Practical Database Programming with Visual Basic.NET

This book teaches readers how to develop professional and practical database programs and apply auto-generated codes using Visual Basic.NET 2005 Design Tools and Wizards related to ADO.NET 2.0. The code can also be used with the newly released Visual Basic.NET 2008. Avoiding overly large blocks of code, the book shows a simple and easy way to create database programs and enables the reader to build professional and practical databases more efficiently. In addition to Design Tools and Wizards, the runtime object method is discussed and analyzed to allow users to design and implement more sophisticated data-driven applications with complicated coding techniques. Three popular database systems – Microsoft Access, Microsoft SQL Server 2005, and Oracle Database 10g Express Edition (XE) – are discussed in detail, with practical examples and sample projects that will help students, programmers, and software engineers alike.

Sample code and additional exercise questions for students as well as solutions and lecture slides for instructors are available via the Web (www.cambridge.org/9780521712354).

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PRACTICAL DATABASE PROGRAMMING WITH VISUAL BASIC.NET

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This book is dedicated to my wife, Yan Wang, and my daughter, Xue Bai
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Preface

Databases have become an integral part of our modern-day life. We are an information-driven society. Database technology has a direct impact on our daily lives. Decisions are routinely made by organizations based on the information collected and stored in databases. A record company may decide to market certain albums in selected regions on the basis of teenagers’ music preferences. Grocery stores display more popular items at eye level, and reorders are based on the inventories taken at regular intervals. Other examples include patients’ records in hospitals, bank customers’ account information, book orders by libraries, club memberships, auto part orders, winter clothing stock in department stores, and many more.

In addition to database management systems, in order to effectively apply and implement databases in real industrial or commercial systems, a good graphical user interface (GUI) is needed to allow users to access and manipulate their records or data in databases. Visual Basic.NET is an ideal candidate to provide this GUI functionality. Unlike other programming languages, Visual Basic.NET is easy to learn and easy to understand, with a low learning curve. Beginning with Visual Studio.NET 2005, Microsoft integrated a few programming languages, such as Visual C++, Visual Basic, C#, and Visual J#, into a dynamic model called the .NET Framework that makes Internet and Web programming easy and simple. Any language integrated into this model can be used to develop professional and efficient Web applications that can be used to communicate with others via the Internet. ADO.NET and ASP.NET are two important submodels of the .NET Framework. The former provides all the components, including the Data Providers, DataSet, and DataTable, needed to access and manipulate data from different databases. The latter provides support to develop Web applications and Web services to allow users to exchange information between clients and servers easily and conveniently.

This book is mainly designed for college students and software programmers who want to develop practical and commercial database programming with Visual Basic.NET 2005 and relational databases such as Microsoft Access, Microsoft SQL Server 2005, and Oracle Database 10g Express Edition (XE). The book provides a detailed description of the practical considerations and applications in database
Preface

programming with Visual Basic 2005, along with authentic examples and detailed explanations. More important, a new writing style implemented in this book, combined with real examples, provides readers with a clear picture of how to handle database programming issues in the Visual Basic.NET 2005 environment.

The outstanding features of this book include, but are not limited to, the following:

1. A unique writing style is adopted to try to attract students’ or beginning programmers’ interest in learning and developing practical database programs, and to avoid the headache caused by huge blocks of code, as is common in traditional database programming books.

2. A real, completed sample database, CSE_DEPT, with three versions (Microsoft Access, SQL Server 2005, and Oracle Database 10g XE), is provided and used for the entire book. Step-by-step, detailed illustrations and descriptions about how to design and build a practical relational database are provided.

3. Both fundamental and advanced database programming techniques are covered for the convenience of both beginning students and experienced programmers.

4. Three types of popular databases are covered and discussed in detail with practical sample examples: Microsoft Access, SQL Server 2005, and Oracle Database 10g XE.

5. Various actual data providers are discussed and implemented in the sample projects, such as the SQL Server and Oracle data providers. Instead of using OLE DB to access the SQL Server or Oracle databases, real SQL Server and Oracle data providers are utilized to connect to Visual Basic.NET 2005 directly to perform data operations.

6. It is a good textbook for college students and a good reference book for programmers, software engineers, and academic researchers.

I sincerely hope that this book will help readers or users develop and build professional and practical database applications.
Acknowledgments

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I would also like to thank Dr. Satish Bhalla, who is the chapter contributor for this book. He is a specialist in database programming and management, especially in SQL Server, Oracle, and DB2. Dr. Bhalla spent a lot of time preparing materials for Chapter 2, and he deserves thanks for this.

Many thanks to my editor, Heather Bergman, for helping to make this book a reality. You would not have found this book in the market without her deep perspective and hard work. Thanks are also extended to the editing team of this book. Without their contributions, it would have been impossible for this book to get published.

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Last but not least, I thank all the people who supported me in finishing this book.
Practical Database Programming with Visual Basic.NET