WPF MVVM (Model-View-View Model) Training

COURSE CONTENT

About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

The WPF MVVM (Model-View-View Model) Training by Multisoft Systems is designed to help developers master one of the most robust architectural patterns for building dynamic, scalable, and maintainable desktop applications in .NET. This comprehensive program introduces participants to the core principles of Windows Presentation Foundation (WPF) and how the MVVM design pattern simplifies UI development by separating business logic, user interface, and data binding.

Module 1: Introduction to WPF and MVVM Architecture

- ✓ Overview of Windows Presentation Foundation (WPF)
- ✓ Understanding XAML and its role in UI design
- ✓ Introduction to the MVVM pattern
- ✓ Benefits of using MVVM over traditional code-behind approaches
- ✓ Understanding the separation of concerns: Model, View, and View Model

Module 2: WPF Fundamentals

- ✓ WPF application structure and lifecycle
- ✓ Working with Windows, Pages, and Controls
- ✓ Layout management: StackPanel, Grid, DockPanel, WrapPanel
- ✓ Styling, templates, and resource dictionaries
- ✓ Event handling and routed events

Module 3: XAML Data Binding Essentials

- ✓ Understanding Data Context and binding expressions
- ✓ One-way, Two-way, and One-time bindings
- ✓ Value converters and multi-bindings
- ✓ Binding to collections and complex objects
- ✓ Debugging common binding errors

Module 4: Implementing MVVM Pattern

- ✓ Core principles of MVVM in WPF applications
- ✓ Creating Models, View Models, and Views
- ✓ Implementing INotifyPropertyChanged
- ✓ Introduction to Commands and ICommand interface
- ✓ Creating reusable RelayCommand classes

Module 5: Managing Collections and Observable Data

- ✓ Using ObservableCollection<T> for dynamic data
- ✓ CollectionView and sorting/filtering techniques
- ✓ Implementing pagination and search functionality
- ✓ Working with hierarchical data and TreeViews

Module 6: Dependency Injection and Services

- ✓ Introduction to dependency injection in WPF
- ✓ Registering and resolving dependencies
- ✓ Using Microsoft.Extensions.DependencyInjection
- ✓ Implementing services for navigation, dialogs, and messaging
- ✓ Applying SOLID principles in MVVM projects

Module 7: Navigation and Application Structure

- ✓ Implementing multi-view navigation in MVVM
- ✓ Managing ViewModel lifecycle and navigation stores
- ✓ Using DataTemplates to bind ViewModels to Views
- ✓ Handling inter-ViewModel communication (Messenger/Events)
- ✓ Creating modular WPF applications

Module 8: Validation and User Input Handling

- ✓ Validation using IDataErrorInfo and INotifyDataErrorInfo
- ✓ Displaying validation messages in the UI
- ✓ Input validation and formatting
- ✓ Managing form submission and error states

Module 9: Working with Commands and Events

- ✓ Creating and binding commands to UI controls
- ✓ Command parameters and CanExecute logic

✓ Async commands and background tasks

✓ Event aggregation and custom event handling

Module 10: Advanced WPF MVVM Techniques

✓ Building reusable custom controls

✓ Animations and visual state management

✓ MVVM with asynchronous data loading

✓ Integrating REST APIs and database operations

✓ Theme management and dynamic resources