Data Warehousing (DW) Terms, Concepts & Architecture

WISE LTD.

COURSE CODE: DWHTCA

COURSE TITLE: Data Warehousing (DW) Terms, Concepts & Architecture

FEATURES: Dimensional modelling per Ralph Kimball.

PLATFORM: **Multi-platform:** Oracle, SQL Server, DB2 for z/OS, DB2 for Linux/UNIX/Windows, Sybase, etc.

AUDIENCE: IT managers, would-be data warehouse architects, IT developers, database administrators, DW project managers or anyone responsible for a data warehouse or related discipline.

PREREQUISITES: No technical experience necessary. Some relational database experience useful.

DURATION: 1 day

SUMMARY: This DW terminologies and concepts course addresses the following topics:

- What is data warehousing?
- What is a data mart?
- What are the data modelling options?
- What are the terms and concepts specific to data warehousing and OLAP design?
- What are some common statistics, analytic and OLAP SQL queries?

OBJECTIVES: Upon completion of this course, the participant should be conversant with terms and concepts as these relate to a data warehouse using both star and snowflake schemas. And the delegate should understand the implication of such terms as cubes, dimensions, attributes, joins, hierarchies, measures, etc.

Data Warehousing (DW) Core Topics

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1. DATA WAREHOUSE OVERVIEW

- Overview
- Typical uses
- Architecture

2. DEFINITION, ARCHITECTURE AND CONCEPTS

- Enterprise Data Model
- Operational vs. historical data
- Extract Transform Load (ETL)
- Metadata
- Data warehouse vs. data mart
- Data mining
- OLAP vs. OLTP
- Logical design vs. physical design
- Normalization vs. denormalization
- Referential constraints

3. DATA MODELLING OPTIONS & OVERVIEW

- Entity model
- Star schema
- Snowflake schema

4. DIMENSIONAL MODELLING DEVELOPMENT LIFE CYCLE

- Four steps of dimensional modelling
- Requirements analysis
- Requirements gathering
- Requirements validation
- Requirements modelling
- Schema design
- Project definition
- Warehouse design
- Implementation
- Follow-up and review

5. DIMENSIONAL MODELLING DESIGN

- Overview
- Metadata properties
- Star schema
- Snowflake schema
- Cubes
- Measures and facts
- Attributes and relationships
- Dimensions
- Hierarchies
- Joins
- Summary tables and aggregation (i.e., materialized views/indexed views)

6. IMPLEMENTATION OPTIONS

- Overview
- Top down
- Bottom up
- Sizing
- Cleaning
- Populating the data warehouse

7. EXTRACT, TRANSFORM, LOAD (ETL) CONCEPTS

- ETL vs. ELT: pros and cons
- ETL planning and monitoring
- Transformation options
- Loading options
- Change Data Capture and publishing
- Data Staging
- Restart recovery

8. DATA WAREHOUSE PERFORMANCE DESIGN

- Large concurrent reports
- Short running queries
- Long running queries
- On-line utilities
- Partitioning and parallelism (e.g., LOADs)
- Table spaces and buffer pools

9. INTRODUCTION TO DW GUI TOOLS

