CLARIFY consulting

Developing Business Intelligence Solution Using SQL Server 2005

Introduction

This is a beginner to intermediate level workshop focus on developing Business Intelligence solution using SQL Server 2005 Business Intelligence. From this workshop, you will learn how to design Data Warehouse, create complex calculation and business logic using MDX, develop front end program to access and manage Analysis Services, developing custom task and package in the Integration Services, creating Key Performance Indicator to track business metrics and much more

Audience

This workshop is intended for Business Intelligence Architect & Developer, Database Administrator and any SQL Server Professional that plan or required to develop or support BI solution using SQL Server 2005 Business Intelligence.

Duration: 5 Days

Content

Day 1

1. **Introduction to Data Warehouse**

   This module will present the concept of Data Warehouse, the component available in the Data Warehouse, requirement and goal for a good Data Warehouse, differences in Operation Data Store, Cube and Data Mart, common mistake when designing Data Warehouse and the process of designing and implementing Data Warehouse.

2. **In Depth Look At Dimension & Fact**

   This module will introduce you to the two main object in Data Warehouse, Dimension & Fact, what is Dimension Attribute and Fact Grain, different type of Dimension and Fact, the concept of Additive, Semiaddtive and Nonaddtive Fact, Surrogate Key versus Natural Key, concept and usage of Drill Down and Drill Across and tradeoff in number of Dimension when designing Dimension. During lab, student will go through the process of identifying Dimension and Fact, Surrogate and Natural Key and identify fact grain from a case study.

3. **Designing Data Warehouse**

   This module will introduce you to the Data Warehouse Bus Architecture, benefit provided by this architecture, concept of Conformed Fact and Dimension, Star versus Snowflake Schema, Dimension Modeling process, designing and handling Surrogate Key, support Slowly Changing Dimension (SCD), design Data Warehouse in Unified Dimensional Model provided by Analysis Services 2005, and best practices in Data Warehouse design. During lab, student will design a Data Warehouse and develop an ETL program using SQL Server Integration Services to load data to the Data Warehouse and handle changes in the Dimension.

Day 2

4. **Data Warehouse Partitioning & Real Time Data Availability**

   This module introduce you to the concept of Data Warehouse Partitioning, criteria of Data Warehouse Partitioning, the process of designing and implementing Partition in Data Warehouse using Partitioning feature provided by SQL Server 2005, loading the data into individual partition and method to support real time data availability in the Data Warehouse. During lab, student will use the Partitioning feature in SQL Server 2005 to implement Data Warehouse Partitioning on the Data Warehouse designing in previous lab.

5. **Getting Started in Analysis Services Development**

   This module introduce you to the Development and Management environment provided by SQL Server 2005 for developing and maintaining BI solution, the essential object when developing BI solution, namely Data Source and Data Source View, and using Named Calculation & Query in the BI solution. During lab, student will go through the process of creating Data Source, Data Source View, Named Query and Named Calculation using Business Intelligence Development Studio.

6. **Building Dimension & Cube**

   This module will introduce you to Standard and Time Dimension, using Autobuild feature to assist you in building Dimension, the process of building Standard and Time Dimension, modifying/enhancing Dimension, the process of building Cube, handling Unknown Member in the Dimension, implements Dimension Writeback and process the Dimension and Cube. During lab, student will go through the

process of building complete Dimension & Cube.

7. **Introduction to MultiDimensional eXpression (MDX) in Analysis Services**

   This module will introduce you to the power of MDX, why MDX is needed to perform advanced calculation in the Analysis Services, how MDX is process and evaluated by Analysis Services, differences between MDX and SQL/Excel, different type of function and statement available in MDX, using MDX Scripting, and debugging MDX Scripts. During lab, student will be presented by questions, which they will need to create MDX calculation based on the questions.

Day 3

8. **KPI in Analysis Services 2005**

   This module will present the server side Key Performance Indicator feature provided by Analysis Services 2005, the main concept of KPI in Analysis Services, the process of implementing basic and advanced KPI, using MDX calculation in KPI, and using helper function provided by Analysis Services to retrieve value in the KPI object. During lab, student will implement both basic and advanced KPI and use the helper function to retrieve the KPI value.

9. **Using ADOMD.Net To Access Analysis Services**

   This module will introduce you to ADO Multidimensional.Net (ADOMD.Net), the object model to access multidimensional data in Analysis Services, namespaces available in ADOMD.Net, common class and function used to access the Analysis Services. During lab, student will build a .Net based window application to retrieve the KPI value in the Analysis Services and show the detail multidimensional data associated with the KPI using ADOMD.Net.

10. **Using AMO To Manage Analysis Services**

    This module introduce you to the Analysis Management Object (AMO), the function provided by AMO object model, the namespaces available in AMO, common class and function used to manage Analysis Services. During lab, student will use AMO to automate the creation of complete Dimension and Cube using AMO.

Day 4

11. **Introduction To Data Mining**

    This module will introduce you to the power of Data Mining in Analysis Services

2005, new algorithms provided in Data Mining, the concept and object available in Data Mining, the process of building a Data Mining structure and model, and using Data Mining Extension (DMX) to perform prediction against the Data Mining model. During lab, student will build a complete Data Mining model and use DMX to perform prediction on the model using DMX.

12. **Populating & Transforming Data Using SQL Server Integration Services**

    This module will present the SQL Server Integration Services, the new SSIS architecture as compare to Data Transformation Services 2000, the concept and object of SSIS, new tasks available in the SSIS, differences between control flow and data flow tasks, and process of debugging the SSIS package. During lab, student will create a complete SSIS package to retrieve data from different sources and perform data cleansing on the data using Fuzzy Logic algorithms.

13. **Developing Basic Report Using Report Designer**

    This module introduce you to the Report Designer, a component in the Reporting Services, component and object in the Report Designer, tasks available in the Report Designer, creating Table and Matrix report, using Sub-Report, perform formatting on the report, and using Dynamic Visibility and Document Map in the report to add drill-down effect to the report and interactive display of different part of report. During lab, student will create report using table and Matrix layout using Report Designer and perform basic formatting on the report.

Day 5

14. **Developing Advanced Report Using Report Designer**

    This module will present the usage of function and expression in Reporting Services, using Parameter and Filtering capability in the report, and using Analysis Services Cube and Data Mining Model as the data source for the report and publish the report to the Report Manager. During lab, student will develop report based on Services Cube and Data Mining Model. The query language used will be DMX and MDX instead of SQL.

15. **Ad-Hoc Reporting Using Report Builder**

    This module will present the new component available in the Reporting Services to enable end user to create ad-hoc report, Report Builder, the function and limitation

in the Report Builder, Report Builder architecture, comparison with Report Designer, and concept of Report Model. During lab, student will build a Report Model and use the Model to create ad-hoc report.

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