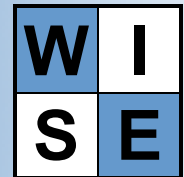


# MDX: Queries and Scripts for SQL Server & Oracle's Hyperion Essbase



WISE LTD.

- COURSE CODE:** SQSMDX
- COURSE TITLE:** MDX: Queries and Scripts
- PLATFORMS:** Microsoft SQL Server 2005/2008 and Oracle's Hyperion Essbase 9.
- AUDIENCE:** OLAP cube developers/administrators and SQL Server Reporting Services (SSRS) developers.
- PREREQUISITES:** Completion of our course 'SQL Server 2005 Analysis Services' (SQSSAS) or equivalent knowledge.
- DURATION:** 3 days
- LEVEL:** Beginner-to-intermediate
- SUMMARY:** This course is designed for OLAP (cube) developers and administrators and SQL Server Reporting Services (SSRS) developers. Emphasis is placed on using MDX queries and scripts to:
- Return data to client applications from OLAP cubes
  - Format query results
  - Perform cube design tasks, such as defining calculated members, named sets, scoped assignments and Key Performance Indicators (KPIs)
  - Perform administrative tasks such as cell security
- OBJECTIVES:** Upon completion of this presentation, the delegate should be able to use MDX queries to extract information from OLAP cubes and use MDX scripts to create calculated members, KPIs, actions, etc.
- FORMAT:** Hands-on (about 60%).

### 1. REVIEW OF BI TERMS & CONCEPTS

- The DW Environment
- The DW Computing Context
- What is a Data Warehouse?
- What is a Data Mart?
- What is Business Intelligence
- How do OLTP & DW Differ?
- What is Data Mining?
- Operational vs. Historical Data
- Dimensional Modelling
- Some Dimensional Modelling Characteristics
- What is a Star Schema?
- What is a Snowflake Schema?
- What is Metadata?

### 2. REVIEW OF OLAP TERMS & CONCEPTS

- What is Online Analytical Processing (OLAP)?
- What is Data Mining?
- Does a Cube Really Exist?
- MOLAP vs. ROLAP vs. HOLAP Storage
- Proactive Caching
- OLAP & Cubes Example
- OLAP Options
- How do OLTP & OLAP Differ?
- Multidimensional Analysis
- Multidimensional Analysis Examples
- BI User Types
- Query & Reporting Concepts

### 3. MDX TERMS & CONCEPTS

- What is MDX?
- Scope and limits
- MDX vs. SQL
- Fundamentals
- MDX queries
- MDX expressions
- MDX operators
- MDX functions

### 4. CALCULATED MEMBERS & NAMED SETS

- Dimensional calculations
- Calculated member scope
- Calculated functions
- Named sets

### 5. CALCULATION VS. SELECTION

- Metadata
- Ratios, averages and percentages
- Parent contribution hierarchy
- Allocations
- Time-based vs. time series
- Aggregations
- Member properties

### 6. QUERY CONTEXT & EXECUTION

- Cell and resolution order
- Cell evaluation
- Cube context modification
- SELECT in FROM clause
- 'Solve Order' use
- Non-empty considerations
- Cell properties and precedence
- Actions
- KPIs

### 7. NAMED SETS VS. ALIASES

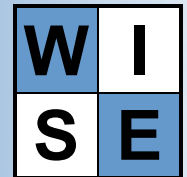
- Scope
- Uses

### 8. ORDERING & RANKING

- Building blocks
- Top-n selection
- Fewest/most tuples
- Top-n tuple percent
- Member/tuple ordering

### 9. ADVANCED MDX USAGE

- Parent/ancestors precedences
- Subtree manipulations
- Tuple operation-to-set operations
- Date-time arithmetic
- Ratios
- Hierarchical sorting
- Multiple layers vs. dimensional sorting
- How to return 'Top Selling Products'
- Aggregations



### **10. ATTRIBUTE BASED MODEL CONSIDERATIONS**

- Unified Dimensional Model (UDM)
- Dimensional attribute and hierarchies
- Querying dimensions
- Member properties
- Parent-child relationships
- Time dimensions
- Cubes

### **11. CALCULATION OPTIONS**

- Calculation mechanics
- Calculation interaction
- Cell calculation

### **12. MANAGING CELL SECURITY**

- Definition
- Permission types
- Restricting cell access
- Externalising cell security

### **13. INTRODUCTION TO MDX OPTIMISATION & BEST PRACTICES**

- How to use SQL Server Profiler (MDX)
- How to use the System Monitor (MDX)
- Calculation spaces
- Empty tuples
- Summarising data
- Calculation best practices
- Set operations