### Szkolenie: Oracle

**Oracle Database 11g: SQL Tuning Workshop**

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<th>MATERIAŁY SZKOLENIOWE</th>
<th>CENA</th>
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<td>Cyfrowe</td>
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* (+VAT zgodnie z obowiązującą stawką w dniu wystawienia faktury)

**LOKALIZACJE**

Kraków - ul. Tatarska 5, II piętro, godz. 9:00 - 16:00  
Warszawa - ul. Bielska 17, godz. 9:00 - 16:00

**Cel szkolenia:**

This **Oracle Database 11g: SQL Tuning Workshop Release 2** training assists database developers, DBAs and SQL developers in identifying and tuning inefficient SQL statements. You'll explore investigative methods to reveal varying levels of detail about how the Oracle database executes the SQL statement; this helps you determine the root causes of the inefficient SQL statements.

**Learn To:**

- Use Oracle tools to identify inefficient SQL statements.
- Use Automatic SQL Tuning.
- Use Real Time SQL monitoring.
- Write more efficient SQL statements.
- Monitor and trace high load SQL statements.
- Manage optimizer statistics on database objects.
- Interpret execution plans, and the different ways in which data can be accessed.

**Plan szkolenia:**

- Exploring the Oracle Database Architecture
  - Oracle Database Server Architecture: Overview
  - Connecting to the Database Instance
Physical Structure
- Oracle Database Memory Structures: Overview
- Automatic Shared Memory Management
- Automated SQL Execution Memory Management
- Database Storage Architecture, Logical and Physical Database Structures
- Segments, Extents, and Blocks & SYSTEM and SYSAUX Tablespaces

Introduction to SQL Tuning
- Reason for Inefficient SQL Performance
- Performance Monitoring Solutions
- Monitoring and Tuning Tools: Overview
- CPU and Wait Time Tuning Dimensions
- Scalability with Application Design, Implementation, and Configuration
- Common Mistakes on Customer systems & Proactive Tuning Methodology
- Simplicity in Application Design
- Data Modeling, Table Design, Index Design, Using Views, SQL Execution Efficiency, Overview of SQL*Plus & SQL Developer

Introduction to the Optimizer
- Structured Query Language
- SQL Statement Parsing: Overview
- Why Do You Need an Optimizer? Optimization During Hard Parse Operation
- Transformer & Estimator
- Cost-Based Optimizer
- Plan Generator
- Controlling the Behavior of the Optimizer, Optimizer Features and Oracle Database Releases

Interpreting Execution Plans
- What Is an Execution Plan? Where To Find Execution Plans and Viewing Execution Plans
- Plan Table & AUTOTRACE
- Using the V$SQL_PLAN View
- Automatic Workload Repository (AWR)
- SQL Monitoring: Overview
- Interpreting an Execution Plan
- Reading More Complex Execution Plans and Reviewing the Execution Plan
- Looking Beyond Execution Plans

Application Tracing
- End-to-End Application Tracing Challenge
- Location for Diagnostic Traces
What is a Service? Use Services with Client Applications & Tracing Services
Use Enterprise Manager to Trace Services
Session Level Tracing: Example
The trcsess Utility and SQL Trace File Contents
Invoking the tkprof Utility and Output of the tkprof Command
tkprof Output with and without Index: Example

Optimizer: Table and Index Operations
Row Source Operations, Main Structures and Access Paths
Full Table Scan
Indexes: Overview and B*-tree Indexes and Nulls
Using Indexes: Considering Nullable Columns
Index-Organized Tables
Bitmap Indexes, Bitmap Operations and Bitmap Join Index
Composite Indexes and Invisible Index
Guidelines for Managing Indexes and Investigating Index Usage

Optimizer Join Methods
Nested Loops Join
Nested Loops Join: 11g Implementation
Sort Merge join
Hash Join and Cartesian Join
Equijoins and Nonequijoins
Outer Joins
Semijoins
Antijoins

Optimizer: Other Operators
When Are Clusters Useful?
Sorting Operators and Buffer Sort Operator
Inlist Iterator and View Operator
Count Stop Key Operator
Min/Max and First Row Operators and Other N-Array Operations
Filter operations and Concatenation Operations
UNION [ALL], INTERSECT, MINUS
Result Cache Operator

Case Study: Star Transformation
The Star Schema Model and The Snowflake Schema Model
Star Transformation
- Retrieving Fact Rows from One Dimension and from All Dimensions
- Joining the Intermediate Result Set with Dimensions
- Star Transformation Plan Examples
- Star Transformation Hints
- Using Bitmap Join Indexes
- Bitmap Join Indexes: Join Model 1 to 4

- Optimizer Statistics
  - Types of Optimizer Statistics
  - Table, Index and Column Statistics
  - Index Clustering Factor
  - Histograms, Frequency Histograms and Histogram Considerations
  - Multicolumn Statistics and Expression Statistics Overview
  - Gathering System Statistics and Statistic Preferences
  - Manual Statistics Gathering
  - Locking Statistics, Export/Import Statistics and Set Statistics

- Using Bind Variables
  - Cursor Sharing and Different Literal Values
  - Cursor Sharing and Bind Variables
  - Bind Variable Peeking
  - Cursor Sharing Enhancements
  - The CURSOR_SHARING Parameter
  - Forcing Cursor Sharing
  - Adaptive Cursor Sharing
  - Interacting with Adaptive Cursor Sharing

- Using SQL Tuning Advisor
  - Tuning SQL Statements Automatically
  - Application Tuning Challenges
  - SQL Tuning Advisor: Overview
  - Stale or Missing Object Statistics and SQL Statement Profiling
  - Plan Tuning Flow and SQL Profile Creation
  - SQL Tuning Loop, Access Path Analysis and SQL Structure Analysis
  - Database Control and SQL Tuning Advisor
  - Implementing Recommendations

- Using SQL Access Advisor
  - SQL Access Advisor: Overview
  - Possible Recommendations
SQL Access Advisor Session: Initial Options
SQL Access Advisor: Workload Source
SQL Access Advisor: Recommendation Options
SQL Access Advisor: Schedule and Review
SQL Access Advisor: Results
SQL Access Advisor: Results and Implementation

Using Automatic SQL Tuning
SQL Tuning Loop
Automatic SQL Tuning
Automatic Tuning Process
Configuring Automatic SQL Tuning
Automatic SQL Tuning: Result Summary
Automatic SQL Tuning: Result Details
Automatic SQL Tuning Result Details: Drilldown
Automatic SQL Tuning Considerations

SQL Performance Management
Maintaining SQL Performance and SQL Plan Management: Overview
SQL Plan Baseline: Architecture
Important Baseline SQL Plan Attributes
SQL Plan Selection
Possible SQL Plan Manageability Scenarios
SQL Performance Analyzer and SQL Plan Baseline Scenario
Loading a SQL Plan Baseline Automatically and Purging SQL Management Base Policy
Enterprise Manager and SQL Plan Baseline

Wymagania:

Recommended Related Training Courses:

- Oracle Enterprise Manager 11g: Grid Control Essentials
- Oracle SQL Tuning for Developers Workshop

Poziom trudności
Certyfikaty:

Uczestnicy szkoleń otrzymają zaświadczenia o ukończeniu kursu sygnowane przez firmę Oracle.

Prowadzący:

Autoryzowany wykładowca Oracle.