CIW v5 Database Specialist Series



Database Design Methodology

Database Design Methodology teaches students how to plan and design relational databases. You will learn about the theory behind relational databases, relational database nomenclature, and relational algebra. The course includes sections on Structured Query Language (SQL) and optimizing databases through normalization. You will apply your knowledge with hands-on labs designed to teach the intricacies of database design methodology.

Topics

Introduction to Databases

Introduction to Databases
What Is a Database?
File-Based Databases
The Evolution of Databases
Relational Databases and Database
Management Systems (DBMSs)
Origins of Relational Databases

Relational Database Fundamentals

Introduction to Relational Databases Multitier Database Architecture Relational Model Terminology Using Tables to Represent Data Characteristics of Relations Data Models Entities and Data Relationships Relational Integrity Database Languages Data Dictionaries

Database Planning

Introduction to Database Planning Database Design Life Cycle Database Requirements Document ProAudio Case Study Selecting a DBMS Selecting an Application Interface

Overview of Database Design Methodology

Introduction to Database Design Methodology Effects of Poor Database Design Practices Database Design Phases Conceptual Database Design Entity-Relationship (ER) Models

Normalization

Introduction to Normalization What Is Normalization? Normal Forms First Normal Form Second Normal Form Third Normal Form Boyce-Codd Normal Form (BCNF)

Logical Database Design

Introduction to Logical Database
Design
Logical Database Design
Creating a Logical Data Model
Using a Database Definition
Language
Validating the Logical Data Model
Defining Integrity Constraints
Creating an Enterprise Data Model

Physical Database Design

Introduction to Physical Database Design Physical Database Design MySQL Query Browser Creating Enterprise Constraints Using Secondary Indexes Denormalization Creating User Views Designing Database Access Rules

Structured Query Language

Introduction to Structured Query Language SQL Basics Data Definition Language Data Manipulation Language Retrieving Data from Relations Data Control Language

Relational Algebra

Introduction to Relational Algebra
Defining Relational Algebra
Selection
Projection
Cartesian Product
Union
Difference
Intersection
Joins

Transactions and Database Security

Introduction to Database
Transactions and Security
Transactions
Concurrency Control
Database Security

Target Audience

Application developers, programmers, enterprise developers, Web developers, and database developers.

Course Length

Database Design Methodology is an eighteen-hour course.

Prerequisites

It is recommended that students have a basic knowledge of the purpose and function of a database. Also, students should be familiar with an operating system such as Microsoft Windows XP before taking this course. The CIW v5 *Database Design Methodology* courseware does not provide entry-level computer literacy.