

## Introduction To Object Relational Database Development

Inside the Database Object Model shows how objects are added to commercial database systems, outlining why object-oriented development is best suited for dynamic, interactive environments, and explores how object technology is being incorporated into database management systems. The book reflects the revolutionary change in database architecture, providing readers with plenty of usable code and other illustrative material.

Discover why object-relational technology is ideal for supporting a broad spectrum of data types and application areas, from financial services to multimedia data. In this completely revised and updated edition, database experts Michael Stonebraker and Paul Brown explore the object-relational paradigm and examine the most recent developments in the field.

Specifically written for database application programmers, database analysts, and IT managers, this book includes detailed information on how to classify DBMS applications, where object-relational DBMSs fit in the database world, and what mechanisms are required to support such an engine. \* Offers completely updated and expanded information" new and revised material discusses both the latest technology and the latest products. \* Presents a simple matrix for classifying and evaluating DBMSs so that you can make informed judgments about object-relational systems. \* Includes examples, tables, and tests to help you judge the quality and optimization of systems now on the market.

This is the second edition of the popular practitioner's guide to SQL, the industry-standard database query language. Like most computer languages, SQL can be overwhelming when you first see it, but for years readers have relied on this book to clear the confusion and explain

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how SQL works and how to use it effectively. Packed with tips, tricks, and good information, SQL Clearly Explained, Second Edition teaches database users and programmers everything they need to know to get their job done including · formulating SQL queries, · understanding how queries are processed by the DBMS, · maximizing performance, · using SQL to enter, modify, or delete data, · creating and maintaining database structural elements, and · embedding SQL in applications. Features · Updated and expanded to include changes in the SQL standard (SQL:1999) as well as recently implemented aspects of SQL-92. · Includes CD with examples from the book as well as MySQL, a popular open-source DBMS, on which the examples are based. · Web enhanced with extra features available online at [www.mkp.com](http://www.mkp.com). \* Second edition of classic SQL handbook \* Updated to cover changes in the SQL language standard (SQL:1999) \* Includes CD with MySQL software

Craft the Right Design Using UML Whether building a relational, object-relational, or object-oriented database, database developers are increasingly relying on an object-oriented design approach as the best way to meet user needs and performance criteria. This book teaches you how to use the Unified Modeling Language-the official standard of the Object Management Group-to develop and implement the best possible design for your database. Inside, the author leads you step by step through the design process, from requirements analysis to schema generation. You'll learn to express stakeholder needs in UML use cases and actor diagrams, to translate UML entities into database components, and to transform the resulting design into relational, object-relational, and object-oriented schemas for all major DBMS products. Features Teaches you everything you need to know to design, build, and test databases using an OO model. Shows you how to use UML, the accepted standard for database design

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according to OO principles. Explains how to transform your design into a conceptual schema for relational, object-relational, and object-oriented DBMSs. Offers practical examples of design for Oracle, SQL Server, Sybase, Informix, Object Design, POET, and other database management systems. Focuses heavily on re-using design patterns for maximum productivity and teaches you how to certify completed designs for re-use.

The authors have revised and updated this bestseller to include both the Oracle8i and new Oracle9i Internet-savvy database products.

This book provides comprehensive coverage of fundamentals of database management system. It contains a detailed description on Relational Database Management System Concepts. There are a variety of solved examples and review questions with solutions. This book is for those who require a better understanding of relational data modeling, its purpose, its nature, and the standards used in creating relational data model.

You'll learn how to identify the best applications for OODBMS systems, understand the hardware requirements, and manage the technical tradeoffs. Object Databases in Practice presents insightful coverage of all five critical aspects of OODBMS deployment: architecture, application design, product selection, migration, and performance optimization.

This monograph presents the fundamentals of object databases, with a specific focus on conceptual modeling of object database designs. After an introduction to the fundamental concepts of object-oriented data, the monograph provides a review of object-oriented conceptual modeling techniques using side-by-side Enhanced Entity Relationship diagrams and Unified Modeling Language conceptual class diagrams that feature class hierarchies with specialization constraints and object associations. These object-oriented conceptual models

provide the basis for introducing case studies that illustrate the use of object features within the design of object-oriented and object-relational databases. For the object-oriented database perspective, the Object Data Management Group data definition language provides a portable, language-independent specification of an object schema, together with an SQL-like object query language. LINQ (Language INtegrated Query) is presented as a case study of an object query language together with its use in the db4o open-source object-oriented database. For the object-relational perspective, the object-relational features of the SQL standard are presented together with an accompanying case study of the object-relational features of Oracle. For completeness of coverage, an appendix provides a mapping of object-oriented conceptual designs to the relational model and its associated constraints."--P. [4] of cover.

Introduction to Object-Oriented Databases provides the first unified and coherent presentation of the essential concepts and techniques of object-oriented databases. It consolidates the results of research and development in the semantics and implementation of a full spectrum of database facilities for object-oriented systems, including data model, query, authorization, schema evolution, storage structures, query optimization, transaction management, versions, composite objects, and integration of a programming language and a database system. The book draws on the author's Orion project at MCC, currently the most advanced object-oriented database system, and places this work in a larger context by using relational database systems and other object-oriented systems for comparison. Won Kim is Director of the Object-Oriented and Distributed Systems Laboratory at Microelectronics and Computer Technology

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Corporation (MCC) in Austin, Texas. Contents: Introduction. Data Model. Basic Interface. Relationships with Non-Object-Oriented Databases. Schema Modification. Model of Queries. Query Language. Authorization. Storage Structures. Query Processing. Transaction Management. Semantic Extensions. Integrating Object-Oriented Programming and Databases. Architecture. Survey of Object-Oriented Database Systems. Directions for Future Research and Development.

Presents an overview of how to use object-oriented (OO) technology to improve existing relational databases.

Summary Entity Framework Core in Action teaches you how to access and update relational data from .NET applications. Following the crystal-clear explanations, real-world examples, and around 100 diagrams, you'll discover time-saving patterns and best practices for security, performance tuning, and unit testing. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology There's a mismatch in the way OO programs and relational databases represent data. Entity Framework is an object-relational mapper (ORM) that bridges this gap, making it radically easier to query and write to databases from a .NET application. EF creates a data model that matches the structure of your OO code so you can query and write to your database using standard LINQ commands. It will even automatically generate the model from your database schema. About the Book Using crystal-clear explanations, real-world examples, and around 100

diagrams, Entity Framework Core in Action teaches you how to access and update relational data from .NET applications. You'll start with a clear breakdown of Entity Framework, long with the mental model behind ORM. Then you'll discover time-saving patterns and best practices for security, performance tuning, and even unit testing. As you go, you'll address common data access challenges and learn how to handle them with Entity Framework. What's Inside Querying a relational database with LINQ Using EF Core in business logic Integrating EF with existing C# applications Applying domain-driven design to EF Core Getting the best performance out of EF Core Covers EF Core 2.0 and 2.1 About the Reader For .NET developers with some awareness of how relational databases work. About the Author Jon P Smith is a full-stack developer with special focus on .NET Core and Azure. Table of Contents Part 1 - Getting started Introduction to Entity FrameworkCore Querying the database Changing the database content Using EF Core in business logic Using EF Core in ASP.NET Core web applications Part 2 - Entity Framework in depth Configuring nonrelational properties Configuring relationships Configuring advanced features and handling concurrency conflicts Going deeper into the DbContext Part 3 - Using Entity Framework Core in real-world applications Useful software patterns for EF Core applications Handling database migrations EF Core performance tuning A worked example of performance tuning Different database types and EF Core services Unit testing EF Core applications Appendix A - A brief introduction to LINQ Appendix B - Early information on EF Core

version 2.1

This new book refines, customizes, and extends the general Object Modeling Technique (OMT) methodology for the specific subject matter of database applications. By restricting the scope of coverage, the authors are able to present more focused examples and elaborate upon the appropriate methodological steps. The authors present a uniform treatment that addresses files, relational databases, and object-oriented databases.

Modern businesses depend on data for their very survival, creating a need for sophisticated databases and database technologies to help store, organise and transport their valuable data. This updated and expanded, easy-to-read textbook/reference presents a comprehensive introduction to databases, opening with a concise history of databases and of data as an organisational asset. As relational database management systems are no longer the only database solution, the book takes a wider view of database technology, encompassing big data, NoSQL, object and object-relational, and in-memory databases. Presenting both theoretical and practical elements, the new edition also examines the issues of scalability, availability, performance and security encountered when building and running a database in the real world. Topics and features: Presents review and discussion questions at the end of each chapter, in addition to skill-building, hands-on exercises Provides new material on database adaptiveness, integration, and efficiency in relation to data growth Introduces

a range of commercial databases and encourages the reader to experiment with these in an associated learning environment Reviews use of a variety of databases in business environments, including numerous examples Discusses areas for further research within this fast-moving domain With its learning-by-doing approach, supported by both theoretical and practical examples, this clearly-structured textbook will be of great value to advanced undergraduate and postgraduate students of computer science, software engineering, and information technology. Practising database professionals and application developers will also find the book an ideal reference that addresses today's business needs. Konstantinos Domdouzis is senior lecturer in the Communication and Computing Research Centre at Sheffield Hallam University, UK. Peter Lake (now retired) was formerly course leader for the Oracle IT&M MSc and the IT Professional MSc at Sheffield Hallam University. Paul Crowther (now retired) was formerly head of postgraduatetaught programmes in the Faculty of Arts, Computing, Engineering and Sciences at Sheffield Hallam University.

Fully revised and updated, *Relational Database Design, Second Edition* is the most lucid and effective introduction to relational database design available. Here, you'll find the conceptual and practical information you need to develop a design that ensures data accuracy and user satisfaction while optimizing performance, regardless of your experience level or choice of DBMS. Supporting the book's step-by-step instruction are three case studies illustrating the planning, analysis, and design steps involved in

arriving at a sound design. These real-world examples include object-relational design techniques, which are addressed in greater detail in a new chapter devoted entirely to this timely subject. \* Concepts you need to master to put the book's practical instruction to work. \* Methods for tailoring your design to the environment in which the database will run and the uses to which it will be put. \* Design approaches that ensure data accuracy and consistency. \* Examples of how design can inhibit or boost database application performance. \* Object-relational design techniques, benefits, and examples. \* Instructions on how to choose and use a normalization technique. \* Guidelines for understanding and applying Codd's rules. \* Tools to implement a relational design using SQL. \* Techniques for using CASE tools for database design.

Fully revised, updated, and expanded, *Relational Database Design and Implementation, Third Edition* is the most lucid and effective introduction to the subject available for IT/IS professionals interested in honing their skills in database design, implementation, and administration. This book provides the conceptual and practical information necessary to develop a design and management scheme that ensures data accuracy and user satisfaction while optimizing performance, regardless of experience level or choice of DBMS. The book begins by reviewing basic concepts of databases and database design, then briefly reviews the SQL one would use to create databases. Topics such as the relational data model, normalization, data entities and Codd's Rules (and why they are important) are covered clearly and concisely but without resorting to

"Dummies"-style talking down to the reader. Supporting the book's step-by-step instruction are three NEW case studies illustrating database planning, analysis, design, and management practices. In addition to these real-world examples, which include object-relational design techniques, an entirely NEW section consisting of three chapters is devoted to database implementation and management issues. \* Principles needed to understand the basis of good relational database design and implementation practices. \* Examples to illustrate core concepts for enhanced comprehension and to put the book's practical instruction to work. \* Methods for tailoring DB design to the environment in which the database will run and the uses to which it will be put. \* Design approaches that ensure data accuracy and consistency. \* Examples of how design can inhibit or boost database application performance. \* Object-relational design techniques, benefits, and examples. \* Instructions on how to choose and use a normalization technique. \* Guidelines for understanding and applying Codd's rules. \* Tools to implement a relational design using SQL. \* Techniques for using CASE tools for database design.

Written by ODGM's C++ representative, this pragmatic guidebook is the first comprehensive introduction to programming object-oriented databases with OQL. It offers comparisons with SQL, with which readers are already familiar, as a bridge to understanding OQL and as a means of contrasting object-oriented versus relational database development.

Information Modeling and Relational Databases provides an introduction to ORM (Object Role Modeling)-and much more. In fact, it's the only book to go beyond introductory coverage and provide all of the in-depth instruction you need to transform knowledge from domain experts into a sound database design. Inside, ORM authority Terry Halpin blends conceptual information with practical instruction that will let you begin using ORM effectively as soon as possible. Supported by examples, exercises, and useful background information, his step-by-step approach teaches you to develop a natural-language-based ORM model and then, where needed, abstract ER and UML models from it. This book will quickly make you proficient in the modeling technique that is proving vital to the development of accurate and efficient databases that best meet real business objectives. The most in-depth coverage of Object Role Modeling available anywhere-written by a pioneer in the development of ORM. Provides additional coverage of Entity Relationship (ER) modeling and the Unified Modeling Language-all from an ORM perspective. Intended for anyone with a stake in the accuracy and efficacy of databases: systems analysts, information modelers, database designers and administrators, instructors, managers, and programmers. Explains and illustrates required concepts from mathematics and set theory.

This title is now out of print This revised introduction to object-oriented and extended relational database systems incorporates significant developments in the field since the first edition was published. As before, the book objectively examines the nature and benefits of these systems, compares them with conventional systems, and shows the range of applications they now make possible. With database technology and its uses developing so rapidly, it is not surprising that additional and updated information is required just two years after the book's initial and well-received publication. A key motivation for this revision is the need for database designers and users to understand important developments in object data management standards. When this book was first published, the lack of standards was a critical obstacle to widespread acceptance of the technology. In response to the advances made on the ODMG-93 standard (by a committee chaired by the author), as well as the SQL3 standard, a chapter has been added to the book that describes the new standards and explains their significance. One of the most significant features of the first edition was an appendix covering available products and prototypes. This appendix, expanded and updated here, offers an excellent single resource for people needing to know what systems are currently available. Major systems are now covered more extensively. The author has taken the opportunity to make improvements

throughout the book. Recent work in a number of areas is described. New figures and examples have been created, and the notation in the data schema figures has been enhanced. The annotated bibliography has been expanded. Additions and clarifications appear in every chapter. Since initial publication, a number of books has appeared with "object-oriented databases" in the title. Cattell's work, however, remains the most thorough and most balanced coverage of the new technology, and it is now the most current, as well. His book discusses a much wider range of database approaches, including extended relational systems and object-oriented systems. It also provides deeper insight into the implementation and architecture of these systems. Any database system user interested in the latest technologies, particularly users with large amounts of complex data to manage, as well as students, designers, and implementors of such systems, will find this book packed with useful information. 0201547481B04062001

Fundamentals of Object Databases Object-Oriented and Object-Relational Design Morgan & Claypool Publishers

Object-oriented database management systems are growing in popularity, thanks to changing corporate needs and the emergence of several viable products. However, while most database professionals have had at least some exposure to the basic concepts of object-oriented programming, information relating

specifically to object-oriented databases has remained hard to come by. Object-Oriented Database Design Clearly Explained remedies this, providing developers and administrators with a ground-up understanding of the logical design of object-oriented databases. Focusing on the principles of the object paradigm while noting the particularities of specific products, this book will give readers the know-how required to produce effective designs in any environment. Key Features \*

- \* Equips the reader with a sound understanding of the object paradigm and all key concepts, illustrating its points with three in-depth case
- \* Presents product- and platform-neutral guidelines and advice, teaching readers the underlying object-oriented design principles they will need to apply regardless of the specific technology adopted
- \* Details today's OODBMS standards and the variety of approaches taken by current products
- \* Serves as a companion volume to Relational Database Design Clearly Explained, providing parallel examples that help to clarify relational and object-oriented data models

Addressing important extensions of the relational database model, including deductive, temporal, and object-oriented databases, this book provides an overview of database modeling with the Entity-Relationship (ER) model and the relational model. The book focuses on the primary achievements in relational database theory, including query languages, integrity constraints, database

design, computable queries, and concurrency control. This reference will shed light on the ideas underlying relational database systems and the problems that confront database designers and researchers.

This book explains how to model a problem domain by abstracting objects, attributes, and relationships from observations of the real world. It provides a wealth of examples, guidelines, and suggestions based on the authors' extensive experience in both real time and commercial software development. This book describes the first of three steps in the method of Object-Oriented Analysis.

Subsequent steps are described in *Object Lifecycles* by the same authors.

This book aims to give experienced .NET developers a thorough grounding in Object Relational Mapping methodologies and show how LINQ can be used to achieve them. It provides detailed A-Z coverage of the key concepts and ideas in a clear, easy to follow, manner. The book is split into two parts. The first provides a detailed explanation of the key concepts and technologies, while the second brings them to life in a detailed fictional case study using an architecture that can be easily adapted to a wide range of reader's circumstances.

Essential SQLAlchemy introduces a high-level open-source code library that makes it easier for Python programmers to access relational databases such as Oracle, DB2, MySQL, PostgreSQL, and SQLite. SQLAlchemy has become

increasingly popular since its release, but it still lacks good offline documentation. This practical book fills the gap, and because a developer wrote it, you get an objective look at SQLAlchemy's tools rather than an advocate's description of all the "cool" features. SQLAlchemy includes both a database server-independent SQL expression language and an object-relational mapper (ORM) that lets you map "plain old Python objects" (POPOs) to database tables without substantially changing your existing Python code. Essential SQLAlchemy demonstrates how to use the library to create a simple database application, walks you through simple queries, and explains how to use SQLAlchemy to connect to multiple databases simultaneously with the same Metadata. You also learn how to:

- Create custom types to be used in your schema, and when it's useful to use custom rather than built-in types
- Run queries, updates, and deletes with SQLAlchemy's SQL expression language
- Build an object mapper with SQLAlchemy, and understand the differences between this and active record patterns used in other ORMs
- Create objects, save them to a session, and flush them to the database
- Use SQLAlchemy to model object oriented inheritance
- Provide a declarative, active record pattern for use with SQLAlchemy using the Elixir extension
- Use the SQLSoup extension to provide an automatic metadata and object model based on database reflection

In addition, you'll learn how and

when to use other extensions to SQLAlchemy, including AssociationProxy, OrderingList, and more. Essential SQLAlchemy is the much-needed guide for every Python developer using this code library. Instead of a feature-by-feature documentation, this book takes an "essentials" approach that gives you exactly what you need to become productive with SQLAlchemy right away.

Arguably the most capable of all the open source databases, PostgreSQL is an object-relational database management system first developed in 1977 by the University of California at Berkeley. In spite of its long history, this robust database suffers from a lack of easy-to-use documentation. Practical PostgreSQL fills that void with a fast-paced guide to installation, configuration, and usage. This comprehensive new volume shows you how to compile PostgreSQL from source, create a database, and configure PostgreSQL to accept client-server connections. It also covers the many advanced features, such as transactions, versioning, replication, and referential integrity that enable developers and DBAs to use PostgreSQL for serious business applications. The thorough introduction to PostgreSQL's PL/pgSQL programming language explains how you can use this very useful but under-documented feature to develop stored procedures and triggers. The book includes a complete command reference, and database administrators will appreciate the chapters on user management, database maintenance, and backup & recovery. With Practical PostgreSQL, you will discover quickly why this open source database is such a great open source alternative to proprietary products from Oracle, IBM, and Microsoft.

The ultimate guide to designing with Oracle8's Object-Relational Model. The authors show

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users how to implement the concepts in the real world--teaching how to fully exploit the Object-oriented capabilities of Oracle8. They cover the often neglected areas of database design system requirements, like changes to records, data entry errors, and basic transaction history--all key topics that every database designer must address.

Sperko focuses on the overall problem of how to store the primary component of any Java application, the Java object, in the most common business tool: the relational database.

ODMG is a widely accepted standard for object database modelling; every year more companies implement it. ODMG 3.0 integrates programming languages with databases and ensures the portability of applications across platforms and DBMS products

Introduces Java Data Objects and its capabilities, explains how to make classes persistent, how to configure JDO, how to make queries, how to perform transactions, and its use in Web applications and J2EE environments.

An easy-to-read, concise introduction to the technology, written for IT management and database professionals, especially those who have interest in introducing object-relational technology and universal databases into the company.

Nowadays, newly developed software is often already obsolete by the time it is introduced. The object-oriented concept provides a solution to this "crisis," by allowing objects to be used in a wide range of programs. Object-oriented applications development with databases places special demands on the DBMS and the development environment. This book provides a detailed description of the object model of the Cach post-relational database. In addition, the reader is guided step-by-step through the development of a post-relational application. The accompanying CD-ROM contains the associated Windows software.

Discover the fundamental concepts of object-relational mapping (ORM) design, Aurelius' basic features, and the practical applications of those features. In a series of tasks, you will be exposed to techniques and best practices that make the use of Aurelius easy and efficient. Furthermore, you'll refine your analytical skills to sharpen your understanding of Delphi (Pascal), helping you write better code along the way. Introducing Delphi ORM explains that while database design is difficult, database programming (i.e., manipulating, extracting, filtering, and manipulating data) is even more difficult. ORM frameworks provide a simpler way for you to access and manage data in databases. You'll see how they offer different levels of abstraction and tools to code data access in a database-agnostic way by introducing a layer between the application and the data access language (SQL, LINQ, and so on). By the end of the book, you will be confident in using a wide range of Aurelius features to allow you to get started with databases in a very short space of time.

**What You Will Learn**

- Gain the fundamentals of ORM frameworks and Aurelius for Delphi
- Achieve basic tasks, such as connecting to the database and adding, deleting, and updating records, using Aurelius
- Employ advanced database queries
- Use the `TAureliusDataSet` component
- Integrate with mobile platforms such as Android and iOS
- Work with the data modeler application

**Who This Book Is For**

Software developers starting with Aurelius or those who have some exposure to the framework.

Take a tour with leading researchers and developers for a practical look at object databases. Whether you currently work with or are thinking of moving to object databases, Chaudhri and Zicari provide a collection of real-world case studies and

examples that demonstrate how some of the world's leading companies and research institutions are leveraging Java, XML, and Object Relational Systems to build robust databases. Starting with a comprehensive introduction to object and object-relational databases, the book then offers detailed discussions on some of the latest topics in the field such as JDBC and SQLJ support in relational databases and database modeling using UML. You'll also learn about object-to-relational mapping tools, architectural issues that influence performance, and the issues of complexity and scale. How popular tools from Computer Associates, eXcelon, GemStone, Objectivity, Oracle, Versant, and Poet were used in the case studies is also discussed. The companion Web site at [www.wiley.com/compbooks/chaudhri](http://www.wiley.com/compbooks/chaudhri) includes links to object-oriented database software applications and additional resources. Visit our Web site at [www.wiley.com/compbooks/](http://www.wiley.com/compbooks/) Visit the companion Web site at [www.wiley.com/compbooks/chaudhri](http://www.wiley.com/compbooks/chaudhri)

This easy-to-read textbook/reference presents a comprehensive introduction to databases, opening with a concise history of databases and of data as an organisational asset. As relational database management systems are no longer the only database solution, the book takes a wider view of database technology, encompassing big data, NoSQL, object and object-relational and in-memory databases. The text also examines the issues of scalability, availability, performance and security encountered when building and running a database in the real world. Topics and

features: presents review and discussion questions at the end of each chapter, in addition to skill-building, hands-on exercises; introduces the fundamental concepts and technologies in database systems, placing these in an historic context; describes the challenges faced by database professionals; reviews the use of a variety of database types in business environments; discusses areas for further research within this fast-moving domain.

Get up to speed with core PostgreSQL tasks such as database administration, application development, database performance monitoring, and database testing

**Key Features** Build real-world enterprise database management systems using PostgreSQL 12 features Explore the development, administrative and security aspects of PostgreSQL 12 Implement best practices from industry experts to build powerful database applications

**Book Description** PostgreSQL is an open-source object-relational database management system (DBMS) that provides enterprise-level services, including high performance and scalability. This book is a collection of unique projects providing you with a wealth of information relating to administering, monitoring, and testing PostgreSQL. The focus of each project is on both the development and the administrative aspects of PostgreSQL. Starting by exploring development aspects such as database design and its implementation, you'll then cover PostgreSQL administration by understanding PostgreSQL architecture, PostgreSQL performance, and high-availability clusters. Various PostgreSQL projects are explained through

current technologies such as DevOps and cloud platforms using programming languages like Python and Node.js. Later, you'll get to grips with the well-known database API tool, PostgREST, before learning how to use popular PostgreSQL database testing frameworks. The book is also packed with essential tips and tricks and common patterns for working seamlessly in a production environment. All the chapters will be explained with the help of a real-world case study on a small banking application for managing ATM locations in a city. By the end of this DBMS book, you'll be proficient in building reliable database solutions as per your organization's needs. What you will learn

- Set up high availability PostgreSQL database clusters in the same containment, a cross-containment, and on the cloud
- Monitor the performance of a PostgreSQL database
- Create automated unit tests and implement test-driven development for a PostgreSQL database
- Develop PostgreSQL apps on cloud platforms using DevOps with Python and Node.js
- Write robust APIs for PostgreSQL databases using Python programming, Node.js, and PostgREST
- Create a geospatial database using PostGIS and PostgreSQL
- Implement automatic configuration by Ansible and Terraform for Postgres

Who this book is for This PostgreSQL book is for database developers, database administrators, data architects, or anyone who wants to build end-to-end database projects using Postgres. This book will also appeal to software engineers, IT technicians, computer science researchers, and university students who are interested in database development and administration. Some familiarity with PostgreSQL and

Linux is required to grasp the concepts covered in the book effectively. This text provides a detailed description of OR (Object-Relational) database management systems and how to use this technology to build modern information systems.

You can get there Where do you want to go? You might already be working in the information technology field and may be looking to expand your skills. You might be setting out on a new career path. Or, you might want to learn more about exciting opportunities in database management. Wherever you want to go, Introduction to Databases will help you get there. Easy-to-read, practical, and up-to-date, this text not only helps you learn fundamental database design and management concepts, it also helps you master the core competencies and skills you need to succeed in the classroom and in the real world. The book's brief, modular format and variety of built-in learning resources enable you to learn at your own pace and focus your studies. With this book, you will be able to:

- \* Appreciate the key role of data in daily business operations and strategic decisions.
- \* Understand databases, database management systems, and SQL, the software on which they are based, from the ground up.
- \* Know how to gather and organize critical business information, design a database based on this information, and retrieve and modify that information in a useful manner.
- \* Use accepted data modeling procedures to design a relational database.
- \* Master the concept of data normalization and the use of standard normalization rules.
- \* Explore

critical real-world issues including application integration and securing data against disclosure and loss. Wiley Pathways helps you achieve your goals Not every student is on the same path, but every student wants to succeed. The Information Technology series in the new Wiley Pathways imprint helps you achieve your goals. The books in this series--Introduction to Databases, Introduction to Programming Using Visual Basic, Introduction to Operating Systems, Networking Basics, Windows Network Administration, Network Security Fundamentals, and PC Hardware Essentials--offer a coordinated information technology curriculum. Learn more at [www.wiley.com/go/pathways](http://www.wiley.com/go/pathways)

"The book covers comprehensive and fundamental aspects of the implementation of object-oriented modeling in a DBMS that was originated as a pure Relational Database, Oracle"--Provided by publisher.

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