

MICROSOFT BUSINESS INTELLIGENCE (BI) COURSE CONTENT

- ❖ **INTRODUCTION TO MICROSOFT BUSINESS INTELLIGENCE 2008**
- ❖ **INSTALLING AND USING BI TOOLS**
- ❖ **CONFIGURING BI TOOLS**

SQL SERVER INTEGRATION SERVICES [SSIS]

BASIC SSIS DEVELOPMENT

- ❖ **INTRODUCTION TO SSIS:**
 - What is SSIS?
 - Need for SSIS Component
 - SSIS and MSDB Database
 - SSIS and DTS Comparisons
- ❖ **SSIS ARCHITECTURE:**
 - Control Flow Architecture
 - Data Flow Architecture
 - Data Pipeline Usage
 - Buffer Space Allocation Rules
 - SSIS Precedence Constraints
- ❖ **BASIC SSIS ENTITIES:**
 - SSIS Data Types
 - SSIS Variables and Usage
 - Dynamic Precedence Constraints
 - Connection Managers
 - Data Flow Tasks usage
 - Monitoring Data Migrations
 - Handling Enumerations in SSIS
- ❖ **SSIS CUSTOMIZATIONS:**
 - SCRIPT Task in SSIS
 - Custom Scripting and Tuning
 - Expressions and Iterations
 - SSIS Expressions
 - Dynamic Connection Managers
 - Dynamic Scripting
 - Expression Builder Usage
- ❖ **SSIS DEBUGGING OPTIONS:**
 - Control Flow Breakpoints
 - Data Flow Data Viewers
 - Limitations of SSIS Debugging
- ❖ **DATA FLOW TRANSFORMATIONS:**
 - Column Transformations

- Combining and splitting data
- Data Cleansing Operations
- Managing BLOB & CLOB data
- Performing database operations
- Lookup and Fuzzy Grouping
- MERGE Vs UNION ALL Transformations
- SORT Vs AGGREGATE Transformations
- OLE-DB Command Transformation

ADVANCED SSIS DEVELOPMENT

❖ PROCESSING XML DATA:

- Iterating XML nodes
- Writing XML files from databases

❖ OPERATING SYSTEM LEVEL TASKS:

- FTP and SMTP Operations
- MSMQ Operations
- WMI Administrations
- Webservice Integrations

❖ CUSTOM ACTIVITIES:

- Data Analytics and Debugging
- Custom Code Handling
- SSIS Event Notifications
- Data Sampling Techniques
- Type I and Type II SCDs
- Performing PIVOT operations
- SSIS Data Profiling Task

❖ PACKAGE CONTROLS:

- SSIS Transactions & Isolation Levels
- Package and Task Options
- Checkpoints and usage
- Package Properties

❖ PACKAGE CONFIGURATIONS:

- Configurations and benefits
- Applying Configuration Options
- Choosing correct providers
- Practical Applications

❖ ERROR HANDLING:

- System Events and Audits
- Package Event Handling
- Container Event Handling
- Limitations of Event Handling
- Event Bubbling Escalations

❖ SSIS LOGGING:

- Benefit of SSIS Logging
- Different Logging Options

- Environment Variables
- Windows Event Logs and SSIS
- SQL Server Logging Limitations
- Choosing correct log providers
- Managing SSIS Log Providers
- Package Execution Audits

SSIS MANAGEMENT AND SECURITY

❖ **DEPLOYMENT PROCEDURES:**

- Preparing for Deployment
- Primary Pre-requisites
- SSIS Deployment Phases
- Securing Manifest Files
- SSIS Deployment Options
- Verification Techniques

❖ **FILE SYSTEM DEPLOYMENT:**

- File System Deployment
- Package Execution Options
- File System Security

❖ **SQL SERVER DEPLOYMENT:**

- SQL Server Deployment
- Package Execution Options
- SSIS Catalog Files
- File System Versus MSDB

❖ **DEPLOYMENT MANAGEMENT:**

- Configuration Limitations
- Command-Line Deployments
- SSIS Utilities and Usage
- Package Backup Procedures
- Fine-tuning Deployment

❖ **MANAGING SECURITY:**

- SSIS Package Security Options
- Encrypting packages
- Package Store and msdb
- Security Audits
- MSDB and File System Comparisons
- Event Logging Activities

❖ **UPGRADING PACKAGES:**

- DTS packages to SSIS migration
- Upgrading 2008 Packages to 2012
- Handling Binary File Issues
- MSDB Upgrades for SSIS

❖ **TWO-TIER SSIS INTEGRATIONS:**

- SSIS and Analysis Services
- Handling OLAP Management activities

- Handling Data Mining activities
- Accessing package data with ADO.NET
- Comparing SSIS 2008, R2, SSIS 2012
- Buffer Management and TDS Sizing

SQL SERVER REPORTING SERVICES [SSRS]

SSRS DEVELOPMENT

❖ INTRODUCTION TO SSRS:

- Need For Reporting
- Introduction to Reporting Services
- Why SQL Server Reporting Services?

❖ REPORTING SERVICES ARCHITECTURE:

- Three-Phase Life Cycle
- Reporting Engine Architecture
- SSRS 2005 and IIS
- SSRS 2008 and Web Services
- Configuring SSRS 2005
- Configuring SSRS 2008 and 2008 R2

❖ INTRODUCTION TO SSRS TOOLS:

- Report Designer
- Report Builder
- Report Manager
- RSCONFIG Tool

❖ REPORT PLANNING AND DESIGN:

- SSRS Report Planning
- Using SSIS to extract Data Sources
- Enterprise and Ad-hoc Reports
- Optimizing Data Sources

❖ REPORT DATA SETS:

- Creating Data Sets
- Configuring Dynamic Data Sets

❖ REPORT DESIGNS:

- Designing Wizard based Reports
- Designing Custom Reports
- Using Tables and Matrix
- Chart Based Reports and Images
- Using SSRS Expressions
- Using SSRS Globals
- Sub Reports and Usage
- Deployment Options
- BUILD and DEPLOY Options

ADVANCED REPORTS

❖ USING REPORT DESIGNER:

- Parameters and Dynamic Populations
- Report Filters in Data Sets
- Sub Reports
- Gauge Reports
- Pie Charts and Data Bars
- Exporting Reporting Data
- Understanding RDL Entries

❖ **SSRS USING OLAP SOURCES:**

- Designing Reports using OLAP DBs
- Identifying KPIs and Measures
- Coding MDX Queries

❖ **REPORT MODELS:**

- Need for Report Models
- Designing Report Models
- Identifying Entities
- Identifying different Attributes
- Numerical Aggregations
- Time Aggregations
- Time Calculations and Measures
- Managing Data Source Statistics
- Understanding SMDL Entries.

❖ **DELIVERING REPORTS:**

- Report Delivery
- Accessing and controlling reports
- Leveraging RS Web services

❖ **REPORT BUILDER:**

- Using Report Builder 1.0
- Using Report Builder 3.0
- Report Designer Vs Report Builder

❖ **MONITORING REPORTS:**

- Report Manager Tool
- Report Server Configurations
- Report Designer Vs Report Builder

MANAGING REPORTS

❖ **MANAGING REPORTS:**

- Report Manager Configurations
- Managing Data Sources Security
- Exporting and Importing Reports
- Creating Global Schedules
- Snapshot Management and Schedules
- ReportServerTempdb Usage
- Managing Reporting Engine
- System Events and Audits
- Event Handling

- Fine-Tuning Reports
- RSKEY Management

❖ **SSRS LOGGING:**

- Benefit of SSRS Logging
- Server level Logging Options
- Report Level Logging
- Report Execution Audits

❖ **SCHEDULING AND SUBSCRIPTIONS:**

- Creating Standard Subscriptions
- Data-Driven Subscriptions
- Deciding the Target Paths
- Subscription Logging Options

❖ **SSRS SECURITY:**

- Data Source Security
- Report Server Security Levels
- Report Server DB Security

❖ **SSRS CONFIGURATIONS:**

- Configuration Options
- Managing Configurations Files
- Choosing correct Config Values

❖ **SERVER UPGRADES:**

- Upgrading SSRS Reports
- Upgrading SSRS Databases
- Scale-out Deployment

SQL SERVER ANALYSIS SERVICES [SSAS]

SSAS DEVELOPMENT

❖ **INTRODUCTION TO SSAS:**

- What is Data warehouse?
- What is Analysis Services (SSAS)?
- Introduction to SSAS 2008 & R2

❖ **DATA WAREHOUSE ARCHITECTURE:**

- What are Fact Tables?
- What are Dimension Tables?
- Concept of UDM
- Identifying Facts and Dimensions
- Identifying Attributes and Hierarchies
- Identifying Measures and Aggregates
- SSIS usage for Datawarehouse Design
- Staging operations and usages

❖ **BASIC SSAS ENTITIES:**

- Data Source usage

- Use of Data Source Views
- Manipulating structures in DSV
- Computed and Named Queries
- Building Relationships
- Deciding Datawarehouse Schema

❖ **DIMENSION WIZARD:**

- Application of Dimensions
- Creating Dimensions and Builds
- Identifying Named Attributes
- Choosing Dimension Templates
- Applying Time Dimensions
- Attribute Relations and Uses
- Building Levels and Hierarchies
- Manipulating structures
- Creating empty Dimensions

❖ **CUBE WIZARD:**

- Planning for Cubes
- Creating Cubes with DSV
- Identifying Cube Entries
- Applying Time Dimensions
- Measures and Additives
- Deriving Cube and DB Dimensions
- Creating Measure Groups
- Cube Customizations and Options
- Empty Cubes and Enhancements

ADVANCED CUBE DESIGN

❖ **CUBE OPERATIONS:**

- Dimension Usage and Flexible Cubes
- Building Fact Dimensions
- Dimensionality Factors
- Creating Calculations
- MDX Scripting for Calculations
- Calculation Sets and Options
- Defining KPIs and Goals
- Perspectives and Uses
- SSAS Actions and Coding

❖ **SSAS PARTITIONS AND AGGREGATIONS:**

- Need of Partitions
- Local and Remote Partitions
- Defining Partitions
- Generation of Aggregations

❖ **MDX SPECIFICS AND FUNCTIONS:**

- Need of MDX Language
- Complex MDX Queries
- MDX Functions

- Use of MEMBER functions
- PARALLELPERIOD specifics
- WITH specifications
- Conditional JOINS
- Cube Write Backs
- Dimension Write Backs
- MDX Transactions

❖ **DATA MINING AND FORECAST:**

- Need for Data Mining
- Data Mining Structures
- Data Mining Algorithms
- Writing DMX Queries
- Data Mining Levels
- Operating Predications
- Prediction Functions and Analysis

❖ **SSAS DEPLOYMENT:**

- Primary Deployment Pre-requisites
- Deployment Options
- Creating OLAP Databases
- Processing Options and stages
- Managing Deploy Process

SSAS MANAGEMENT AND SECURITY

❖ **SSAS LOGGING:**

- Benefit of SSAS Logging
- Different Logging Options
- Choosing correct log providers
- Managing Log Providers

❖ **OLAP DATABASE MANAGEMENT:**

- OLAP Database Backups
- Compressions and Encryptions
- Restore Options
- Partitions and Restores
- Scripting Backups
- Scheduling Backups
- DB Synchronizations
- Managing Partitions
- Write-backs in Cube
- DB Reports and Dashboards
- Monitoring Execution Plans

❖ **USAGE BASED OPTIMIZATIONS (UBO):**

- What is UBO?
- Need for Optimizations and Audits
- Designing Aggregations using UBO
- Issues with UBO
- Restore Options

❖ **MANAGING SECURITY:**

- SSAS Security Roles
- Object Level Access
- Drill-Through Security
- Item Level Security
- Dynamic Security Implementation
- Windows Level Authentications
- Security Audits

❖ **SCHEDULES AND UPGRADES:**

- Using SSIS for DW Management
- Using SSIS for XMLA Operations
- MDX and DMX Operaitons in SSIS
- Scheduling SSAS operations
- Upgrading OLAP Databases
- Comparing SSAS 2005 and SSAS 2008
- New Features in SSAS 2008 R2
- New SSAS Features in DENALI

