

Microsoft Windows Mobile 6.0 Development and .NET Compact Framework 3.5

About this Course

This three-day instructor-led course teaches students how to implement how to develop a mobile application using Microsoft Windows Mobile 6.0 and .NET Compact Framework technologies. The course discusses how to use the SQL Server Compact Edition database for data access and synchronization.

Audience Profile

The audience for this course are individuals who design and maintain or planning to step into mobile based applications development for their organization or prospective client.

At Course Completion

After completing this course, students will be able to:

- Describe the Windows Mobile 6.0.
- Describe .NET Compact Framework 3.5 and in what aspects it is different from .NET Framework 3.5.
- Develop Windows Mobile 6.0 based application.
- Implement SQL Server Compact Edition as data source.
- Challenges in mobile application development.
- Security aspects for mobile applications.
- Introduction to internationalization for mobile applications.

Prerequisites

Before attending this course, students must have:

- Hand-on experience on either C# 2008 or VB.NET 2008.
- Knowledge and exposure to ADO.NET.
- Exposure to Windows or Web-based application development would be an advantage.
- Exposure to SQL Server 2005/2008 (any edition).
- Experience with:
 - SQL Server query language (SELECT, INSERT, UPDATE and DELETE).

Course Outline

Module 1: Introduction to Mobile Application Development

This module introduces the concept of mobile application development. The module then describes various aspects of mobile development like tools to be used, device types, etc.

Topics

- Overview of Mobile Application Development
- Mobile Application Development in Visual Studio
- Development Software You Need
- Choosing Your Platform: Pocket PC, Smartphone, or Windows CE?
- Difference between Windows Mobile and Windows CE
- Choosing the .NET Compact Framework Version

Hands-On Lab

Module 2: Introduction to .NET Compact Framework

This module introduces the .NET Compact Framework 3.5 and its architecture. It also explains the enhancements from .NET Framework 2.0 and how it is different from .NET Framework 3.5 being used for Win Forms and Web-based applications.

Topics

- Features of .NET Compact Framework 3.5
- Difference between .NET Compact Framework 2.0 and 3.5
- Difference between .NET Compact Framework 3.5 and .NET Framework 3.5
- .NET Compact Framework 3.5 Controls
- Introducing .NET Compact Framework 4.0

Module 3: Working with Microsoft Windows Forms GUI

This module describes Windows Forms version 3.5 enhancements, mapping device screens, exploring important Windows Forms controls and developing for Smartphone.

Topics

- Windows Forms Version 3.5 Enhancements
- Workflow as for Developing Desktop Applications
- Mapping Device Screens to Device Forms
- Windows Forms Controls
- Handling Input
- Considering Physical Screen
- Developing for Smartphone

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Module 4: Working with SQL Server Compact Edition and Other Data Stores

This module introduces the various aspects of SQL Server Compact Edition and how to install it.

Topics

- Creating a Database using Visual Studio 2008
- Creating a Database using SQL Server 2008 Management Studio
- Creating Tables, Indexes, and Foreign Keys
- Creating a Project Data Source
- Designing and Programming Strongly Typed DataSets
- Building a Data-Bound GUI
- Building a Quick UI Using the Visual Tools
- Serializing Dataset Objects
- Serializing Objects

Hands-On Lab

Module 5: Catching Errors, Testing and Debugging

This module introduces error handling, testing the source code and how to debug the errors.

Topics

- Compile-Time Errors
- Exception Handling
- Runtime Exceptions
- Global Exception Handling
- Log Files
- Instrumentation
- Unit Testing

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Module 6: Packaging and Deployment

This module explains how to implement Help feature, locking down an application, deploying the runtime and how to build the device installer.

Topics

- Implementing Help
- Locking Down an Application
- Deploying the Runtime
- Building a Device Installer
- Working with Partitions
- Security Policies and Code Signing
- The Global Assembly Cache (GAC)

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Module 7: Understanding and Optimizing .NET Compact Framework Performance

This module explains the Compact CLR engine, JIT Compiler, Garbage Collector, .NET Compact Framework Performance Statistics and performance guidelines.

Topics

- Understanding the Compact CLR Engine
- JIT Compiler
- Garbage Collector
- .NET Compact Framework Performance Statistics
- Measuring Performance Programmatically
- Performance Guidelines

Module 8: Exchanging Data with Backend Servers

This module discusses the architecture of data synchronization, web services for data synchronization, Using SqlClient and how to synchronize data with SQL Server Compact Edition.

Topics

- Architecting a Data Synchronization Application
- Web Services for Data Synchronization
- SQL Server Directly by Using SqlClient

- Synchronizing Data Using SQL Server Compact Edition
- Remote Data Access
- Replicating Data Using SQL Server Merge Replication

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Module 9: Security Programming for Mobile Applications

This module explains performing security reviews, best practices for security and how to encrypt data.

Topics

- Performing Security Reviews
- Understanding Good and Bad Techniques for Hiding Secrets
- Storing Credentials and Other Secrets Securely
- Encrypting Data
- Validating User Input
- Understanding Windows Mobile Security Policy

Module 10: Internationalization

This module introduces challenges of globalization and how to implement culture related information.

Topics

- Understanding the Challenges of Globalization
- Implementing Culture
- Using Language Translation
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Hands-On Lab

Module 11: Building Custom Controls

This module introduces how to extend existing controls and how to create new custom controls.

Topics

- Extending Existing Controls
- Creating Custom Controls
- Programming the Design-Time Experience

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Module 12: Best Practices for Mobile Development

This module introduces popular best practices for mobile development.

Topics

- Best Practices for GUI Design
- Best Practices for Data Access
- Best Practices for Code Optimization
- Best Practices for Exception Handling
- Best Practices for Security