Developing Applications Using C# 2008/2010: Vol 2

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Robert Green is a Visual Studio expert and a featured instructor for several of our Visual Basic and Visual C# courses. He is currently a Technical Evangelist in the Developer Platform and Evangelism (DPE) group at Microsoft. He has also worked for Microsoft on the Developer Tools marketing team and as Community Lead on the Visual Basic team. Robert has several years of consulting experience focused on developer training and is a frequent speaker at technology conferences including TechEd, VSLive, VSConnections, and Advisor Live.

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Course description: In this course you will learn about important development topics that are not normally covered in a beginning Windows application programming course. Starting with an introduction to .NET interoperability, you will work through crucial topics such as saving objects to a stream using .NET Serialization, creating and displaying reports, Windows Management Instrumentation (WMI), working with multiple-document interface (MDI) applications, and drawing your own user interfaces using the System.Drawing namespace. You will dig deeper into working with the most complex built-in controls, the DataGridView control, how to interact with printers and how to print documents. You will also investigate several new Visual Studio 2008 features, including Windows Communication Foundation (WCF), new deployment features using ClickOnce, Windows Workflow Foundation (WF), and new support for Office 2007 products using Visual Studio Tools for Office. You are certain to find many topics here that will extend your knowledge, your capabilities, and your value as a developer.

Course outline:

Calling COM from Dot NET
- Introduction
- COM and .Net
- Managed/Unmanaged Code
- COM Interoperability
- Calling COM Objs from .NET
- Calling a COM DLL from .NET
- Demo: Calling a COM DLL
- Interop Assemblies
- Demo: Using Interop Assembly
- Summary

Calling Dot NET from COM
- Introduction
- .Net Assemblies from COM
- Creating COM DLLs in VS
- Demo: .NET Code from COM
- Wrappers for .NET Classes
- Demo: Wrappers for .NET
- Summary

PInvoke and Web Service
- Introduction
- Using Platform Invoke
- Demo: Calling Windows API
- Web Services
- Creating an XML Web Service
- Demo: Creating a Web Service
- Summary

Create WCF Service
- Introduction
- Windows Comm. Foundation
- WCF to the Rescue
- WCF and Web Services
- WCF and .NET Remoting
- Demo: Hello World
- WCF Building Blocks
- Sevices
- Service Contracts
- Data Contracts
- Endpoints
- Bindings
- WCF Provided Bindings
- Demo: Products Service
- Summary

Hosting a Web Service
- Introduction
- Hosting a WCF Service
- Hosting Options
- Hosting in IIS
- In Client Applictations
- Channels
- Demo: Hosting a Service
- Summary

Configuration
- Introduction
- ServiceModel Configuration
- services Element
- Configuration Example
- Multiple Endpoints
- Demo: Config WCF Services
- Summary

Timer Background FSW
- Introduction
- Introducing Components
- Add Components to Your Form
- Timer Component
- Demo: Use Timer Component
- Timer Limitations
- BackgroundWker Component
- Demo: no BackgroundWker
- Demo: w/BackgroundWker
- Introducing Multi-Threading
- The Multi-Threading Rule
- BackgroundWker Members
- Demo: Use BackgroundWker
- Sequence of Events
- FileSysWatcher Component
- Demo: FileSysWatcher
- Summary

Process Service Events
- Introduction
- Process Component
- Demo: Process Component
- ServiceController Component
- Demo: ServiceController
- EventLog Component
- Event Log Concepts
- Demo: EventLog Features
- Summary

The Publish Wizard
- Introduction
- Publishing an Application
- Using the Publish Wizard
- Installing the Application
- Publish & Install Locations
- Update Locations
- Demo: Publish with ClickOnce
- Summary

Publish Options and Updating
- Introduction
- Setting Publish Options
- Updating an Application

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- Demo: Updating
- When You Publish
- Deployment Manifest
- Application Manifest
- The ClickOnce Cache
- Demo: Manifest files
- Summary

VSTO and ClickOnce
- Introduction
- Deploying Office Solutions
- Office 2007 Solutions
- Demo: Using Clickonce
- Summary

Serialization Intro
- Introduction
- Serialization/Deserialization
- What"s Up?
- Using Serialization
- Serialization vs. Persistence
- .NET and Serialization
- Formatter Objects
- Using Formatter Objects
- .NET Formatter Classes
- A Simple Example
- Demo: Simple Example
- Generalizing the Serialization
- Demo: Generalizing
- Serializing Your Own Classes
- Making Classes Serializable
- Demo: Serializable Classes
- Serializing Customer
- Extra Info Serialized
- Summary

Complex Serialization
- Introduction
- Serializing Complex Objects
- Sample Object Graph
- Investigating the Sample
- Filling the Sample Hierarchy
- Demo: Serialize Object Graph
- Serialization to Clone Objects
- Using MemberwiseClone
- Demo: MemberwiseClone
- Shallow and Deep Copies
- Creating a Deep Clone
- Demo: Deep Clone
- Serializing Multiple Objects
- Demo: Multiple Objects
- Summary

Customizing Serialization
- Introduction
- Overview
- Investigating the Sample
- Running the Demonstration
- Demo: Default Serialization
- Stored Efficiently?
- Custom Serialization
- SerializationInfo Object
- Serializing to a BitArray
- Custom Constructor
- Demo: Custom Serialization
- Summary

Intro to Reporting
- Introduction
- Creating & Displaying Reports
- ReportViewer Control
- ReportViewer Toolbar
- Demo: Build a Report
- Page Headers and Footers
- Using Expressions
- Demo: Headers & Footers
- Summary

Grouping and Filtering
- Introduction
- Grouping & Sorting Reports
- Demo: Adding Groups
- Filtering Data at Runtime
- Report Parameters & Filters
- Set Report Parameter
- Demo: Filter Data
- Summary

One to Many Relationships
- Introduction
- In Reports
- Subreports
- Demo: Subreport
- Drillthrough Reports
- Demo: Drillthrough
- Summary

Work Flow Intro
- Introduction
- Window Workflow Foundation
- Rethinking Applications
- Wouldn"t It Be Great If...
- You"re In Luck!
- Demo: Workflow
- Activities
- Conditional Activities
- IfElse Activity
- While Activity
- Demo: IfElse Activity
- Demo: While Activity
- Summary

Decisions and Hosting
- Introduction
- Using Rules in Workflows
- Using a RuleSet
- Using the Policy Activity
- Demo: RuleSet and Policy
- Workflow Architecture
- Hosting Workflow
- Passing Parameters
- Demo: Hosting Workflow
- Summary

Communcation/State Machines
- Introduction
- Calling Host Methods
- Calling Methods in the Host
- Demo: Workflow Calls
- Handling Host Events
- Event Arguments
- State Machine Workflows
- State and SetState Activities
- Demo: State Machine
- Summary

WMI Intro
- Introduction
- Introducing WMI
- WMI to the Rescue
- Determine Free Space?
- What"s It Doing?
- Demo: WMI
- WMI Properties
- WMI Background
- WMI Documentation
- Demo: Documentation
- Getting Started with WMI
- Demo: ManagementScope
- The ManagementClass Class
- Demo: ManagementClass
- Summary

WMI Queries
- Introduction
- Queries, Properties, Methods
- WMI Query Language
- Demo: Example Query
- Modifying Object Properties
- Calling Object Methods
- Demo: Properties / Methods
- Asynchronous Calls
- Server Explorer Extensions
- Strongly Typed Wrapper Class
- Demo: Extensions
- Which Do You Choose?
- Summary

WMI Events
- Introduction
- WMI Event Handlers
- Demo: Event Handlers
- WqlEventQuery Class
- Event Query Syntax
- Using WqlEventQuery
- ManagementEventWatcher
- Clean Up Event Handler
- Creation / Deletion Events
- Demo: Creation / Deletion
- Summary

WMI Async
- Introduction
- WMI Asynchronously
- Demo: Sync / Async
- ManagementOpObserver
- Demo: Completed/ObjReady
- Strongly Typed Event Queries
- Demo: Event Queries
- Summary

MDI Parent and Child Forms
- Introduction
- MDI Applications
- Creating an MDI Application
- MDI Parent Form
- MDI Child Forms
- Managing Open Windows
- Arranging Windows
- Demo: Parent & Child Forms
- Summary

Managing Menus
- Introduction
- MDI Menus
- Two Approaches
- Merging Menus
- Demo: Two Approaches
- Summary

Working with Open Forms
- Introduction
- Open Forms
- MdiChildActivate Event
- Working with Text
- Passing Data
- Handling Form Closing
- Demo: Open Forms
- Summary

Printing Classes
- Introduction
- A Simple Report
- PrintDocument Class
- PagePrint Event Handler
- Demo: Simple Report
- Tabular Report
- Demo: Tabular Report
- PageSettings Class
- Demo: PageSettings
- Enumerated Properties
- PrinterSettings Class

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- Working with Printers
- Listing Printers
- Default Printer
- Selecting a Printer
- Simple Properties
- Paper Sizes
- Paper Sources
- Printer Resolutions
- Demo: PrinterSettings
- Demo: Installed Printers
- Summary

Print Controls
- Introduction
- Print-Related Controls
- PageSetupDialog Control
- PrintDialog Class
- PrintPreviewDialog Control
- Demo: Printing Controls
- Demo: Complex Report
- A More Complex Report
- Page Dimensions
- PrintPageEventArgs Values
- PrintPageEventArgs Properties
- Hard Margins
- Demo: Hard Margins
- Summary

Controlling Appearance
- Introduction
- Working with Columns
- DataGridViewColumn
- Working with Rows
- DataGridViewRow Properties
- Working with Cells
- DataGridViewCell Properties
- DataGridView Properties
- Methods and Events
- Demo: DataGridView
- Formating and Styles
- Cell Style Properties
- Cell Templates
- Demo: Styles and Formats
- Summary

Working with Data
- Introduction
- Populating Grids with Data
- Data Entry in Grids
- Demo: Data Grids
- Sorting in DataGridViews
- Demo: Methods for Sorting
- Summary

GDI Drawing
- Introduction
- Intoducing Drawing
- Demo: Painting on a Form
- Learn to Paint
- Graphics Class
- Getting a Graphics Object
- Graphics Class Members
- Demo: Draw "Hello World"
- Owner-Drawn Controls
- DrawMode Property Values
- Demo: DrawMode Properties
- DrawItemEventArgs
- Different Item Heights
- Demo: Different Heights
- Creating Images on Menus
- Demo: Menu Images
- Summary

Non Rectangular Forms
- Introduction
- Non-Rectangular Forms
- Form"s Region Property
- Demo: GraphicsPath
- Setting TransparencyKey
- Demo: TransparencyKey
- Modifying Form"s UI
- WMP Skins
- Drawing Images
- Demo: Drawing Images
- Displaying Part of an Image
- Demo: Part of an Image
- Demo: Drag the Form
- Summary

VSTO Excel
- Introduction
- Office Projects in VS 2008
- What Can You Do with Office?
- What Kinds of Applications?
- Doc vs. App Customizations
- Create an Excel Add-In
- Ribbon Customizations
- Demo: Excel Add-In
- Custom Task Pane
- In This Example
- Demo: Task Pane
- Summary

VSTO Word
- Introduction
- Content Control Types
- Managed Wrappers
- Form using Content Controls
- Demo: Content Controls
- Demo: Data Binding
- Summary

VSTO Outlook
- Introduction
- Outlook Form Regions
- Types of Form Regions
- Demo: Outlook Add-In
- Demo: Populate Message
- Summary