

**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