

**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