SQL Server 2008: Developer

Meet the expert: Don Kiely is a featured instructor on many of our SQL Server and Visual Studio courses. He is a nationally recognized author, instructor, and consultant specializing in Microsoft technologies. Don has many years of teaching experience, is the author or co-author of several programming books, and has spoken at many industry conferences and user groups. In addition, Don is a consultant for a variety of companies that develop distributed applications for public and private organizations.

Frank Tillinghast is a senior consultant with MTOW Software Solutions. He is a Microsoft Certified Solution Developer and has been developing applications for over 15 years. Most of his time is spent consulting for companies nationwide with troubled projects or mentoring projects to successful completion. When he is not developing software or mentoring clients, Frank is teaching other developers. He has taught thousands of application developers how to create business solutions with Visual Studio .NET. VB.NET, ASP.NET, Visual C#, and SQL Server.

Prerequisites: To get the most out of the Microsoft SQL Server 2008 course, you should have a solid understanding of relational databases and the concepts in the SQL Server 2008 Installing, Querying, and Security course. No particular programming experience is required, but the course is taught from a developer's perspective.

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Course description: In this course, you will learn about the features that are available in SQL Server; how to design and create a database; and how to build basic queries using Transact-SQL, the language of SQL Server. Then, you will learn how to build effective views, stored procedures, triggers, and user-defined functions, using Transact-SQL. You will learn how to use the Transact-SQL programming language for error handling and hierarchical queries, dealing with complex data structures and processes, how to make your databases more scalable through partitioning, and how to use .NET languages like C# and Visual Basic to build database objects.

Course outline:

Views
- Introduction
- Advantages of Views
- Views and Security
- Creating Views
- View Rules
- Views and ORDER BY
- Syntax and Options
- CHECK OPTION
- Other Options
- Tools for Creating Views
- Demo: Creating Views
- From Templates
- Edit Views
- View Examples
- Nesting Views
- CTE
- Encrypting
- Summary

Updating View Data
- Introduction
- Updating Rules
- Updating Behavior
- Demo: Limiting Updates
- Using Computed Columns
- Demo: Computed Columns
- Indexed Views
- How Indexed View Work
- Performance Benefits
- Data Modifications
- Requirements
- Demo: Indexed Views
- Partitioned Views
- Summary

Stored Procedures
- Introduction
- Overview
- Performance Benifits
- Deferred Name Resolution
- Execution Plans
- Plan Recompilation
- Using Schema Qualifiers
- Reasons to Use
- Stored Procedure Syntax
- Creating Procedures
- SET NOCOUNT ON
- Parameters
- Optional Parameters
- Output Parameters
- Return
- Variables
- Debugging
- Summary

Testing and Triggers
- Introduction
- Demo: Debugging
- PRINT Statements
- Output Paramaters
- Creating Triggers
- Types of Triggers
- Uses for Triggers
- Trouble with Triggers
- How Triggers Work
- Demo: After Trigger
- INSTEAD OF Trigger
- DDL Trigger
- Summary

User Defined Functions
- Introduction
- Scalar Functions
- WITH Function Options
- Demo: Scalar Functions
- With Parameters
- Inline Functions
- Inline Syntax
- Demo: Inline Function
- Inline Parameters
- Updating Data
- Summary

Table Valued Functions
- Introduction
- Multi-Statement Syntax
- Limitations
- TABLE Data Type
- Demo: Multi-Statement
- Using Functions, Views...
- Demo: Scalar Functions
- Table-Valued Functions
- Choosing Between
- Summary

Transactions
- Introduction
- Passing the ACID Test
- Transaction Types
- Transaction Details
- Isolation Levels
- Locking
- Viewing Lock Info

(Continued on page 2)

SQL Server 2008: Developer

- Avoiding Blocks
- Demo: Locking
- Deadlocks
- Preventing
- Applications
- Designing
- Efficient Transactions
- Compile\Runtime Errors
- Demo: Errors
- Summary

Explicit Transactions
- Introduction
- Syntax
- Demo: Explicit
- Error Handling
- @@ERROR
- Demo: @@ERROR
- Stored Procedures
- Demo: Stored Procedure
- Summary

Raise Error Try/Catch
- Introduction
- Demo: RAISERROR
- User-Defined Errors
- TRY/CATCH Overview
- Demo: TRY/CATCH
- Error Chaining
- Errors Not Handled
- Demo: Error Info
- XACT_STATE
- Demo: XACT_STATE
- Summary

SQLCLR
- Introduction
- Shared Responsibilities
- Ways to Use SQLCLR
- Demo: Enabling SQLCLR
- Writing SQLCLR Code
- Demo: SQLCLR Code
- SQLCLR Code In VS
- SQL Data Types
- Data Type Mapping
- Accessing Local Data
- Connection String
- Returning Results
- Demo: SQLCLR Example
- Summary

SQLCLR Code Modules
- Introduction
- Triggers
- Method Attributes
- Demo: Trigger
- User-Defined Functions
- Demo: UDF
- SQLCLR Security
- Demo: Security
- Code Access Security
- How CAS Works
- Permission Sets
- Demo: Permissions
- T-SQL vs. .NET Code
- SQLCLR or T-SQL?
- Summary

Advanced SQLCLR
- Introduction
- Aggregates
- Demo: Aggregates
- Large Aggregates
- Demo: Large
- Multi-Parameter
- Demo: Multi-Parameter
- Summary

SQLCLR User Defined Types
- Introduction
- Demo: StringList UDF
- ISNull
- Null
- Parse
- ToString
- Capacity
- Count
- GetAt
- AddItem
- RemoveAt
- Clear
- IBinarySerialize
- Testing
- Summary

Ordered Table Value Functions
- Introduction
- Demo: Ordered Fuctions
- Create Assembly
- Managing Code Modules
- Demo: System Catalogs
- Troubleshooting
- Demo: Debuging
- Get Assemblies
- Summary

Full-Text Search
- Introduction
- Demo: Full-Text Index
- Full-Text Queries
- CONTAINS Predicate
- Demo: Simple Terms
- Generation Terms
- Prefix Terms
- Proximity Terms
- FREETEXT
- CONTAINSTABLE
- Ranking Relevance
- Summary

Advanced TSQL
- Introduction
- Using APPLY
- Demo: APPLY With Joins
- APPLY With TVF
- FOR XML PATH
- MERGE
- Five Clauses in MERGE
- WHEN Clause
- Demo: MERGE
- Recursive Queries
- Demo: CTE
- Grouping Sets
- Demo: Base Query
- Grouping Sets
- ROLLUP
- CUBE
- GROUPING_ID
- Pivot Queries
- Demo: Pivot
- Summary

Executing Dynamic SQL
- Introduction
- Demo: Dynamic SQL
- sp_executesql
- Demo: Parameters
- QUOTENAME
- Output Parameters
- Signing Stored Procedures
- Demo: Certificates
- Summary

HierarchyID
- Introduction
- Overview
- Indexing a Hierarchy
- Depth-first
- Breadth-first
- Manipulating
- Demo: HierarchyID
- Sparse Columns
- Restrictions
- Column Sets
- Restrictions
- Recommendations
- Demo: Sparse Columns
- Column Sets
- Filtered Indexes
- Using Filtered Indexes
- Demo: Filtered Indexes
- Summary

FileStream Spatial Data
- Introduction
- FILESTREAM Storage
- Data Access Methods
- Gotchas & Limitations
- Demo: FILESTREAM
- Spatial Data
- Geometry vs. Geography
- Geometric Plane
- Mother Ship
- Projection Distortion
- Data Standards
- Types of Spatial Data
- Spatial Objects
- Geospatial Data
- Demo: Spatial Data
- Summary

SQL Server Partitions
- Introduction
- Overview
- Why Partition?
- Partitioning
- 6.5 and Earlier
- SQL Server 7.0
- SQL Server 2000
- SQL Server 2005/2008
- SQL Server 2008
- Range Partitions
- Partition Key
- Multiple Filegroups
- Index Partitioning
- Summary

Creating Partitioned Tables
- Introduction
- Overview
- LEFT and RIGHT
- Datetime Values
- RANGE RIGHT
- Demo: Partition Function
- Partition Scheme
- Demo: Filegroups
- Partition Scheme
- Tables and Indexes
- Demo: Partitioned Table
- Partitioned Index
- Summary

Querying Partitions
- Introduction
- Overview
- $PARTITION Function

(Continued on page 3)

SQL Server 2008: Developer

- Demo: $PARTITION
- Catalog Views
- sys.partition_functions
- sys.partition_range_values
- sys.partition_schemes
- sys.data_spaces
- Demo: Catalog Views
- Summary

Managing Partitions
- Introduction
- Overview
- Tables or Indexes
- Partition Function
- Splitting Partitions
- Merging Partitions
- Switching Partitions
- Partition Scheme
- Backing Up Partitions
- Performance
- Join Queries
- Multiple Disk Drives
- Lock Escalation
- Summary

Complex Queries
- Introduction
- NULL Values
- SqlTypes and CLR Types
- Demo: Uninitialized Variables
- ANSI_NULLS Option
- Demo: ANSI_NULLS
- NULLS and SqlBoolean
- Demo: SqlBoolean
- Assigning NULL Values
- CLR Integration
- Direct Assignment
- NULLIF
- COALESCE
- Demo: Assigning NULLS
- Summary

Ranking
- Introduction
- Ranking Grouped Data
- ROW_NUMBER
- RANK
- DENSE_RANK
- NTILE
- Demo: ROW_NUMBER
- RANK
- DENSE_RANK
- NTILE
- Summary

Correlated Subqueries
- Introduction
- Writing Subqueries
- Subquery Basics
- Correlated Subquery
- Demo: Subquery
- Correlated
- WHERE Clause
- ANY, SOME, ALL
- HAVING Clause
- Updates
- Demo: UPDATE
- Joins and Temp Tables
- Demo: Using a Join
- Summary

Common Table Expressions
- Introduction
- When to Use CTEs
- CTE Syntax
- Overview
- Demo: Defining a CTE
- Recursive CTEs
- Demo: Recursive CTE
- Summary

Complex Data And Structures
- Introduction
- Overview
- Issues with Data Types
- Demo: Explicit Conversion
- Multinational Data
- Demo: COLLATE
- Hierarchial Data
- Demo: hierarchyid
- Summary

Efficient Queries
- Introduction
- Overview
- EXISTS Clause
- Join vs. Subqueries
- One-Pass Queries
- Demo: UNION ALL
- One-Pass
- Multiple Resultsets
- Temp Tables
- Table Variables
- UDFs
- Demo: UDFs
- CTEs
- Worktables
- User-Defined Table Types
- Demo: Table Types
- Summary

Working With Complex Queries
- Introduction
- Overview
- Implicit Transactions
- Demo: Implicit Set On
- Keeping it Simple
- Demo: Sub Tasks
- UDF
- Demo: Procedure
- Summary

Maintaining Query Files
- Introduction
- Overview
- Source Control
- SourceSafe
- Files Under Control
- Demo: Source Control
- Keyword Expansion
- Enabling
- Demo: srcsafe.ini
- Version Info
- File Versions
- Demo: Versions
- Summary

Design Delpoyment VS
- Introduction
- Database Development
- VS Integration
- VS Tasks
- Database Project
- Demo: Database Project
- Summary

Generating Test Data
- Introduction
- Demo: Data Gen Plan
- Generate Data
- DB Management
- Demo: Unit Tests
- Build Solution
- Summary

Refactoring
- Introduction
- Demo: Schema
- Comparing Schemas
- Comparing Data
- Execute T-SQL
- Partial DB Projects
- Demo: Partial Projects
- Summary

XML Data Type
- Introduction
- Overview
- Declaring XML Objects
- Loading Data
- SELECT...FOR XML
- OPENROWSET
- Demo: Direct Assign
- Indexing Columns
- Primary Indexes
- Secondary Indexes
- Demo: Indexes
- Summary

XML Schema Collections
- Introduction
- Overview
- Typed and Untyped XML
- Schema Basics
- Demo: XSD
- Lax Validation
- Full dateTime Support
- Registering Schemas
- Viewing Stored Schemas
- Collections
- Namespaces
- Components
- Namespace
- Demo: Schema Info
- Summary

Querying XML
- Introduction
- Overview
- Using XQuery
- query()
- value()
- exist()
- modify()
- nodes()
- Using XQuery
- Demo: XQuery Methods
- FLWOR
- FOR XML
- Demo: FOR XML
- OPENXML
- Demo: OPENXML
- Summary

Best Practices
- Introduction
- Overview
- Relational vs. XML
- Storing XML
- Reasons to Index
- Querying
- Summary

Integration Services
- Introduction
- Overview
- What is SSIS?
- When To Use SSIS
- Architecture
- Control Flow Tasks

(Continued on page 4)

• Maintenance Plan Tasks
• Data Flow Task
• Import/Export Data
• Demo: Import/Export
• Tools
• BIDS
• Demo: BIDS
• Design Surfaces
• Control Flow
• Control vs. Data Flow
• Demo: Data Flow
• Event Handlers
• Package Explorer
• Execute Package Utility
• Summary

Analysis Services
• Introduction
• OLAP Terminology
• Cubes, Dimensions...
• Dimensions Tables
• Fact Tables
• Measures
• Schemas
• Cube Storage
• Partitions
• UDM
• UDM Capabilities
• Creating a UDM
• Demo: Data Source View
• Create Dimension
• Create Cube
• Browsing Cube
• Summary

Reporting Services
• Introduction
• Overview
• Demo: Config Tool
• Report Wizard
• Data Source
• Query
• Report Type
• Design Table
• Table Style
• Deployment Location
• Preview Report
• Summary