

Prerequisites

Participants should have a basic understanding of database systems.

AMBROSE KING COMPANY



Course Duration: 4-days

Course Overview

Large corporations and government entities need a data warehouse to store the key information that is used to make data-driven decisions. Nearly every Fortune 500 corporation is either planning to build a data warehouse or is currently in the process of building one. However, many data warehouse projects fail because building a data warehouse is a difficult task that requires a combination of business sponsorship and solid database systems expertise. This course will provide a foundation for that expertise.

Once a warehouse is built, data mining techniques are frequently employed to identify trends in the warehouse that may not be readily apparent. Although many of these techniques have been known for 30 to 40 years, they have only recently been used as a business tool for applications (like identifying credit card fraud or tracking customer preferences). This course provides a thorough practical coverage of the techniques used to build a warehouse including requirements definitions, extract-transformation-loads of data, query applications and executive information systems. Additionally, data mining algorithms and techniques that identify expected and unexpected trends in data stored in a warehouse will be covered. This course provides hands-on experience with data migration tools, data design tools, and data mining tools.

Key Benefits

You will learn how to:

- Design, implement and use a data warehouse.
- Use data mining tools analyze and identify patterns in data.
- Perform extract-transformation-loads of data.
- Query a data warehouse to retrieve useful information.
- Migrate data from existing databases to a data warehouse.
- Use OLAP services to analyze data.
- Interact with MS-SQL 7.0 Server

Course Content

Intro to Data Warehousing and Data Mining

- Data Warehousing Introduction
- Engineering Conflicts
- OLTP and DSS
- Stovepipe versus Integration
- Data Warehouse Solution
- Enterprise Information System
- Security in a Data Warehouse
- Moving to a Data Warehouse
- Data Marts
- Data Mining

SQL Review

- Introduction to SQL
- Data Definition Language (DDL)

More Ways to Move Data to the Warehouse

- Determining What Data Has Changed
- Recovery Logs
- Triggers
- Insert Triggers
- Delete Triggers
- Update Triggers
- Manual Detection

Data Warehouse Design

- Overview
- Describing a Design-ER Diagrams
- Design Normalization
- Star Schema Design

- Data Manipulation Language (DML)
- SELECT Construct
- SELECT Operators
- Wildcard Searches
- Aggregate Operators
- Calculated Attributes
- Sorting Results

More SQL

- GROUP BY Construct
- HAVING Filter
- Multiple Tables
- Joins
- Equijoins
- Cartesian Product
- Nulls
- OUTER JOIN

Advanced SQL

- Finding the nth element in a list
- Finding the median
- Correlated subquery
- Data Definition Language Constructs

Data Warehouse Security

- Key Security Services
- Views
- Access Control
- Roles
- Encryption
- Audit Trails
- Security Holes
- Intrusion Detection
- Misuse Detection

Moving Data to the Data Warehouse

- Updating the Data Warehouse
- Full Refresh
- Copy Only the Changes
- BCP
- Simple Transformations
- Complex Transformations
- Commercial ETL Tools
- MS SQL Data Transformation Services

On-Line Analytical Processing

- What is OLAP?
- Why do people use OLAP?
- Using OLAP Tools
- Implementing OLAP (ROLAP< MOLAP, HOLAP)
- MS OLAP Services-Example

Data Mining

- What is Data Mining?
- Uses for Data mining
- Training Data vs. Test Data
- Decision Trees
- Pruning the Tree
- Neural Networks
- K-Nearest Neighbor
- Clustering

Building a Data Warehouse

- Top Down Approaches
- Enterprise Data Model Approach
- "Let Data Users Decide"
- "Let Data Warehouse Builders Decide"
- Bottom Up Approach

User Interface to the Data Warehouse

- Types of Users
- Functions Users Want to Do
- Approaches to Building a User Interface
- Hand Built
- Class Libraries
- OLAP Tools
- Types of User Interfaces