

ORACLE

PROGRAMMING:

A PRIMER

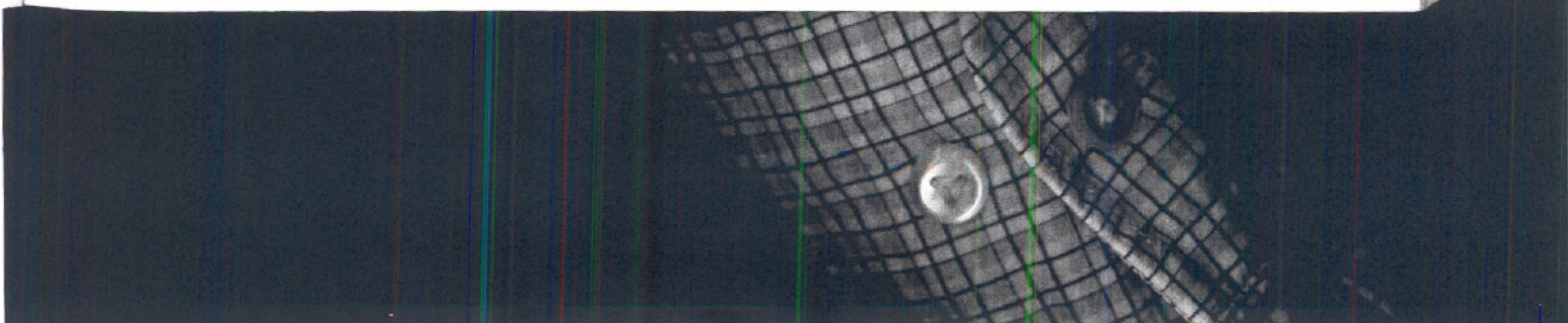
Rajshekhar Sunderraman

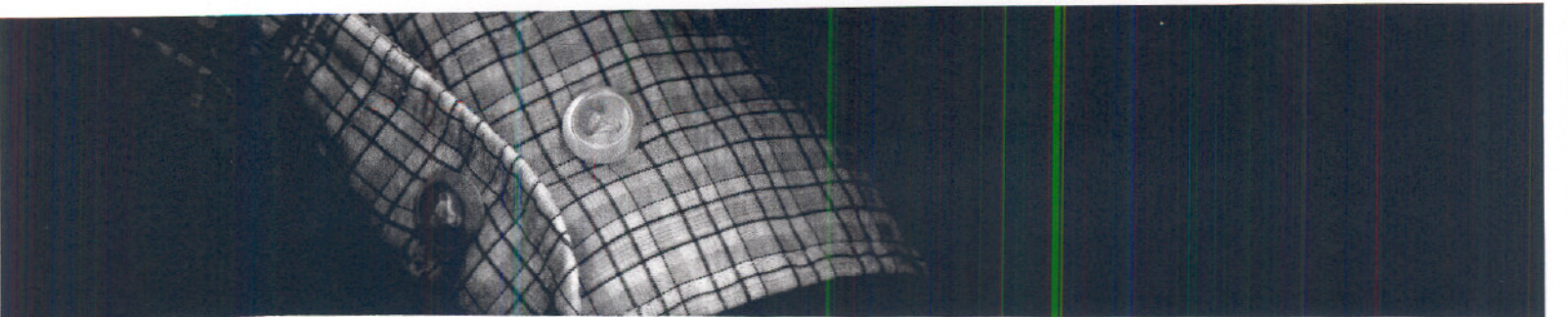
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To

My mother
Saraswathi Sunderraman
for her love and hard work

My father
Sqn. Ldr. Rajagopala Sunderraman
for his love and encouragement

My wife
Radhika
for her love and caring

My children
Nandita and Naveen
for their love and innocence

Oracle is the most widely used database system in the world. It runs on virtually all platforms—from the personal computer to the mainframe. It also comes with an array of programming tools and environments and provides access to any database from a variety of high-level programming languages.

In recent years, more and more universities are using Oracle in their database courses as the primary vehicle to illustrate database concepts and principles. This has generated a need for a concise book on Oracle programming to supplement the traditional texts used in database courses. The main motivation for writing this book has been to satisfy this need. This book can also be used in a nonacademic setting by professionals interested in learning about SQL, PL/SQL, embedded SQL programming, and JDBC in the context of Oracle.

The topics discussed in this book are Oracle SQL, PL/SQL, embedded programming with Pro*C and JDBC. To work with Oracle, it is absolutely essential to learn about SQL and PL/SQL, the two languages at the core of the Oracle database engine. Embedded SQL (Pro*C) and JDBC access to Oracle are two of the important environments in which to develop applications. Java is an emerging language that will have a significant impact in computing in the coming years, and Oracle is investing in this technology by providing JDBC drivers and other tools to develop applications, especially on the Web. Embedded SQL is part of the SQL standards and is also an important technique for database programmers to learn.

Two sample databases are introduced early in the book and are used for illustration purposes in most of the chapters. Several application programs are developed in their entirety in the different programming environments discussed in the text.¹

Using This Book

This book is suitable as a supplemental text for an introductory database course that covers the relational model and uses Oracle as the database system for the course projects and assignments. Course projects can be developed using embedded SQL (Pro*C) or JDBC. An entire chapter is devoted to suggestions for course projects. Such projects are typically assigned in introductory database courses where a team of students start with a problem statement, write the problem specifications, design the database, create the database in Oracle, and write application programs that access the database. Some of the chapters also have review exercises that will help readers consolidate their understanding of the concepts presented in the chapter.

This book is also appropriate for a nonacademic individuals who are interested in learning about Oracle. They can find materials on SQL, PL/SQL, Pro*C, and JDBC, all in one text. This book can be considered a starting point in the exploration of what Oracle has to offer.

World Wide Web Support

Most of the code presented in the book can also be found at the following World Wide Web site:

<http://www.awl.com/cseng/titles/0-201-35753-4>

In addition, the author will attempt to include other related materials to be developed in the near future at this site.

1. The programs and the applications presented in this book have been included for their instructional value. They have been tested with care but are not guaranteed for any particular purpose. The publisher does not offer any warranties or representations, nor does it accept any liabilities with respect to the programs or applications.

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1 The Relational Data Model 1

- 1.1 The Relational Database 1
- 1.2 Integrity Constraints 2
- 1.3 Tabular View of a Relation 4
- 1.4 Sample Databases 4
- 1.5 Relational Algebra 9
 - 1.5.1 Set-Theoretic Operations 10
 - 1.5.2 Relation-Theoretic Operations 12
 - 1.5.3 Queries in Relational Algebra 14

2 Oracle SQL 17

- 2.1 Oracle SQL*Plus 17
 - 2.1.1 Entering and Exiting SQL*Plus 17
 - 2.1.2 Executing Commands in SQL*Plus 18
 - 2.1.3 Buffer Manipulation Commands 22
 - 2.1.4 Formatting Query Results 24
 - 2.1.5 Screen Capture of an SQL*Plus Session 25
- 2.2 Creating, Dropping, and Altering Tables 27
 - 2.2.1 `drop table` 27
 - 2.2.2 `create table` 29
 - 2.2.3 `alter table` 32
- 2.3 Inserting Rows 35
- 2.4 Querying the Database 35
 - 2.4.1 Simple `select` Statement 36
 - 2.4.2 Sub-Selects 41

- 2.4.3 Union 47
- 2.4.4 Forall Queries 48
- 2.4.5 Aggregate Functions 49
- 2.4.6 The **group by** and **having** Clauses 51
- 2.4.7 The Full Select Statement 53
- 2.4.8 String, Number, and Date Functions 54
- 2.5 Views 66
 - 2.5.1 **create view** 66
 - 2.5.2 **drop view** 67
- 2.6 Modifying the Database 67
 - 2.6.1 **insert** 67
 - 2.6.2 **update** 68
 - 2.6.3 **delete** 69
 - 2.6.4 **commit** and **rollback** 70
- 2.7 Sequences 70
- 2.8 Oracle Data Dictionary 71
 - 2.8.1 The **user_catalog** Table 71
 - 2.8.2 The **user_objects** Table 72
 - 2.8.3 The **user_tables** Table 72
 - 2.8.4 The **user_tab_columns** Table 72
 - 2.8.5 The **user_views** Table 72
- Exercises 73

3 Embedded SQL 77

- 3.1 Host Variables 77
- 3.2 Indicator Variables 80
- 3.3 SQL Communications Area (**sqlca**) 81
- 3.4 Connecting to Oracle 83
- 3.5 Cursors 84
- 3.6 Mail-Order Database Application 87
 - 3.6.1 Customer Functions 91
 - 3.6.2 Process Orders 96
 - 3.6.3 Delete Old Orders 99
 - 3.6.4 Print Order Invoice 99
- 3.7 Recursive Queries 101
- 3.8 Error Handling 104
 - 3.8.1 Explicit Handling 105
 - 3.8.2 Implicit Handling 107
- 3.9 Transaction Control 108

4 PL/SQL 125

4.1	What Is PL/SQL?	125
4.2	Data Types and Variables	126
4.3	Program Control Statements	128
4.3.1	null Statement	128
4.3.2	Assignment Statement	128
4.3.3	Conditional Statements	129
4.3.4	Loops	132
4.4	Program Structure	134
4.4.1	Anonymous Blocks	134
4.4.2	Procedures and Functions	135
4.4.3	Stored Procedures and Functions	140
4.4.4	Packages	142
4.5	Triggers	146
4.6	Database Access Using Cursors	151
4.6.1	Explicit Cursors	151
4.6.2	Parameterized Cursors	155
4.6.3	Select for Update	156
4.6.4	Cursor Variables	157
4.7	Records	160
4.7.1	Table-Based Records	160
4.7.2	Cursor-Based Records	161
4.7.3	Programmer-Defined Records	162
4.8	PL/SQL Tables	163
4.9	Built-In Packages	166
4.9.1	The dbms_output Package	166
4.9.2	The dbms_sql Package	168
4.10	Error Handling	180
	Exercises	184

5 Oracle JDBC 187

5.2	A Simple JDBC Program	188
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5.3	Developing JDBC Applications	189	
5.3.1	Loading the JDBC Drivers	190	
5.3.2	Connecting to the Database	190	
5.3.3	The <code>Connection</code> Object	191	
5.4	Nonquery SQL Statements	193	
5.4.1	Using the <code>Statement</code> Object	194	
5.4.2	Using the <code>PreparedStatement</code> Object	197	
5.4.3	Using the <code>CallableStatement</code> Object	199	
5.5	Executing SQL Queries	203	
5.5.1	The <code>ResultSet</code> Class	204	
5.5.2	<code>ResultSet</code> Methods	204	
5.5.3	An SQL Query Example	206	
5.5.4	<code>ResultSet</code> Metadata	210	
5.5.5	Oracle <code>REFCURSOR</code> Type	215	
5.5.6	Processing Multiple <code>ResultSets</code>	218	
5.6	Grade Book Application	221	
5.6.1	Function <code>select_course</code>	222	
5.6.2	Function <code>add_enrolls</code>	223	
5.6.3	Function <code>add_scores</code>	224	
5.6.4	Function <code>modify_score</code>	226	
5.7	Database Metadata	228	
5.8	Errors and Warnings	229	
5.8.1	The <code>SQLException</code> Class	230	
5.8.2	The <code>SQLWarning</code> Class	230	
5.8.3	The <code>DataTruncation</code> Class	231	
	Exercises	232	
6	Projects	239	
6.1	Airline Flight Information System	240	
6.2	Library Database Application	241	
6.3	University Student Database	243	
6.4	Video Chain Database	244	
6.5	Banking Database	246	
6.6	<code>BiBTeX</code> Database	247	
6.7	Music Store Database	249	
	Suggested Readings		251
	Index		253

ORACLE™ PROGRAMMING: A PRIMER

Rajshekhar Sunderraman

This programming companion from Rajshekhar Sunderraman is a streamlined approach to Oracle SQL, the most prevalent database language in industry and on campus today. The book focuses on the most up-to-date aspects of Oracle and is designed as a detailed guide for new users of this application. Students will be able to use this primer to complete projects in a number of different programming environments (PRO*C, PL/SQL, and Oracle JDBC), thereby giving instructors flexibility and choice in assignments.

Highlights

- Devotes separate chapters to JDBC (in the context of Oracle) and embedded SQL (PRO*C)
- Includes an extensive selection of problems and project suggestions
- Provides users with the ability to bring to life the programming projects and sample databases presented in Elmasri/Navathe, *Fundamentals of Database Systems*, Second Edition

About the Author

Rajshekhar Sunderraman is an assistant professor of mathematics and computer science at Georgia State University in Atlanta. Professor Sunderraman received his Ph.D. in computer science from Iowa State University and has been teaching computer science for more than 10 years. He has published numerous articles on a wide range of topics, including inconsistencies in relational databases, negation in deductive databases, and declarative specification of objects in object-oriented databases.

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