

**Testing Azure-Native Applications with Visual Studio, Azure Test Plans, and Visual Studio App Center**

**Course Number:** AZR-146WA
**Duration:** 2 days

**Overview**

Become a skilled Azure-native application tester in this comprehensive Azure training course. This class teaches participants how to build high-quality, resilient, and future-proof cloud applications by implementing effective testing strategies with Visual Studio, Azure Test Plans, and Visual Studio App Center.

**Prerequisites**

.NET experience is recommended.

**Materials**

All Azure training students receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Understand different types of tests
* Master test design
* Implement effective testing practices
* Automate testing workflows
* Analyze and interpret test results

**Outline**

* Introduction to Azure-native Application Testing
	+ Understanding the Azure-native architecture
	+ Exploring Azure-native apps that should be tested (Azure App Service, Azure Functions, Azure Kubernetes Service)
	+ Importance of testing
	+ Understanding different types of tests
	+ Understanding testing using Visual Studio, Azure Test Plans, and Visual Studio App Center
* Unit Testing in Visual Studio
	+ Understanding unit tests
	+ Understanding Test-driven Development (TDD)
	+ Exploring popular unit testing frameworks (MSTest, NUnit, xUnit)
	+ Writing tests
	+ Organizing tests as test suites
	+ Setup and teardown methods
	+ Test Explorer in Visual Studio
	+ Concurrent unit testing using Live Unit Testing and NCrunch
* Data-driven Unit Testing
	+ Implementing data-driven tests using parameterized test methods
	+ Feeding test data from various sources (e.g., CSV files, Excel sheets)
* Mock Testing in Visual Studio
	+ Understanding mock tests
	+ Exploring popular mocking frameworks (Moq, Rhino Mocks)
	+ Creating Mock objects
	+ Mocking methods and properties
	+ Mocking dependencies
	+ Mocking database interactions
* Performing Code-coverage Analysis in Visual Studio
	+ Overview of code coverage analysis
	+ Interpreting code coverage results
* UI Testing with Visual Studio
	+ Overview of UI testing
	+ Creating UI tests using Visual Studio's Coded UI Test
	+ Best practices for maintaining and updating UI tests
* Test Planning using Azure Test Plans
	+ Introduction to Azure Test Plans
	+ Creating test plans and test suites
	+ Associating automated tests with test cases
	+ Integrating automated tests with test cases using Visual Studio
	+ Configuring release pipelines to run automated tests from test plans
* Test Execution and Analyzing Test Results using Azure Test Plans
	+ Running selected tests on demand directly from Azure Test Plans
	+ Viewing detailed test results and logs within the Azure Test Plans environment
* Exploratory Testing and Feedback Management using Test & Feedback Extension
	+ Overview of exploratory testing
	+ Installing and configuring the Test & Feedback extension
	+ Setting up and configuring the Test & Feedback extension for Visual Studio and browsers.
	+ Performing exploratory testing sessions
	+ Executing exploratory testing sessions and capturing rich data.
	+ Creating bugs, tasks, and test cases directly from exploratory testing sessions.
	+ Providing Feedback and Suggestions
	+ Leveraging the Test & Feedback extension to offer feedback and suggestions
	+ Managing and tracking feedback items efficiently within Azure Test Plans
* Performance and Load Testing in Azure
	+ Understanding the importance of performance testing
	+ Configuring and executing performance tests using Azure tools
	+ Conducting performance testing in Azure environments
	+ Monitoring application performance using Azure tools
	+ Understanding load testing
	+ Integrating Visual Studio for load testing
	+ Using Microsoft Azure Load Testing
* Security Testing in Azure
	+ Identifying security vulnerabilities in Azure-native applications
	+ Leveraging Azure Security Center for security testing
* Test Automation or Continuous Testing with Azure DevOps
	+ Implementing continuous integration and continuous testing
	+ Integrating automated tests into Azure DevOps pipelines
* Introduction to Visual Studio App Center
	+ Understanding Visual Studio App Center
	+ Exploring key features of Visual Studio App Center
	+ Overview of the end-to-end testing process in Visual Studio App Center
* Working with Visual Studio App Center
	+ Setting up a build pipeline for generating test-ready artifacts
	+ Automated UI Testing with App Center Test
	+ Deploying applications for testing as part of the build and release workflow
	+ Running automated UI tests on real devices in the App Center cloud
* Analyzing Test Results in App Center
	+ Examining test results and screenshots within Visual Studio App Center
	+ Leveraging App Center for efficient test result management