Curriculum for .NET MAUI Mobile App Development

Module 1: Introduction to .NET MAUI

- Understanding the .NET MAUI framework
- Setting up the development environment
- Exploring the architecture of .NET MAUI

Module 2: Building User Interfaces with XAML

- Introduction to XAML (eXtensible Application Markup Language)
- Creating user interfaces with XAML
- Understanding layout controls and views
- Styling and theming with XAML resources

Module 3: MVVM (Model-View-ViewModel) Pattern

- Understanding the MVVM pattern
- Implementing data binding between views and view models
- Handling user interactions and commands
- Using data templates and converters

Module 4: Data Access and Storage

- Introduction to SQLite and local data storage
- Implementing CRUD operations with SQLite
- Synchronizing data with remote APIs

Module 5: Navigation and Page Management

- Implementing navigation between pages
- Passing data between pages
- Using navigation stacks and modal dialogs
- Implementing navigation with the Prism framework

Module 6: Working with Device Features

- Accessing device sensors (e.g., GPS, accelerometer)
- Integrating with platform-specific APIs
- Handling device permissions and user privacy

Module 7: Testing and Debugging

- Unit testing with NUnit and Moq
- Debugging techniques for mobile apps
- Performance profiling and optimization

Module 8: Deployment and Distribution

- Preparing apps for distribution on app stores (Google Play Store, Apple App Store)
- App signing and package management
- App store optimization (ASO) techniques

Module 9: Advanced Topics

- Implementing custom renderers for platform-specific UI components
- Integrating with third-party libraries and SDKs
- Offline data synchronization strategies
- Advanced performance optimization techniques