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# Course Catalog

# Comelio



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## a. Locations



Our trainings take place at various locations in the German-speaking countries.

### Public trainings:

You can enroll for public trainings at our training centers across Germany like in Berlin, Dresden, Hamburg, München / Munich, Düsseldorf, Frankfurt, and Stuttgart. Not all public trainings will be organized in all cities but you can still book a particular training for your team in one of our training and conference centers.

In Austria you can attend seminars and trainings in Wien / Vienna while we offer training dates in Switzerland in Zürich / Zurich.

### On-site trainings:

We have mobile and flexible trainers / lecturers who like to visit you and your team for an on-site training or a training in a conference center or hotel near you.

## USA

Chicago	Tel: Fax:
Miami	Tel: +1.305.395.7962 Fax: +1.305.395.7964
New York	Tel: +1.212.380.1181 Fax: +1.305.395.7964

# 1. Data Warehousing

## A. Business Intelligence



### (i) OLAP and Data Warehousing



#### Overview

<b>Course ID</b>	2020335
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	General database knowledge
<b>Method</b>	Lecture and discussion
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
30-31 Jul 24-25 Sep 19-20 Nov	06-07 Aug 01-02 Oct 26-27 Nov	13-14 Aug 08-09 Oct 03-04 Dec

Prices plus local taxes.



#### Course Description

A data warehouse (DWH) is a database used for reporting and data analysis. It is a central repository of data which is created by integrating data from one or more disparate sources. Data warehouses store current as well as historical data and are used for creating trending reports for senior management reporting such as annual and quarterly comparisons. Online Analytical Processing (OLAP) is an approach to answering multi-dimensional analytical queries swiftly. OLAP is part of the broader category of business intelligence, which also encompasses relational database, report writing and data mining. This training walks you through the typical Business Intelligence project and helps you to understand the elements and architecture of a DWH and the usage scenarios for OLAP.



#### Course Outline

### A. Business Intelligence, OLAP, and Data Warehousing

(0.25 Days) Goals of a Data Warehouse - Components of a Data Warehouse: Operational Source Systems, Data Staging Area, Data Presentation, Data Access Tools - Dimensional Modeling: Fact Tables, Dimension Tables

## **B. The Data Warehouse and Design**

(0.5 Days) Operational Data - The Data Warehouse and Data Models: The Data Warehouse Data Model, The Midlevel Data Model, The Physical Data Model - Normalization and Denormalization - Metadata - Technical and Physical Architecture - Deploying and Supporting the DW/BI System

## **C. The Relational and the Multidimensional Models**

(0.25 Days) The Relational Model - The Multidimensional Model - Snowflake Structures - Differences between the Models - Independent Data Marts - OLAP and Aggregations - OLAP Operations

## **D. ETL - Loading the Data Warehouse**

(0.25 Days) ETL (Extract, Transformation, and Load) - Designing the Staging Area - Data Structures in the ETL System - Data Flow: Extracting, Cleaning and Conforming - Loading Fact Tables - Integrating OLAP Processing into the ETL System - Development Options of ETL - Data Latency - Data Quality

## **E. Dimension Tables**

(0.25 Days) The Basic Structure of a Dimension - The Grain of a Dimension - Flat Dimensions and Snowflaked Dimensions - Date and Time Dimensions - Big and Small Dimensions - Dimensional Roles - Degenerate Dimensions - Slowly Changing Dimensions - Ragged Hierarchies and Bridge Tables

## **F. OLAP and Data Mining**

(0.5 Days) Business Intelligence Applications: Direct Access Query and Reporting Tools, Standard Reports, Analytic Applications, Dashboards and Scorecards - Data Mining: Data Mining Overview, Data Mining in the Applications Architecture

## A. Data Mining



### (i) Using MS SQL Server 2012



#### Overview

<b>Course ID</b>	2023676
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Bases MS SQL Server
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
24-26 Aug 19-21 Oct 14-16 Dec	31 Aug - 02 Sep 26-28 Oct 21-23 Dec	14-16 Sep 09-11 Nov

Prices plus local taxes.



#### Course Description

Microsoft SQL Server Business Intelligence delivers a comprehensive platform empowering organizations to build and deploy secure, scalable, and manageable BI solutions. The Data Mining module provides new business insights, a reliable basis for forecasting and a comprehensive data-mining development environment. The Data Mining Add-ins allow you to harness the power of SQL Server predictive analytics in Excel and Visio. Use Table Analysis Tools to get insight with a couple of clicks. Use the Data Mining tab for full-lifecycle data mining, and build models which can be exported to a production server. Visualize your models in Visio. Microsoft SQL Server Analysis Services provides multiple algorithms for use in your data mining solutions. These algorithms are implementations of some of the most popular methodologies used in data mining. This training covers both the functions of the Data Mining Add-ins and the functions of SQL Server Data Tools. While getting to know the various software modules you will also get familiar with algorithms like Decision Trees, Naive Bayes, Clustering, Neural Networks, or Linear and Logistic Regression.



#### Course Outline

### A. Data Mining and MS SQL Server - Introduction

(0.5 Days) Business Intelligence and Data Mining - Usage Scenarios for Data Mining - Data Mining Techniques in Microsoft SQL Server and MS Excel - Server and Client Components: MS SQL Server Analysis Services and Data Mining Add-Ins for MS Excel and MS Visio - Data Mining Life Cycle and Tasks - Data Mining Techniques in MS SQL Server - Project Cycle (Data Collection, Processing and Cleaning of Data, Modeling, Model Evaluation, Reporting, Forecasting, Integration into Applications, Model Management and Maintenance)

## **B. Classification using Microsoft Decision Trees**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model - DMX Queries - Classification Model, Regression Model, Relationship Model

## **C. Classification using Microsoft Naive Bayes**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model - DMX Queries - Dependency Network, Attribute Profiles, Attribute Characteristics, Attribute Discrimination

## **D. Microsoft Time Series**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Auto Regression, Multiple Time Series, Seasonality, Historic Predictions, Caching Predictions - DMX Queries

## **E. Microsoft Clustering**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Clustering Types, Scalable Clustering, Predictions and Cluster Assignment - DMX Queries: Cluster, Probability, Histograms, CaseLikelihood

## **F. Microsoft Sequence Clustering**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Markov Chains, Transition Matrix, Clustering and Markov Chains, Decomposition - DMX Queries

## **G. Microsoft Association Rules**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Itemset, Support, Probability and Confidence, Interestingness and Importance - DMX Queries

## **H. Microsoft Neural Network**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Combination and Activation, Normalization and Mapping, Topology of a Neural Network , Model Training - DMX Queries

## **I. Scripting for Data Mining**

(0.5 Days) XML/A (XML for Analysis): Generating and Using Scripts, Building, Managing and Training Data Mining Models - DMX (Data Mining Extensions): Building Data Mining Models, Managing, Training, and Querying Data Mining Models

## **J. Data Integration and Reporting Services**

(0.25 Days) Using Data Mining-Models in Integration Services – Using Data Mining Results in Reporting Services





## (ii) Using Oracle 11g



### Overview

<b>Course ID</b>	2023675
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 30 Nov - 02 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



### Course Description

Oracle Data Mining (ODM) provides powerful data mining functionality as native SQL functions within the Oracle Database. Oracle Data Mining enables users to discover new insights hidden in data and to leverage investments in Oracle Database technology. With Oracle Data Mining, you can build and apply predictive models that help you target your best customers, develop detailed customer profiles, and find and prevent fraud. This training provides you with an overview of the Oracle Data Mining architecture and shows you what kind of Data Mining algorithms you can use for your data analysis. You will get to know each algorithm’s principle and statistical-mathematical background before you see the algorithm being applied to DB data.



### Course Outline

#### A. Data Mining and Oracle

(0.5 Days) Statistics, multivariate statistics and Data Mining - Data Mining cycle - Data preprocessing: Descriptive data aggregation, data cleansing, data integration and transformation - Data Reduction - Discretization and concept hierarchies - Data Mining and Business Intelligence: Databases, Data Warehouses and OLAP as the basis for Data Mining - Oracle architecture for Data Mining: database, Data Mining module and MS Excel add-in

#### B. Factors and influences

(0.5 Days) Factor Analysis and Principal Component Analysis - Outlier Analysis

### **C. Data Mining using Association analysis**

(0.25 Days) Finding frequent patterns (Frequent Itemset Mining) - Apriori algorithm - association rules and association analysis - shopping basket analysis

### **D. Data Mining and Classification**

(0.75 Days) Decision Trees: selection of attributes, tree pruning, deduction of rules, quality measures and comparison of models - Support Vector Machines: algorithms, building and using a model

### **E. Data Mining and Probability Theory**

(0.5 Days) Classification using logistic regression - Probability and Bayes' s Theorem - Naïve Bayes: algorithms, building and using a model

### **F. Cluster Analysis**

(0.5 Days) Introduction to Cluster Analysis - Similarity and distance measurement - Variants and basic techniques - Partitioning methods: k-Means Method - Hierarchical methods: agglomerative and divisive methods

## A. MS SQL Server 2012



### (i) Analysis Services (SSAS), OLAP and Data Warehousing



#### Overview

<b>Course ID</b>	2020963
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Bases MS SQL Server
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



#### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
10-12 Aug 05-07 Oct 30 Nov - 02 Dec	17-19 Aug 12-14 Oct 07-09 Dec	07-09 Sep 02-04 Nov 28-30 Dec

Prices plus local taxes.



#### Course Description

Microsoft SQL Server Analysis Services, SSAS, is an Online Analytical Processing, OLAP, data mining and reporting tool in Microsoft SQL Server. SSAS is used as a tool by organizations to analyze and make sense of information possibly spread out across multiple databases, or in disparate tables. This training teaches your how to use SQL Server Analysis Services for business intelligence. You'll start by building your understanding of the business intelligence platform enabled by SQL Server and the Microsoft Office System, highlighting the role of Analysis Services. Then, you'll create a simple multidimensional OLAP cube and progressively add features to help improve, secure, deploy, and maintain an Analysis Services database. You'll explore core Analysis Services features and capabilities, including dimension, cube, and aggregation design wizards; the attribute relationship designer; and using dynamic management views to monitor resources.



#### Course Outline

### A. OLAP and SQL Server Analysis Services (SSAS)

(0.25 Days) Business Intelligence - Multidimensional Data Analysis - Dimensional Data Warehouse - Multidimensional OLAP - Analysis Services and the Microsoft Business Intelligence Platform

## **B. Working with Dimensions**

(0.5 Days) Previewing Dimension Data - Creating a Standard Dimension - Creating a Time Dimension - Creating a Parent-Child Dimension - Dimension Usage - Creating Reference Dimensions - Creating a Fact Dimension - Creating a Many-to-Many Dimension

## **C. Working with Measures and Measure Groups**

(0.25 Days) Creating a Business Intelligence Solution - Creating a Data Source - Creating a Data Source View - Previewing Cube Data - Using the Wizard to Create a Cube - Deploying and Browsing a Cube - Using the Cube Designer to Modify a Cube - Using Aggregate Functions

## **D. Retrieving Data from Analysis Services using MDX, MS Excel, and Reporting**

(0.25 Days) Creating Perspectives - Creating MDX Queries - Accessing Analysis Services Using Excel - Creating Reporting Services Reports

## **E. Extending Cube-Functionality**

(0.25 Days) Key Performance Indicators (KPI) - Implementing Actions - - Using MDX to Retrieve Values from a Cube - Creating Calculated Members - Calculation Scripting

## **F. Deployment and Security of an Analysis Services Solution**

(0.25 Days) Deployment Overview - Deployment Mechanics - Deployment Using Business Intelligence Development Studio - Deployment Using the Deployment Wizard - Understanding Deployment Scripts - Migrating Databases and Disaster Recovery - Implementing Security: Understanding Roles - Securing Administrative Access - Securing Data Access

## **G. Administering a Multidimensional Solution**

(0.25 Days) Monitoring Analysis Services Using Windows Reliability And Performance Monitor - Monitoring Analysis Services Using SQL Server Profiler - Analysis Services Dynamic Management Views - Managing Partitions and Database Processing: Working with Storage - Managing Analysis Services Processing - Working with Partitions



## (ii) Analysis Services and MDX



### Overview

<b>Course ID</b>	2020282
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Experience with Business Intelligence concepts
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
30-31 Jul 24-25 Sep 19-20 Nov	06-07 Aug 01-02 Oct 26-27 Nov	13-14 Aug 08-09 Oct 03-04 Dec

Prices plus local taxes.



### Course Description

Multidimensional Expressions (MDX) is a query language for OLAP databases, much like SQL is a query language for relational databases. It is also a calculation language, with syntax similar to spreadsheet formulas. This training teaches you the Multidimensional Expressions (MDX) query language. With this practical, learn-by-doing course you'll build the core techniques for using MDX with Analysis Services to deliver high-performance business intelligence solutions. Discover how to construct and execute MDX queries, work with tuples, sets, and expressions, build complex sets to retrieve the exact data users need, perform aggregation functions and navigate data hierarchies, and assemble time-based business metrics.



### Course Outline

#### A. Introduction to MDX in Analysis Services

(0.25 Days) MDX Language - MDX-Query-Editor in MS SQL Server Management Studio - Simple MDX Queries

## **B. Tuples and OLAP-Cubes**

(0.75 Days) N-dimensional Space - Cube Space - Accessing Data with Tuples - - Understanding Cells - Working with Partial Tuples - Building Tuples with User-Hierarchies - Set Basics - Understanding the SELECT Statement - Building Sets with Functions - Filtering Sets - Combining Sets - Performing Aggregation: Performing Summation, Calculating Averages, Identifying Minimum and Maximum Values, Counting Tuples in Sets - Working with Time: Understanding the Time Dimension, Calculating an Accumulating Total, Performing Period-over-Period Analysis, Combining Time-Based Metrics

## **C. Enhancing the Cube using MDX**

(0.5 Days) Understanding the MDX Script - Constructing Calculated Members - Assembling Named Sets

## **D. MDX and Analysis Services-Security**

(0.25 Days) Understanding Dynamic Security - Implementing Attribute-Hierarchy Restrictions - Implementing Cell-Level Restrictions

## **E. Building Reports using MDX**

(0.25 Days) Connecting to Analysis Services - Designing the Dataset - Adding Parameters to the Dataset - Presenting the Data in the Report



### (iii) Business Intelligence - Compact



#### Overview

<b>Course ID</b>	2020295
<b>Language</b>	en
<b>Duration</b>	5 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Experience with Business Intelligence concepts
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



#### Course Dates

Chicago	Miami	New York
2,850.00 USD	2,650.00 USD	2,850.00 USD
07-11 Sep 02-06 Nov 28 Dec - 01 Jan	03-07 Aug 28 Sep - 02 Oct 23-27 Nov	10-14 Aug 05-09 Oct 30 Nov - 04 Dec

Prices plus local taxes.



#### Course Description

Microsoft SQL Server Analysis Services is a platform for building rich and high performance analytical models (multidimensional, tabular and data mining) that can be used for interactive data analysis, reporting, visualization and predictive analysis using a number of BI tools. Integration Services helps you connect and transform disparate data sources with a scalable enterprise data integration platform with exceptional extract, transform, and load (ETL) capabilities. Reporting Services is a platform for development and deployment of professionally looking, richly formatted operational and ad-hoc reports. Power View empowers users to rapidly explore data visually and interactively, easily create a story, present, and share reports effortlessly. This training takes you on a tour through all SQL Server products which are useful and necessary for building Data Warehouse and Reporting Solutions.



#### Course Outline

##### A. Business Intelligence, Data Warehousing and OLAP

(0.25 Days) Business Intelligence - Fundamentals of Data Warehousing und OLAP - Typical DW Data Models - Microsoft's Architecture and Tools for Business Intelligence - Project Types and Project Phases for Business Intelligence - Life Cycle of BI-Solutions using MS SQL Server

## **B. OLAP and Data Warehousing using Analysis Services**

(2 Days) Dimensions: Creation and Deployment, Hierarchies and Aggregation, Typology of Dimensions: Time, Currency, Language, Validity - Measures: Creation and Deployment, Storage Models, Calculated Measures with MDX - OLAP Cubes: Creation and Deployment, Security Model, MS Excel and Cube Access - Overview of Advanced Scenarios (Interactivity and Key Performance Indicators (KPI))

## **C. Data Integration and ETL using Integration Services**

(1.5 Days) SSIS Packages - Control Flow Tasks - Precedence Constraints - Data Flow Paths - Data Viewer - Configuring Error Output - Using Variables - Processing of Excel, Text, and XML Files - MS SQL Queries - Logging - Error Handling - Package Configuration - Deployment

## **D. Reports using Reporting Services and MS Excel**

(1.25 Days) Interactivity: OLAP Operations - Report Elements: Table, Matrix, Chart, Subreports - Datasets: Data Sources and Queries - Parameters and Filters - Deployment: Report Portal, Report Snapshots and Caching, Subscriptions





## (iv) Business Intelligence using Tabular Model



### Overview

<b>Course ID</b>	2022784
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	IT professionals, information workers
<b>Prerequisites</b>	Bases MS SQL Server
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
20-21 Aug 15-16 Oct 10-11 Dec	13-14 Aug 08-09 Oct 03-04 Dec	06-07 Aug 01-02 Oct 26-27 Nov

Prices plus local taxes.



### Course Description

Tabular models are in-memory databases in Analysis Services. They can be used by reporting client applications such as Microsoft Excel and Microsoft Power View. Tabular models support data access through two modes: Cached mode and DirectQuery mode. In cached mode, you can integrate data from multiple sources including relational databases, data feeds, and flat text files. In DirectQuery mode, you can bypass the in-memory model, allowing client applications to query data directly at the (SQL Server relational) source. Tabular models are authored in SQL Server Data Tools (SSDT) using new tabular model project templates. You can import data from multiple sources, and then enrich the model by adding relationships, calculated columns, measures, KPIs, and hierarchies. Models can then be deployed to an instance of Analysis Services where client reporting applications can connect to them. Deployed models can be managed in SQL Server Management Studio just like multidimensional models. They can also be partitioned for optimized processing and secured to the row-level by using role based security.



### Course Outline

#### A. Tabular Model-Introduction

(0.5 Days) Tabular Model Designer - Project Templates - Workspace Database - Tabular Model Projects - Data Sources - DirectQuery Mode - Using SSMS to Manage the Workspace Database

## **B. Creation of a Tabular Model**

(0.5 Days) Working with tables and columns - Filter and Sort Data - Relationships: Manually Create Relationships , Inference of Relationships, Duplicate Values and Other Errors - Change table, column, or row filter mappings - Calculations - Measures - Create and Manage KPIs (Key Performance Indicator) - Hierarchies

## **C. Advanced Modeling Techniques**

(0.25 Days) Partitions: Processing Partitions, Partitions in the Model Workspace Database, Partitions in a deployed model database - Create and Manage Perspectives

## **D. Security**

(0.25 Days) Understanding Roles - Permissions - Row Filters - Testing Roles

## **E. Reports and Deployment**

(0.5 Days) Analyze a Tabular Model in Excel - Tabular Model Solution Deployment - Deploying a Tabular Model - Deployment Properties - Deployment Methods - Configuring the Deployment Server and Connecting to a Deployed Model



## (v) Data Mining



### Overview

<b>Course ID</b>	2020998
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Bases MS SQL Server
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
10-12 Aug 05-07 Oct 30 Nov - 02 Dec	17-19 Aug 12-14 Oct 07-09 Dec	07-09 Sep 02-04 Nov 28-30 Dec

Prices plus local taxes.



### Course Description

Microsoft SQL Server Business Intelligence delivers a comprehensive platform empowering organizations to build and deploy secure, scalable, and manageable BI solutions. The Data Mining module provides new business insights, a reliable basis for forecasting and a comprehensive data-mining development environment. The Data Mining Add-ins allow you to harness the power of SQL Server predictive analytics in Excel and Visio. Use Table Analysis Tools to get insight with a couple of clicks. Use the Data Mining tab for full-lifecycle data mining, and build models which can be exported to a production server. Visualize your models in Visio. Microsoft SQL Server Analysis Services provides multiple algorithms for use in your data mining solutions. These algorithms are implementations of some of the most popular methodologies used in data mining. This training covers both the functions of the Data Mining Add-ins and the functions of SQL Server Data Tools. While getting to know the various software modules you will also get familiar with algorithms like Decision Trees, Naive Bayes, Clustering, Neural Networks, or Linear and Logistic Regression.



### Course Outline

#### A. Data Mining and MS SQL Server - Introduction

(0.5 Days) Business Intelligence and Data Mining - Usage Scenarios for Data Mining - Data Mining Techniques in Microsoft SQL Server and MS Excel - Server and Client Components: MS SQL Server Analysis Services and Data Mining Add-Ins for MS Excel and MS Visio - Data Mining Life Cycle and Tasks - Data Mining Techniques in MS SQL Server - Project Cycle (Data Collection, Processing and Cleaning of Data, Modeling, Model Evaluation, Reporting, Forecasting, Integration into Applications, Model Management and Maintenance)

## **B. Classification using Microsoft Decision Trees**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model - DMX Queries - Classification Model, Regression Model, Relationship Model

## **C. Classification using Microsoft Naive Bayes**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model - DMX Queries - Dependency Network, Attribute Profiles, Attribute Characteristics, Attribute Discrimination

## **D. Microsoft Time Series**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Auto Regression, Multiple Time Series, Seasonality, Historic Predictions, Caching Predictions - DMX Queries

## **E. Microsoft Clustering**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Clustering Types, Scalable Clustering, Predictions and Cluster Assignment - DMX Queries: Cluster, Probability, Histograms, CaseLikelihood

## **F. Microsoft Sequence Clustering**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Markov Chains, Transition Matrix, Clustering and Markov Chains, Decomposition - DMX Queries

## **G. Microsoft Association Rules**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Itemset, Support, Probability and Confidence, Interestingness and Importance - DMX Queries

## **H. Microsoft Neural Network**

(0.25 Days) Introduction to the Algorithm - Parameters - Building a Model and Using the Model: Combination and Activation, Normalization and Mapping, Topology of a Neural Network , Model Training - DMX Queries

## **I. Scripting for Data Mining**

(0.5 Days) XML/A (XML for Analysis): Generating and Using Scripts, Building, Managing and Training Data Mining Models - DMX (Data Mining Extensions): Building Data Mining Models, Managing, Training, and Querying Data Mining Models

## **J. Data Integration and Reporting Services**

(0.25 Days) Using Data Mining-Models in Integration Services – Using Data Mining Results in Reporting Services



## (vi) Integration Services (SSIS) and ETL



### Overview

<b>Course ID</b>	2020875
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Bases MS SQL Server
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
03-05 Aug 28-30 Sep 23-25 Nov	07-09 Sep 02-04 Nov 28-30 Dec	17-19 Aug 12-14 Oct 07-09 Dec

Prices plus local taxes.



### Course Description

SSIS is a platform for data integration and workflow applications. It features a fast and flexible data warehousing tool used for data extraction, transformation, and loading (ETL). The tool may also be used to automate maintenance of SQL Server databases and updates to multidimensional cube data. This training teaches you the fundamentals of SQL Server Integration Services. This practical, learn-by-doing course delivers the guidance you need to transform and consolidate data and build solutions that support your business intelligence needs. Discover how to design and execute packages that transform data between files and relational databases, configure connection managers to access other data sources, create data flows that alter, split, match, and merge data, develop event-handlers and monitor package performance or debug, troubleshoot, and optimize packages.



### Course Outline

#### A. Introduction to SQL Server Integration Services

(0.25 Days) Common SSIS Applications - SSIS Objects and Process Control Components - SSIS Process Control - SSIS Components -

#### B. Development of an Integration Services Solution

(1.25 Days) Extracting and Loading Data: Connection Managers, Using Data Sources and Data Source Views - Using Data Flow Transformations: Creating Data Flow in a Package - SSIS Transformations, Using Expressions in Packages, Using Data Flow Transformations, Configuring Error Output - Managing Control Flow - Control Flow Elements

## **C. Populating Data Warehouse Structures**

(0.5 Days) Data Warehouse Characteristics - Implementing Staging Tables - - Types of Staging Schemes - Managing Dimension Tables - Slowly Changing Dimensions - Managing Fact Tables

## **D. Debugging Packages**

(0.25 Days) Debugging Control Flow - Debugging Data Flow - Detecting and Handling Processing Errors: Basic Error Detection and Handling, Understanding Event Handlers, Creating Event Handlers, Maintaining Data Consistency with Transactions, Using Checkpoint Restarts, Using Checkpoints and Transactions

## **E. Checkpoints and Transactions**

(0.25 Days) Basic Error Detection and Handling: Understanding Event Handlers, - Creating Event Handlers - Maintaining Data Consistency with Transactions - Using Checkpoint Restarts - Using Checkpoints and Transactions

## **F. Securing, Optimizing, and Deploying SSIS Packages**

(0.5 Days) Creating a Deployment Utility: Securing a Package, Role-Based Security - Deployment Options, Creating and Applying a Configuration, Executing a Deployed Package, - Monitoring Package Execution and Event Logs - Optimizing SSIS Packages: SSIS Engine Overview, Synchronous and Asynchronous Processing, Data Blocking, Managing Parallelism, Performance Management



## (vii) Reporting Services (SSRS)



### Overview

<b>Course ID</b>	2020881
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Bases MS SQL Server
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
06-07 Aug 01-02 Oct 26-27 Nov	30-31 Jul 24-25 Sep 19-20 Nov	20-21 Aug 15-16 Oct 10-11 Dec

Prices plus local taxes.



### Course Description

SQL Server Reporting Services (SSRS) is a server-based report generation software system built in MS SQL Server. Administered via a web interface, it can be used to prepare and deliver a variety of interactive and printed reports. This training teaches you how to build, manage, and access SQL Server reports. Whether you're a report developer, IT administrator, or business user, this course shows you how to deliver the business intelligence information your organization needs. Discover how to use Report Builder and Report Designer tools, create interactive, online reports that enable users to sort and filter data, add charts and gauges to present data visually, and deploy reports securely to the Reports Server or distribute reports via subscriptions.



### Course Outline

#### A. Introduction to SQL Server Reporting Services

(0.25 Days) Reporting Life Cycle - Reporting Services Architecture - Tools: Report Designer, Report Manager and MS Visual Studio

#### B. Simple Reports

(0.5 Days) Developing a Simple Report - Managing a Report - Viewing a Report - - Adding Calculations to a Report - Using Aggregate Functions - Changing Report Item Properties by Using Expressions - Working with Variables - Using Expressions for Dynamic Connections and Datasets - Developing Expressions for Hierarchical Data

## **C. Complex Reports**

(0.75 Days) Adding Interactivity: Changing the Report Layout Interactively, - Working with Parameters, Adding Navigation Features - Using Analysis Services as a Data Source: Installing the Sample Database, Creating an Analysis Services Dataset, Designing Parameters - Visualizing Data: Creating Charts, Working with Gauges

## **D. Deploying Reports to a Server**

(0.25 Days) Reviewing Deployment Options - Managing Content - Configuring Data Source Properties - Configuring Report Execution Properties - Securing Report Server Content - Configuring Report Server Security Policies: Assigning User Permissions, Configuring Item-Level Security, Implementing Data Security - Working with Subscriptions: Creating Standard Subscriptions, Creating Data-Driven Subscriptions, Managing Subscriptions

## **E. Performing Administrative Tasks**

(0.25 Days) Using Management Tools - Configuring the Report Server - Monitoring the Report Server



## A. Oracle 11g



### (i) Data Mining



#### Overview

<b>Course ID</b>	2022768
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



#### Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 30 Nov - 02 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



#### Course Description

Oracle Data Mining (ODM) provides powerful data mining functionality as native SQL functions within the Oracle Database. Oracle Data Mining enables users to discover new insights hidden in data and to leverage investments in Oracle Database technology. With Oracle Data Mining, you can build and apply predictive models that help you target your best customers, develop detailed customer profiles, and find and prevent fraud. This training provides you with an overview of the Oracle Data Mining architecture and shows you what kind of Data Mining algorithms you can use for your data analysis. You will get to know each algorithm's principle and statistical-mathematical background before you see the algorithm being applied to DB data.



#### Course Outline

##### A. Data Mining and Oracle

(0.5 Days) Statistics, multivariate statistics and Data Mining - Data Mining cycle - Data preprocessing: Descriptive data aggregation, data cleansing, data integration and transformation - Data Reduction - Discretization and concept hierarchies - Data Mining and Business Intelligence: Databases, Data Warehouses and OLAP as the basis for Data Mining - Oracle architecture for Data Mining: database, Data Mining module and MS Excel add-in

##### B. Factors and influences

(0.5 Days) Factor Analysis and Principal Component Analysis - Outlier Analysis

### **C. Data Mining using Association analysis**

(0.25 Days) Finding frequent patterns (Frequent Itemset Mining) - Apriori algorithm - association rules and association analysis - shopping basket analysis

### **D. Data Mining and Classification**

(0.75 Days) Decision Trees: selection of attributes, tree pruning, deduction of rules, quality measures and comparison of models - Support Vector Machines: algorithms, building and using a model

### **E. Data Mining and Probability Theory**

(0.5 Days) Classification using logistic regression - Probability and Bayes' s Theorem - Naïve Bayes: algorithms, building and using a model

### **F. Cluster Analysis**

(0.5 Days) Introduction to Cluster Analysis - Similarity and distance measurement - Variants and basic techniques - Partitioning methods: k-Means Method - Hierarchical methods: agglomerative and divisive methods



## (ii) OLAP



### Overview

<b>Course ID</b>	2023677
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Presentation with examples and hands-on labs.
<b>Course level</b>	Beginning



### Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
27-28 Aug 22-23 Oct 17-18 Dec	30-31 Jul 24-25 Sep 19-20 Nov	03-04 Sep 29-30 Oct 24-25 Dec

Prices plus local taxes.



### Course Description

Oracle OLAP is a multidimensional analytic engine embedded in Oracle Database 11g. Oracle OLAP cubes deliver calculations using simple SQL queries. This query performance may be leveraged transparently when deploying OLAP cubes as materialized views – enhancing the performance of summary queries against detail relational tables. Because Oracle OLAP is embedded in Oracle Database 11g, it allows centralized management of data and business rules in a secure, scalable and enterprise-ready platform. Oracle OLAP makes it easy to produce analytic measures, including time-series calculations, financial models, forecasts, allocations, regressions, and more. Hundreds of analytic functions can be easily combined in custom functions to solve nearly any analytic calculation requirement. Oracle OLAP cubes are represented using a star schema design: dimension views form a constellation around the cube (or fact) view. This standard representation of OLAP data makes it easy for any reporting and analysis tool or application - including sophisticated business intelligence solutions, SQL-based development tools and Microsoft Excel - to leverage the power of Oracle OLAP in a simple and productive way. This training shows you how to develop Data Warehousing solutions based on Oracle.



### Course Outline

#### A. Multidimensional Data Structures and OLAP

(0.25 Days) Oracle OLAP and Oracle BI / DW Platform - Architecture of a Data Warehouse and an OLAP Solution - Elements of an OLAP Solution

## **B. OLAP Cubes and the Analytic Workspace Manager 11g (AWM 11g)**

(0.5 Days) Defining Measures and Calculations using the Calculation Builder - Loading the Data and Mapping Data to Multidimensional Structures with Dimensions and Hierarchies

## **C. SQL-Queries for Oracle OLAP Cubes**

(0.5 Days) Cube Views - Calculations and Aggregations - Filters - Joining Relational and OLAP Data

## **D. Cube-Organized Materialized Views (Cube MVs)**

(0.25 Days) Cube MV Summary Management - Defining and Using Cube MVs

## **E. OLAP Cube-Administration**

(0.5 Days) Implementing Security - Performance Optimization - Cube Maintenance and Management

## (iii) Oracle BI Discoverer / Analyzing Relational and OLAP Data



### Overview

<b>Course ID</b>	2023678
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Presentation with examples and hands-on labs.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
27-28 Aug 22-23 Oct 17-18 Dec	03-04 Sep 29-30 Oct 24-25 Dec	17-18 Sep 12-13 Nov

Prices plus local taxes.



### Course Description

Oracle Business Intelligence Discoverer is an intuitive ad-hoc query, reporting, analysis and Web publishing tool set that gives business users immediate access to information in databases. Oracle BI Discoverer enables business users at all levels of the organization to make faster and more informed business decisions. Using any standard Web browser, you have secure and immediate access to data from both relational and multidimensional data sources. The Oracle BI Spreadsheet Add-In enables end users to display and navigate Oracle OLAP data from within Excel. Users can treat the Oracle OLAP data as regular Excel data. Using a wizard-driven interface, users can select data from Oracle OLAP simply by choosing from a list of values or by creating advanced selections, such as those based on exceptions, top/bottom analysis, or hierarchies.



### Course Outline

#### A. Simple Reports

(0.75 Days) Workbook and Worksheets - Queries - Tables and Cross-Tabs - Page Elements (Header and Footer, Title, Formatting Columns, Graphics) - Sorting and Grouping of Results - Aggregations

#### B. Diagrams

(0.25 Days) Types of Diagrams - Reports and Diagrams

## **C. Complex Techniques**

(0.5 Days) Conditions and Conditional Formatting - OLAP Operations: Pivoting, Drilling, and Slicing/Dicing - Static and Dynamic Parameters - Calculations - Advanced Analysis

## **D. Administration of Reports**

(0.5 Days) Scheduling Manager - Running Reports in Batch Mode - Managing Workbooks, Publishing and Exporting Reports



## (iv) Statistics using SQL



### Overview

<b>Course ID</b>	2022764
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
10-12 Aug 05-07 Oct 30 Nov - 02 Dec	17-19 Aug 12-14 Oct 07-09 Dec	07-09 Sep 02-04 Nov 28-30 Dec

Prices plus local taxes.



### Course Description

Oracle developers, and marketing/controlling professionals who have direct access to the Oracle database using SQL or PL/SQL can perform statistical analysis for descriptive statistics and inferential statistics using SQL queries and PL/SQL procedures and PL/SQL functions. This course presents you the numerous functions that are available directly in the Oracle database by making heavy use of scripting examples. The statistical concepts of central tendency, dispersion, correlation and regression, and statistical testing for distribution tests, contingency analysis and the analysis of variance (ANOVA) are also a part of this training.



### Course Outline

#### A. Data analysis using Descriptive Statistics

(0.5 Days) Central tendency: Frequencies using COUNT, mode using STATS\_MODE, mean values ??using AVG, MEDIAN - quantiles using PERCENTILE\_CONT and PERCENTILE\_DISC - Measures of dispersion: range using MIN and MAX, standard deviation using STDDEV, STDDEV\_POP and STDDEV\_SAMP, variance using VAR\_POP, VAR\_SAMP and VARIANCE - Rank and distribution using CUME\_DIST, DENSE\_RANK, RANK, and PERCENT\_RANK

#### B. Correlation analysis

(0.25 Days) Covariance using COVAR\_POP and COVAR\_SAMP - correlation using CORR (Bravais-Pearson) - rank correlation using CORR\_S (Spearman's rho) and CORR\_K (Kendall's tau)

## C. Regression analysis

(0.25 Days) Linear regression and the least squares method - linear equation derived using REGR\_SLOPE and REGR\_INTERCEPT - coefficient of determination using REGR\_R2 - averages using REGR\_AVGX and REGR\_AVGY - model check using REGR\_COUNT, REGR\_SXX, REGR\_SYY and REGR\_SXY - prediction and residual analysis

## D. Contingency

(0.25 Days) contingency and categorical variables - Chi-Square test using CHISQ\_OBS and CHISQ\_DF - significance using CHISQ\_SIG - Contingency: Phi Coefficient using PHI\_COEFFICIENT, Cramer's V using CRAMERS\_V, Contingency Coefficient using CONT\_COEFFICIENT and Cohen's Kappa using COHENS\_K

## E. Statistical Tests

(0.75 Days) Overview of probability theory - introduction to test theory - t-test using STATS\_T\_TEST\_ONE (one sample), STATS\_T\_TEST\_PAISED (two samples), STATS\_T\_TEST\_INDEP (two independent samples) and STATS\_T\_TEST\_INDEPU (two independent samples with unequal variance) - variance comparison using STATS\_F\_TEST - distribution tests using STATS\_BINOMIAL\_TEST - Mann-Whitney test using STATS\_MW\_TEST - Kolmogorov-Smirnov function using STATS\_KS\_TEST - Wilcoxon signed ranks using STATS\_WSR\_TEST

## F. Analysis of Variance (ANOVA)

(0.5 Days) Analysis of Variance - ANOVA performed using STATS\_ONE\_WAY\_ANOVA: Sum of Squares using SUM\_SQUARES\_BETEEN and SUM\_SQUARES\_WITHIN, mean squares using MEAN\_SQUARES\_BETWEEN and MEAN\_SQUARES\_WITHIN, F-value using F\_RATIO and significance using SIG

## G. Time series analysis and trend

(0.5 Days) Fundamentals of time series analysis: Components, stationarity, autocorrelation, autocovariance, periodicity - Smoothing: moving average, exponential smoothing - Trend calculations using linear regression - seasonal decomposition and residual analysis



## A. Oracle 12c



### (i) Data Mining



#### Overview

<b>Course ID</b>	2023687
<b>Language</b>	en
<b>Duration</b>	3 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Lecture with examples and exercises.
<b>Course level</b>	Advanced



#### Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
31 Aug - 02 Sep 26-28 Oct 21-23 Dec	24-26 Aug 19-21 Oct 14-16 Dec	14-16 Sep 09-11 Nov

Prices plus local taxes.



#### Course Description

Oracle Data Mining (ODM) provides powerful data mining functionality as native SQL functions within the Oracle Database. Oracle Data Mining enables users to discover new insights hidden in data and to leverage investments in Oracle Database technology. With Oracle Data Mining, you can build and apply predictive models that help you target your best customers, develop detailed customer profiles, and find and prevent fraud. This training provides you with an overview of the Oracle Data Mining architecture and shows you what kind of Data Mining algorithms you can use for your data analysis. You will get to know each algorithm’s principle and statistical-mathematical background before you see the algorithm being applied to DB data.



#### Course Outline

##### A. Data Mining and Oracle

(0.5 Days) Statistics, multivariate statistics and Data Mining - Data Mining cycle - Data preprocessing: Descriptive data aggregation, data cleansing, data integration and transformation - Data Reduction - Discretization and concept hierarchies - Data Mining and Business Intelligence: Databases, Data Warehouses and OLAP as the basis for Data Mining - Oracle architecture for Data Mining: database, Data Mining module and MS Excel add-in

##### B. Factors and influences

(0.5 Days) Factor Analysis and Principal Component Analysis - Outlier Analysis

### **C. Data Mining using Association analysis**

(0.25 Days) Finding frequent patterns (Frequent Itemset Mining) - Apriori algorithm - association rules and association analysis - shopping basket analysis

### **D. Data Mining and Classification**

(0.75 Days) Decision Trees: selection of attributes, tree pruning, deduction of rules, quality measures and comparison of models - Support Vector Machines: algorithms, building and using a model

### **E. Data Mining and Probability Theory**

(0.5 Days) Classification using logistic regression - Probability and Bayes' s Theorem - Naïve Bayes: algorithms, building and using a model

### **F. Cluster Analysis**

(0.5 Days) Introduction to Cluster Analysis - Similarity and distance measurement - Variants and basic techniques - Partitioning methods: k-Means Method - Hierarchical methods: agglomerative and divisive methods

## (ii) Oracle BI Discoverer / Analyzing Relational and OLAP Data



### Overview

<b>Course ID</b>	2020494
<b>Language</b>	en
<b>Duration</b>	2 D ys
<b>Delivery mode</b>	Classroom
<b>Course Type</b>	
<b>Target Group</b>	Business Intelligence Developer
<b>Prerequisites</b>	Oracle SQL, PL / SQL
<b>Method</b>	Presentation with examples and hands-on labs.
<b>Course level</b>	Advanced



### Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
06-07 Aug 01-02 Oct 26-27 Nov	30-31 Jul 24-25 Sep 19-20 Nov	20-21 Aug 15-16 Oct 10-11 Dec

Prices plus local taxes.



### Course Description

Oracle Business Intelligence Discoverer is an intuitive ad-hoc query, reporting, analysis and Web publishing tool set that gives business users immediate access to information in databases. Oracle BI Discoverer enables business users at all levels of the organization to make faster and more informed business decisions. Using any standard Web browser, you have secure and immediate access to data from both relational and multidimensional data sources. The Oracle BI Spreadsheet Add-In enables end users to display and navigate Oracle OLAP data from within Excel. Users can treat the Oracle OLAP data as regular Excel data. Using a wizard-driven interface, users can select data from Oracle OLAP simply by choosing from a list of values or by creating advanced selections, such as those based on exceptions, top/bottom analysis, or hierarchies.



### Course Outline

#### A. Simple Reports

(0.75 Days) Workbook and Worksheets - Queries - Tables and Cross-Tabs - Page Elements (Header and Footer, Title, Formatting Columns, Graphics) - Sorting and Grouping of Results - Aggregations

#### B. Diagrams

(0.25 Days) Types of Diagrams - Reports and Diagrams

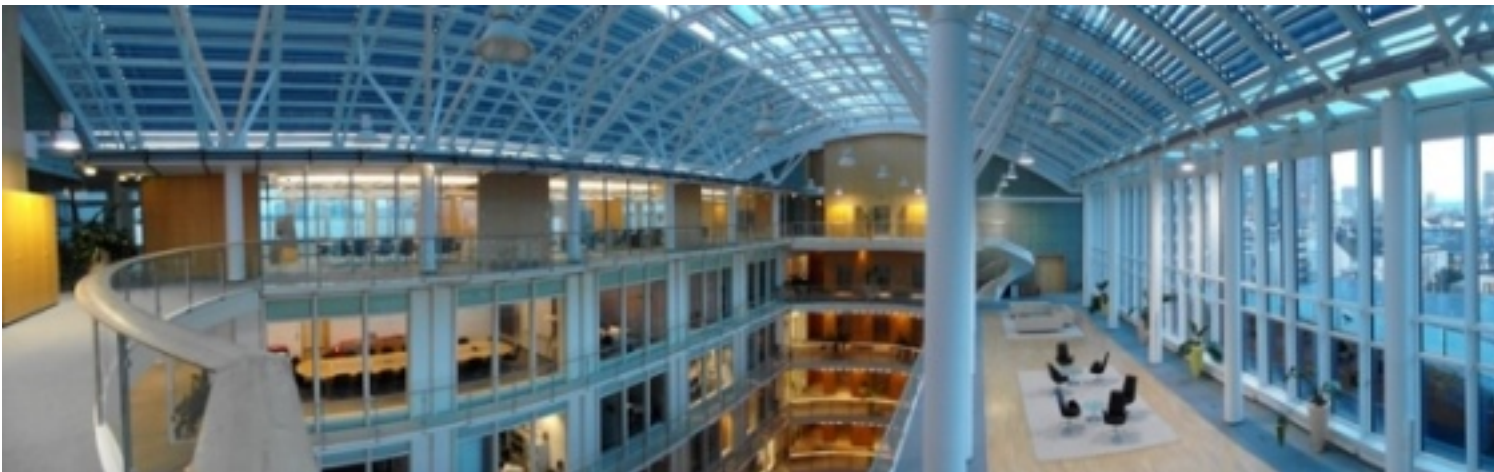
## **C. Complex Techniques**

(0.5 Days) Conditions and Conditional Formatting - OLAP Operations: Pivoting, Drilling, and Slicing/Dicing - Static and Dynamic Parameters - Calculations - Advanced Analysis

## **D. Administration of Reports**

(0.5 Days) Scheduling Manager - Running Reports in Batch Mode - Managing Workbooks, Publishing and Exporting Reports

## b. Disclaimer



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