COURSE TECHNOLOGY
CENGAGE Learning™

About the Presentations

- The presentations cover the objectives found in the opening of each chapter.
- All chapter objectives are listed in the beginning of each presentation.
- You may customize the presentations to fit your class needs.
- Some figures from the chapters are included. A complete set of images from the book can be found on the Instructor Resources disc.

COURSE TECHNOLOGY
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Oracle 12*c*: SQL

Chapter 2

Basic SQL SELECT Statements

Objectives

- Create the initial database
- Identify keywords, mandatory clauses, and optional clauses in a SELECT statement
- Select and view all columns of a table
- Select and view one column of a table
- Display multiple columns of a table

Objectives (continued)

- Use a column alias to clarify the contents of a particular column
- Perform basic arithmetic operations in the SELECT clause
- Remove duplicate lists using either the DISTINCT or UNIQUE keyword
- Use concatenation to combine fields, literals, and other data

Create the JustLee Database

- Use the provided script to create the database so you can follow the chapter examples
- Verify table contents using the DESCRIBE command

SELECT Statement Syntax

- SELECT statements are used to retrieve data from the database
- A SELECT statement is referred to as a query
- Syntax gives the basic structure, or rules, for a command
- Optional clauses and keywords are shown in brackets

SELECT Statement Syntax (continued)

```
SELECT  [DISTINCT | UNIQUE] (*, columnname [ AS alias], …)
        FROM      tablename
        [WHERE    condition]
        [GROUP BY group_by_expression]
        [HAVING   group_condition]
        [ORDER BY columnname];
```

SELECT Statement Syntax (continued)

- SELECT and FROM clauses are required
- SELECT clause identifies column(s)
- FROM clause identifies table(s)
- Each clause begins with a keyword

Selecting All Data in a Table

- Substitute an asterisk for the column names in a SELECT clause

Enter SQL Statement:

```
SELECT *
 FROM customers;
```

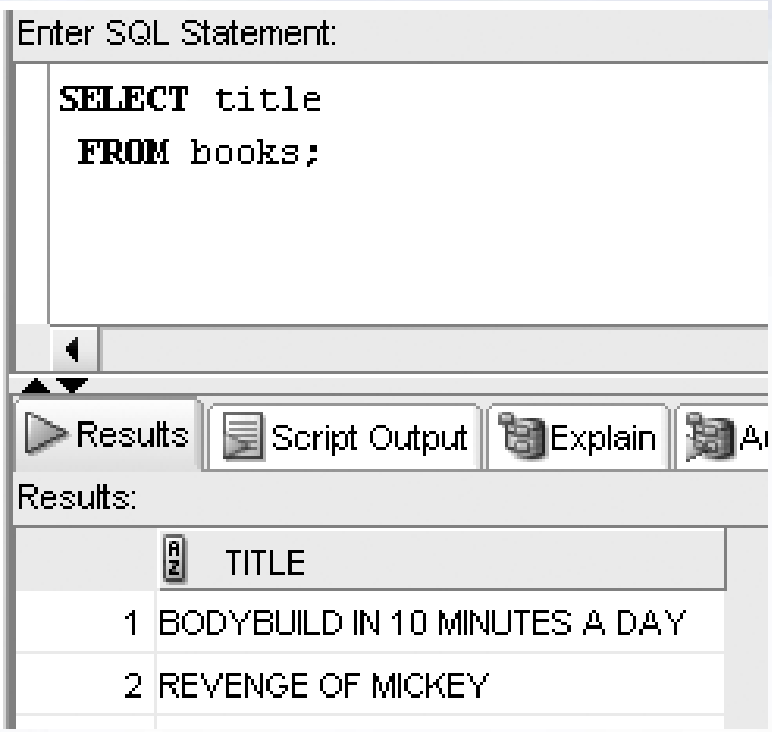
Results | Script Output | Explain | Autotrace | DBMS Output

Results:

	CUSTOMER#	LASTNAME	FIRSTNAME	ADDRESS
1	1001	MORALES	BONITA	P.O. BOX 651
2	1002	THOMPSON	RYAN	P.O. BOX 9835
3	1003	SMITH	LEILA	P.O. BOX 66
4	1004	PIERSON	THOMAS	69821 SOUTH A
5	1005	GIRARD	CINDY	P.O. BOX 851

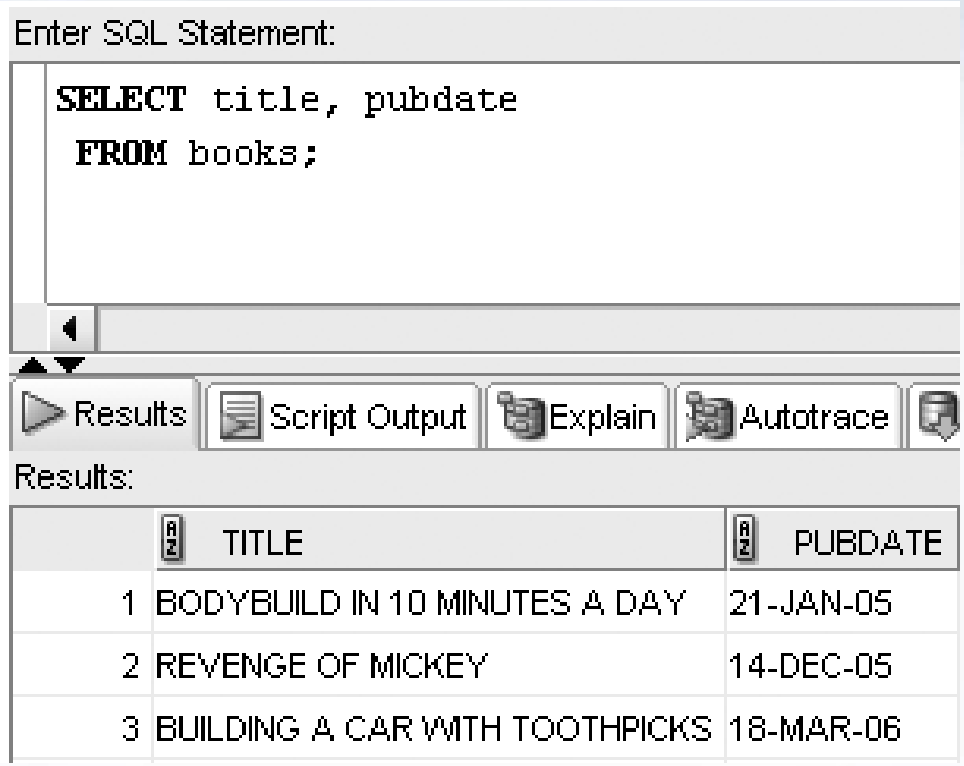
Selecting One Column from a Table

- Enter column name in SELECT clause



Selecting Multiple Columns from a Table

- Separate column names with a comma



Operations within the SELECT Statement

- Column alias can be used for column headings
- Perform arithmetic operations
- Suppress duplicates
- Concatenate data

Using Column Aliases

- List the alias after the column heading
- AS keyword is optional
- Enclose in double quotation marks:
  - If it contains blank space(s)
  - If it contains special symbol(s)
  - To retain case

Column Alias Example

Enter SQL Statement:

```
SELECT title AS "Title of Book", category
 FROM books;
```

Results | Script Output | Explain | Autotrace | DBMS Output

Results:

	Title of Book	CATEGORY
1	BODYBUILD IN 10 MINUTES A DAY	FITNESS
2	REVENGE OF MICKEY	FAMILY LIFE
3	BUILDING A CAR WITH TOOTHPICKS	CHILDREN
4	DATABASE IMPLEMENTATION	COMPUTER
5	COOKING WITH MUSHROOMS	COOKING
6	HOLY GRAIL OF ORACLE	COMPUTER
7	HANDCRANKED COMPUTERS	COMPUTER
8	E-BUSINESS THE EASY WAY	COMPUTER
9	PAINLESS CHILD-REARING	FAMILY LIFE
10	THE WOK WAY TO COOK	COOKING
11	BIG BEAR AND LITTLE DOVE	CHILDREN
12	HOW TO GET FASTER PIZZA	SELF HELP
13	HOW TO MANAGE THE MANAGER	BUSINESS
14	SHORTEST POEMS	LITERATURE

Using Arithmetic Operations

- Arithmetic operations
  - Executed left to right
  - Multiplication and division are solved first
  - Addition and subtraction are solved last
  - Override order with parentheses

Example Arithmetic Operation with Column Alias

Enter SQL Statement:

```
SELECT title, retail-cost profit
 FROM books;
```

Results | Script Output | Explain | Autotrace | DBMS Output

Results:

	TITLE	PROFIT
1	BODYBUILD IN 10 MINUTES A DAY	12.2
2	REVENGE OF MICKEY	7.8
3	BUILDING A CAR WITH TOOTHPICKS	22.15
4	DATABASE IMPLEMENTATION	24.55
5	COOKING WITH MUSHROOMS	7.45
6	HOLY GRAIL OF ORACLE	28.7
7	HANDCRANKED COMPUTERS	3.2
8	E-BUSINESS THE EASY WAY	16.6
9	PAINLESS CHILD-REARING	41.95
10	THE WOK WAY TO COOK	9.75
11	BIG BEAR AND LITTLE DOVE	3.63
12	HOW TO GET FASTER PIZZA	12.1
13	HOW TO MANAGE THE MANAGER	16.55
14	SHORTEST POEMS	18.1

NULL Values

Enter SQL Statement:

```
SELECT title, retail, discount, retail-discount
 FROM books;
```

Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

Results:

	TITLE	RETAIL	DISCOUNT	RETAIL-DISCOUNT
1	BODYBUILD IN 10 MINUTES A DAY	30.95	(null)	(null)
2	REVENGE OF MICKEY	22	(null)	(null)
3	BUILDING A CAR WITH TOOTHPICKS	59.95	3	56.95
4	DATABASE IMPLEMENTATION	55.95	(null)	(null)
5	COOKING WITH MUSHROOMS	19.95	(null)	(null)
6	HOLY GRAIL OF ORACLE	75.95	3.8	72.15
7	HANDCRANKED COMPUTERS	25	(null)	(null)
8	E-BUSINESS THE EASY WAY	54.5	(null)	(null)
9	PAINLESS CHILD-REARING	89.95	4.5	85.45
10	THE WOK WAY TO COOK	28.75	(null)	(null)
11	BIG BEAR AND LITTLE DOVE	8.95	(null)	(null)
12	HOW TO GET FASTER PIZZA	29.95	1.5	28.45
13	HOW TO MANAGE THE MANAGER	31.95	(null)	(null)
14	SHORTEST POEMS	39.95	(null)	(null)

Using DISTINCT and UNIQUE

- Enter DISTINCT or UNIQUE after SELECT keyword to suppress duplicates

Enter SQL Statement:

```
SELECT DISTINCT state
 FROM customers;
```

Results | Script Output | Explain | Autotrace | DBMS Output

Results:

	STATE
1	NJ
2	CA
3	WY
4	MA
5	GA
6	IL
7	MI
8	NY
9	FL
10	ID
11	WA
12	TX

Using Concatenation

- You can combine data with a string literal
- Use the concatenation operator, ||
- It allows the use of column aliases

Concatenation Example

Enter SQL Statement:

```
SELECT firstname || ' ' || lastname "Customer Name"
 FROM customers;
```

Results | Script Output | Explain | Autotrace | DBMS Output

Results:

	Customer Name
1	BONITA MORALES
2	RYAN THOMPSON
3	LEILA SMITH
4	THOMAS PIERSON
5	CINDY GIRARD
6	MESHIA CRUZ
7	TAMMY GIANA
8	KENNETH JONES
9	JORGE PEREZ
10	JAKE LUCAS
11	REESE MCGOVERN
12	WILLIAM MCKENZIE
13	NICHOLAS NGUYEN
14	JASMINE LEE
15	STEVE SCHELL
16	MICHELL DAUM
17	BECCA NELSON
18	GREG MONTIASA
19	JENNIFER SMITH
20	KENNETH FALAH

Summary

- A basic query in Oracle 12*c* SQL includes the SELECT and FROM clauses, the only mandatory clauses in a SELECT statement
- To view all columns in the table, specify an asterisk (*) or list all of the column names individually in the SELECT clause
- To display a specific column or set of columns, list the column names in the SELECT clause (in the order in which you want them to appear)
- When listing column names in the SELECT clause, a comma must separate column names

Summary (continued)

- A column alias can be used to clarify the contents of a particular column; if the alias contains spaces or special symbols, or if you want to display the column with any lowercase letters, you must enclose the column alias in double quotation marks (" ")
- Indicate the table name following the FROM keyword
- Basic arithmetic operations can be performed in the SELECT clause
- NULL values indicate an absence of a value

Summary (continued)

- To remove duplicate listings, include either the DISTINCT or UNIQUE keyword
- To specify which table contains the desired columns, you must list the name of the table after the keyword FROM
- Use vertical bars (||) to combine, or concatenate, fields, literals, and other data