

SQL Server 2005 Business Intelligence Workshop (with Data Mining)

Introduction

Business Intelligence (BI) solutions provide the infrastructure that enables organizations to make better business decisions. SQL Server 2005 is a complete, integrated business intelligence platform that provides the features, tools and functionality to build and manage entire BI systems.

This class teaches the student how to design, build and deploy a complete business intelligence solution using the SQL Server 2005 BI platform. The student will learn how to use SQL Server 2005 to/for:

- **Integrate:** Use Integration Services to integrate data from operational and enterprise data sources into a data warehouse
- **Analyze:** Use Analysis Services to gain an integrated view of business data as the foundation for BI reporting, OLAP analysis, scorecards, and data mining
- **Report:** Use Reporting Services to deliver the information an enterprise needs to make better business decisions
- **Data Mining:** Take the next step in BI with SQL Server Data Mining capabilities to explore your data, find patterns, make predictions and develop intelligent applications

We also include an overview of the improvements and functionality in the upcoming **SQL Server 2008** BI platform.

Course Objectives

The student will learn:

- Microsoft's Business Intelligence vision
- How to use Integration Services to perform ETL processing to populate a data warehouse
- How to use Analysis Services to create & maintain a multi-dimensional cube
- How to use Reporting Services to deliver enterprise BI reporting
- How to use Data Mining to find hidden patterns in your data
- The definition and use of the Unified Dimensional Model (UDM)
- How to provide advanced analytic functionality including Key Performance Indicators (KPIs)
- How to deliver end-user ad-hoc reporting using Report Builder

Duration

5 days

Format

Lecture and hands-on

Audience

Business Intelligence architects and developers

Prerequisites

Knowledge of the following concepts: Business Intelligence, relational database, dimensional modeling

Course Materials

Course materials are yours to keep. You will be provided with the following software for use in the classroom:

- Microsoft SQL Server 2005

Course Content

A. Introduction

- Microsoft's Business Intelligence vision
- SQL Server 2005 Business Intelligence components
- Development and management tools

B. Integration Services (SSIS)

- Overview
 - Data warehouse ETL processing theory
 - Objects & concepts incl. packages, control flow, data flow
 - LAB: Creating an SSIS Solution, Project & Package
 - LAB: Working with control flows
 - LAB: Working with data flows
- Dimension table ETL
 - Dimension table processing theory
 - Slowly Changing Dimension (SCD) wizard
 - LAB: Dimension table processing
- Fact table ETL
 - Fact table processing theory
 - LAB: Fact table processing
- Checkpoint/Restart
 - Checkpoint/restart (w/ demo)
- Execution & scheduling
 - Execution & scheduling
 - LAB: Package scheduling
- Event handling & logging, configurations & deployment
 - Event handling & logging
 - Configurations & deployment
- Fuzzy matching
 - Fuzzy lookup, fuzzy grouping

C. Analysis Services (SSAS)

- Overview
 - Unified Dimensional Model (UDM)
 - Measures and dimensions
 - Storage and aggregations
- Cubes
 - Data sources & data source views
 - Measures & measure groups
 - Dimensions
 - MDX calculations
 - Key Performance Indicators (KPIs)
 - Actions
 - Perspectives
 - Translations
 - LAB: Create data source & data source view
 - LAB: Define dimensions & measures, create cube
- Advanced dimension features
 - Display folders
 - Multi-level hierarchies
 - Attribute relationships
 - LAB: Display folders
 - LAB: Define multi-level hierarchies & attribute relationships
- Working with cubes & advanced cube features
 - LAB: Calculations
 - LAB: KPIs
 - LAB: Actions
 - LAB: Extending cube functionality
- Partitions & proactive caching
 - Partitions
 - Proactive caching
- Management
 - Automating administration/processing
 - Deployment

- Security

D. Reporting Services (SSRS)

- Overview
 - Creation, management, delivery
 - Report Designer
 - Report Builder
 - Designer vs. Builder
 - Reporting portal options
- Report Designer
 - Components & features
 - Interactivity – Parameters, Filters, Drilldown, Drillthrough
 - LAB: Creating reports
- Report Builder
 - Components & features
 - Report models
 - LAB: Creating a report model
 - LAB: Creating reports
- Management
 - Automating report execution
 - Security
 - Deployment
 - Report execution log
- Delivery
 - Subscriptions

E. Data Mining

- Introduction
 - Definition
 - Business uses of Data Mining
 - Process
- SQL Server Data Mining Overview
 - Capabilities
 - Functionality
 - Algorithms
- OLE DB for Data Mining / DMX
 - Introduction
 - Concepts incl. Case tables & Nested tables, Data Mining Structures & Models
 - Model creation / training / prediction
 - DMX
- Data Mining with SQL Server
 - Data mining wizard
 - Data mining designer
 - Integrating Data Mining into SSIS, SSAS (for data analysis) and SSRS
 - LAB: Customer segmentation
 - LAB: Anomaly detection
 - LAB: Customer acquisition
 - LAB: Product recommendation
 - Mining OLAP cubes
 - Introduction
 - Data mining dimensions
 - LAB: Mining OLAP cubes
 - Metadata
 - Management

Student Labs

Our labs use Microsoft Project REAL concepts and data - the reference implementation for SQL Server 2005 BI that Microsoft developed using Barnes and Noble data. We use Project REAL in order to leverage the best practices cultivated during the development of the reference implementation.