20487 Developing Windows Azure and Web Services

Course Overview

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This is a 5-day class

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

Who Should Attend

Primary: .NET developers who want to learn how to develop services and deploy them to hybrid environments.
Secondary: .NET developers with Web application development experience who are exploring developing new applications or porting existing applications to Microsoft Azure.

Course Objectives

- Describe the basic concepts of service development and data access strategies using the .NET platform.
- Describe the Microsoft Azure cloud platform and its compute, data, and application hosting offerings.
- Design and develop a data-centric application using Visual Studio 2017 and Entity Framework Core.
- Design, implement, and consume HTTP services using ASP.NET Core.
- Extend HTTP services using ASP.NET Core.
- Host services on-premises and in Microsoft Azure.
- Deploy services to both on-premises and cloud environments and manage the interface and policy for their services.
- Choose a data storage solution, cache, distribute, and synchronize data.
- Monitor, log, and troubleshoot services.
- Describe claim-based identity concepts and standards, and implement authentication and authorization with Azure Active Directory.
- Create scalable service applications.

Course Outline

1 Overview of service and cloud technologies

Key Components of Distributed Applications
Data and Data Access Technologies
Service Technologies
Cloud Computing
Manipulating Data
Lab : Exploring the Work Environment

2 Querying and manipulating data using Entity Framework

ADO.NET Overview
Creating an Entity Data Model
Querying Data
Lab : Creating a Data Access Layer using Entity Framework
Lab : Manipulating Data

3 Creating and Consuming ASP.NET Core Web APIs

HTTP Services
Creating an ASP.NET Core Web API
Consuming ASP.NET Core Web APIs
Handling HTTP Requests and Responses
Automatically Generating HTTP Requests and Responses
Lab : Creating an ASP.NET Core Web API

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4 Extending ASP.NET Core HTTP Services

The ASP.NET Core Request Pipeline
Customizing Controllers and Actions
Injecting Dependencies into Controllers
Lab : Customizing the ASP.NET Core Pipeline

5 Hosting Services On-Premises and in Azure

Hosting Services on-premises
Hosting Services in Azure App Service
Packaging Services in Containers
Implementing Serverless Services
Lab : Host an ASP.NET Core service in a Windows Service
Lab : Host an ASP.NET Core Web API in an Azure Web App
Lab : Host an ASP.NET Core service in Azure Container Instances
Lab : Implement an Azure Function

6 Deploying and Managing Services

Web Deployment with Visual Studio 2017
Continuous Delivery with Visual Studio Team Services
Deploying Applications to Staging and Production Environments
Defining Service Interfaces with Azure API Management
Lab : Deploying an ASP.NET Core web service on Linux
Lab : Deploying to Staging and Production
Lab : Publishing a Web API with Azure API Management

7 Implementing Data Storage in Azure

Choosing a Data Storage Mechanism
Accessing Data in Azure Storage
Working with Structured Data in Azure
Geographically Distributing Data with Azure CDN
Scaling with Out-of-Process Cache
Lab : Storing Files in Azure Storage
Lab : Querying Graph Data with CosmosDB
Lab : Caching out-of-process with Azure Redis cache

8 Diagnostics and Monitoring

Logging in ASP.NET Core
Diagnostic Tools
Application Insights
Lab : Monitoring ASP.NET Core with ETW and LTTng
Lab : Monitoring Azure Web Apps with Application Insights

9 Securing services on-premises and in Microsoft Azure

Explaining Security Terminology
Securing Services with ASP.NET Core Identity
Securing Services with Azure Active Directory
Lab : Using ASP.NET Core Identity
Lab : Using Azure Active Directory with ASP.NET Core

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10 Scaling Services

Introduction to Scalability
Automatic Scaling
Azure Application Gateway and Traffic Manager
Lab : Load Balancing Azure Web Apps
Lab : Load Balancing with Azure Traffic Manager