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TRAINING OFFERING

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Microsoft

20487: Developing Windows Azure and Web Services

CODE:	LENGTH:	PRICE:
MS-20487	40 Hours (5 days)	$2,695.00

Description

In this Unitek Education five-day, instructor-led 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.In this Unitek Education five-day, instructor-led 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.

Objectives

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

Audience

Unitek Education 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.

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.

Programme

Module 1: Overview of service and cloud technologies
This module describes the Microsoft data, service, and cloud stacks. It also describes the various components that comprise Windows Azure.

Lessons
Key Components of Distributed Applications
Data and Data Access Technologies
Service Technologies
Cloud Computing
Exploring Blue Yonder Airline's Travel Companion Application
Lab : Exploring the work environment
Create a Windows Azure SQL Database
Create an Entity Data Model
Create an ASP.NET Web API service
Deploy a web application to Windows Azure
After completing this module, students will be able to:
Describe the overall architecture of distributed applications.
Describe the data platform technologies supported by Microsoft.
Describe the different approaches and technologies used for developing services.
Describe cloud computing concepts and the Windows Azure ecosystem.
Module 2: Querying and manipulating data using Entity Framework
This module explains how to create Entity Framework models and use them to query and manipulate data.
Lessons
ADO.NET overview
Creating an entity data model
Querying data
Manipulating data
Lab : Creating a data access layer using Entity Framework
Explore the data model and integration test projects
Create a data model
Query and manipulate data
After completing this module, students will be able to:
Describe how to use ADO.NET to query and manipulate data.
Create entity data models using the different design approaches of Entity Framework.
Query a database using various Entity Framework techniques.
Manipulate data by using Entity Framework.
Module 3: Creating and consuming ASP.NET Web API services
This module explains how to create HTTP based services using the ASP.NET Web API.
Lessons
What are HTTP services?
Creating an ASP.NET Web API service
Handling HTTP requests and responses
Hosting and consuming ASP.NET Web API services
Lab : Creating the travel reservation ASP.NET Web API service
Create an ASP.NET Web API service
Consume an ASP.NET Web API service
After completing this module, students will be able to:
Describe the HTTP protocol and how it is used with REST.
Create a basic ASP.NET Web API service by using routing, controllers, and actions.
Convert HTTP request content to .NET objects and convert return values to responses.
Host and consume ASP.NET Web API services in various server and client scenarios.
Module 4: Extending and securing ASP.NET Web API services
This module explains how to extend and secure ASP.NET web API services to support real world scenarios.
Lessons
The ASP.NET Web API request pipeline
The ASP.NET Web API response pipeline
Creating OData services
Implementing Security in ASP.NET Web API services
Injecting dependencies into controllers
Lab : Extending Travel Companion's ASP.NET Web API services
Create a dependency resolver for repositories
Add a new media type for RSS requests
Add OData capabilities to the flight schedule service
Apply validation rules in the booking service
Secure the communication between client and server
After completing this module, students will be able to:
Describe how messages flow through the ASP.NET Web API request processing pipeline.
Describe how messages flow through the ASP.NET Web API response processing pipeline.
Create ASP.NET Web API OData services.
Implement security in ASP.NET Web API services.
Create a dependency resolver that injects dependencies into ASP.NET Web API controllers.
Module 5: Creating WCF services
This module explains how to create WCF services, host them, and consume them from other applications.

Lessons
Advantages of creating services with WCF
Creating and implementing a contract
Configuring and hosting WCF services
Consuming WCF services
Lab : Creating and consuming the WCF booking service
Create the WCF booking service
Configure and host the WCF service
Consume the WCF service from the ASP.NET Web API booking service
After completing this module, students will be able to:
Describe why and when to use WCF to create services.
Implement a service using contracts.
Host a WCF service with endpoint configuration in code and configuration file.
Consume a WCF services from .NET clients.
Module 6: Designing and extending WCF services
This module explains how to design a WCF service contracts with duplex support, async operations, and one-way operations. It also explains how to create services that use various instancing and concurrency modes. In addition, it describes how to extend a WCF service with custom behaviors and runtime components.
Lessons
Applying design principles to service contracts
Handling distributed transactions
WCF pipeline architecture
Extending the WCF pipeline
Lab : Designing and extending WCF services
Create a custom error handler runtime component
Add support for distributed transactions to the WCF booking service
Use asynchronous WCF client calls
After completing this module, students will be able to:
Create service contracts that support service design principles.
Create services that support distributed transactions.
Describe the architecture of the WCF pipeline and how to control it with behaviors.
Extend WCF with runtime components and extensible objects.
Module 7: Implementing Security in WCF services
This module explains how to implement security in WCF services by using transport and message security. It also describes how to configure and implement authentication and authorization for a service
Lessons
Transport security
Message security
Configuring service authentication and authorization
Lab : Securing a WCF service
Secure the WCF service
Configure the ASP.NET Web API booking service for secured communication
After completing this module, students will be able to:
Configure a service for transport security.
Configure a service for message security.
Authenticate and authorize users.
Module 8: Windows Azure Service Bus
This module explains how to use the Windows Azure Service Bus for advanced routing and messaging scenarios.
Lessons
Windows Azure Service Bus Relays
Windows Azure Service Bus Queues
Windows Azure Service Bus Topics
Lab : Windows Azure Service Bus
Use a service bus relay for the WCF booking service
Publish booking updates to clients using Windows Azure Service Bus Topics
After completing this module, students will be able to:
Connect hybrid environments with Windows Azure Service Bus Relays.
Use brokered messaging with Windows Azure Service Bus queues.
Use subscription-based messaging with Windows Azure Service Bus topics.
Module 9: Hosting services
This module explains how to host services on various Windows Azure environments, such as Web Roles, Worker Roles, and Web Sites

Lessons
Hosting services on-premises
Hosting services in Windows Azure
Lab : Hosting Services
Host the WCF booking service in IIS
Host the ASP.NET Web API services in a Windows Azure Web role
Host the booking management service in a Windows Azure Web Site
After completing this module, students will be able to:
Describe the common on-premises hosting environments.
Host a service in Windows Azure hosting environments.
Module 10: Deploying Services
This module explains how to deploy services to both on-premises and cloud environments.
Lessons
Web Deployment with Visual Studio
Creating and deploying Web Application packages
Command-line tools for web deployment packages
Deploying to Windows Azure
Continuous delivery with TFS and GIT
Best practices for production deployment
Lab : Deploying services
Deploying an updated service to Windows Azure
Updating a Windows Azure Web Site with Web Deploy
Exporting and importing an IIS deployment package
After completing this module, students will be able to:
Deploy services from Visual Studio.
Deploy services by using web deployment packages.
Deploy services using command-line tools.
Deploy services to Windows Azure environments.
Ensure that Windows Azure deployments are up-to-date with continuous delivery.
Module 11: Windows Azure Storage
This module explains how to store and access data stored in Windows Azure Storage. It also explains how to configure storage
access rights for storage containers and content.
Lessons
Introduction to Windows Azure storage
Windows Azure Blob Storage
Windows Azure Table Storage
Windows Azure Queue Storage
Restricting access to Windows Azure Storage
Lab : Windows Azure Storage
Storing content in Windows Azure storage
Accessing Windows Azure storage
Creating shared access signatures for blobs
After completing this module, students will be able to:
Describe the reasons for using Windows Azure storage.
Use blobs for storing resources.
Use tables for storing structured, non-relational data.
Use queues for sending and receiving messages asynchronously.
Configure access level and shared access signatures for Windows Azure Storage services.
Module 12: Monitoring and diagnostics
This module explains how to monitor and log services, both on-premises and in Windows Azure

Lessons
Performing diagnostics using tracing
Configuring service diagnostics
Monitoring IIS
Monitoring services using Windows Azure diagnostics
Debugging using IntelliTrace
Collecting Windows Azure metrics
Lab : Monitoring and Diagnostics
Configuring WCF tracing and message logging
Configuring Windows Azure diagnostics
After completing this module, students will be able to:
Write diagnostics trace messages.
Configure and monitor service diagnostic information.
Monitor IIS-hosted services.
Monitor Windows Azure applications using Windows Azure diagnostics.
Debug services with IntelliTrace.
Collect Windows Azure metrics.
Module 13: Identity management and access control
This module describes claim-based identity concepts and standards, and how to implement federated authentication by using ACS
to secure an ASP.NET Web API service. It also explains how to use ACS to secure Windows Azure Service Bus connections.
Lessons
Claim-based identity concepts
Access Control Service
Configuring services to use federated identities
Handling federated identities in the client side
Lab : Identity management and access control
Configure Windows Azure ACS
Integrate ACS with the ASP.NET Web API
Examine the authentication procedure in the client application
After completing this module, students will be able to:
Describe claim-based identity concepts.
Describe the Access Control Service and its purpose.
Configure a service to require federated identities.
Configure a service client with federated identity
Module 14: Scaling Services
This module explains how to create scalable services and applications.
Lessons
Introduction to scalability
Load balancing
Scaling on-premises services with distributed cache
Windows Azure caching
Caveats of scaling services
Scaling globally
Lab : Scalability
Use Windows Azure Caching
Support federated security in a scaled environment
After completing this module, students will be able to:
Describe the reasons and techniques for scaling services.
Describe how load balancing can be used with on-premises and Windows Azure environments.
Integrate a distributed cache mechanism into a service by using Windows Server AppFabric Cache.
Describe the distributed cache solutions offered by Windows Azure.
Understand the caveats of scaling out services and how to resolve them.
Scale Windows Azure solutions outside of the data center.

Session Dates

On request. Please Contact Us

Additional Information

This training is also available as onsite training. Please contact us to find out more.