
- Windows Azure Service Bus Topics

Module 8: Deploying Services

- Web Deployment with Visual Studio 2012
- Creating and Deploying Web Application Packages
- Command-Line Tools for Web Deploy
- Deploying Web and Service Applications to Windows Azure
- Continuous Delivery with TFS and Git
- Best Practices for Production Deployment

Module 9: Windows Azure Storage

- Introduction to Windows Azure Storage
- Windows Azure Blob Storage
- Windows Azure Table Storage
- Windows Azure Queue Storage
- Restricting Access to Windows Azure Storage

Module 10: Monitoring and Diagnostics

- Performing Diagnostics by Using Tracing
- Configuring Service Diagnostics
- Monitoring Services Using Windows Azure Diagnostics
- Collecting Windows Azure Metrics

Module 11: Identity Management and Access Control

- Claims-based Identity Concepts
- Using the Windows Azure Access Control Service
- Configuring Services to Use Federated Identities

Module 12: Scaling Services

- Introduction to Scalability
- Load Balancing
- Scaling On-Premises Services with Distributed Cache
- Windows Azure Caching
- Scaling Globally

Module 13: Appendix A: Designing and Extending WCF Services

- Applying Design Principles to Service Contracts
- Handling Distributed Transactions
- Extending the WCF Pipeline

Module 14: Appendix B: Implementing Security in WCF Services

- Introduction to Web Services Security
- Transport Security
- Message Security
- Configuring Service Authentication and Authorization