

**Cross-Platform Development with .NET MAUI**

**Course Number:** NET-335
**Duration:** 5 days

**Overview**

Microsoft’s .NET Multi-Platform App UI (.NET MAUI) is a cross-platform framework for creating native desktop and mobile apps with C# and XAML. Developers can use .NET MAUI to build apps that run on Android, iOS, macOS, and Windows from a single shared codebase. In this .NET MAUI training course, attendees master the MAUI framework and learn how to build native cross-platform apps with maximum code reuse.

**Prerequisites**

Students should already have experience with the C# programming language and with using types provides by the .NET Base Class Library (BCL). Previous experience with XAML is helpful but not required.

**Materials**

All .NET MAUI training students receive comprehensive courseware.

**Software Needed on Each Student PC**

* .NET 8.0 SDK or later
* Visual Studio, VS Code, or Rider
* Lab file bundle provided with the course

**Objectives**

* Understand the architecture and of benefits of .NET MAUI
* Configure a development environment to build apps for Android, iOS, macOS, and Windows
* Learn about XAML and how to build a native cross-platform user interface
* Gain experience using the MAUI shell to implement common app patterns quickly
* Learn how to integrate platform-specific features into your cross-platform apps
* Interact with cloud services such as authentication and AI
* Understand the process for publishing to the various app stores such as Google Play and the Apple App Store

**Outline**

* Introduction
	+ History of .NET MAUI
	+ Cross-Platform .NET with Mono
	+ Xamarin.Forms
	+ WPF and XAML
* Architecture of .NET MAUI
	+ Device Abstraction Layer
	+ Native Platform APIs
	+ Ahead-of-Time (AOT) compilation
	+ Windows UI 3
	+ Mac Catalyst
	+ Single Project and Multi-Targeting
	+ Hot Reload
* Configuring a Development Environment
	+ Visual Studio
	+ Android Emulator
	+ Pairing to a Mac
	+ Remote iOS Simulator
	+ Using Mac Catalyst via the .NET CLI
	+ Configuring Windows for Debugging
* XAML (eXtensible Application Markup Language)
	+ Introduction
	+ Property Elements
	+ Attached Properties
	+ Markup Extensions
	+ Data Binding
	+ XAML Compilation
	+ Modifiers
* MAUI Fundamentals
	+ App Lifecycle
	+ Standard UI Controls
	+ Layouts
	+ Behaviors
	+ Basic Data Binding
	+ Binding Modes
	+ Value Converters
	+ Commands and MVVM
* Gestures
	+ Drag and Drop
	+ Native Mobile Gestures
* Resources
	+ Resource Dictionaries
	+ Using Resources in XAML
	+ Consuming Resources from Code
* .NET MAUI Shell
	+ Common App Functionality
	+ UI Elements
	+ Navigation
	+ Search
* Triggers
	+ Property Triggers
	+ Data Triggers
	+ Event Triggers
* Advanced UI Topics
	+ Animation
	+ Custom Drawing
	+ Images
	+ Styles and Theming
	+ Visual States
* Platform Features
	+ Local Notifications
	+ Device Sensors
	+ Geolocation
	+ Haptic Feedback
	+ Photos and Videos
	+ Storage
* Cloud Services
	+ Authentication
	+ Push Notifications
	+ Web Services
	+ AI and ChatGPT
* Deployment and Publishing
	+ Android
	+ iOS
	+ Mac Catalyst
	+ Windows
* Conclusion