Session 6-8 Grouping Data 2

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GROUP BY and HAVING Syntax

```
SELECT *|columnname, columnname…
FROM tablename
[WHERE condition]
[GROUP BY columnname, columnname…]
[HAVING group condition];
```

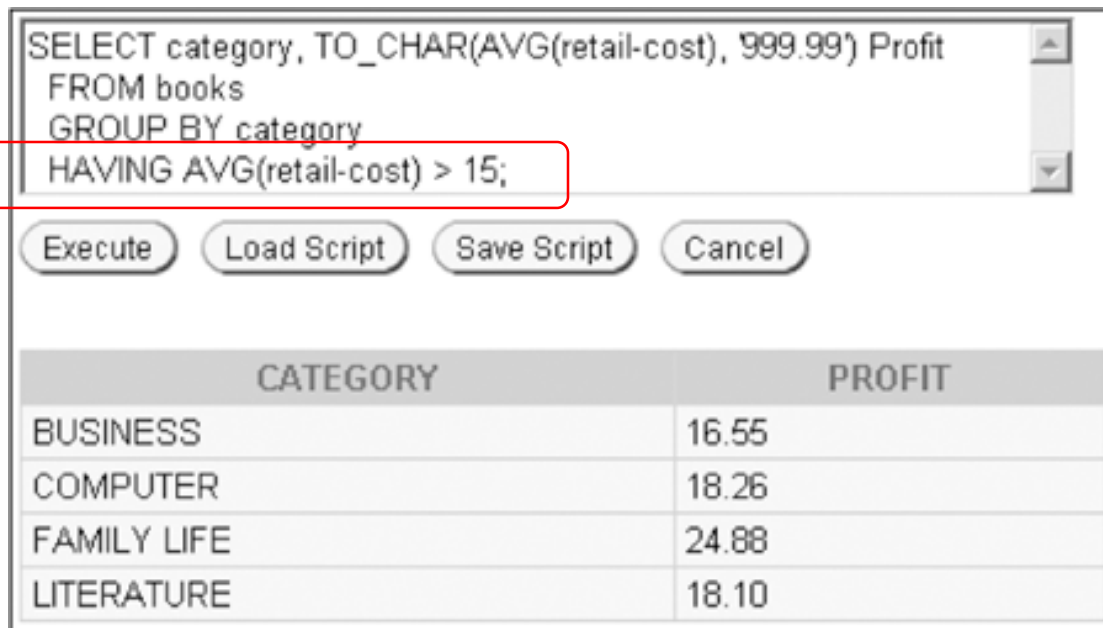**FIGURE 11-2**   Location of multiple-row functions in the SELECT statement

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Restricting Aggregated Output

- HAVING clause serves as the WHERE clause for grouped data


```
SELECT category, TO_CHAR(AVG(retail-cost), '999.99') Profit
  FROM books
  GROUP BY category
  HAVING AVG(retail-cost) > 15;
```

Execute   Load Script   Save Script   Cancel

CATEGORY	PROFIT
BUSINESS	16.55
COMPUTER	18.26
FAMILY LIFE	24.88
LITERATURE	18.10

FIGURE 11-16   Using a HAVING clause to restrict groups displayed
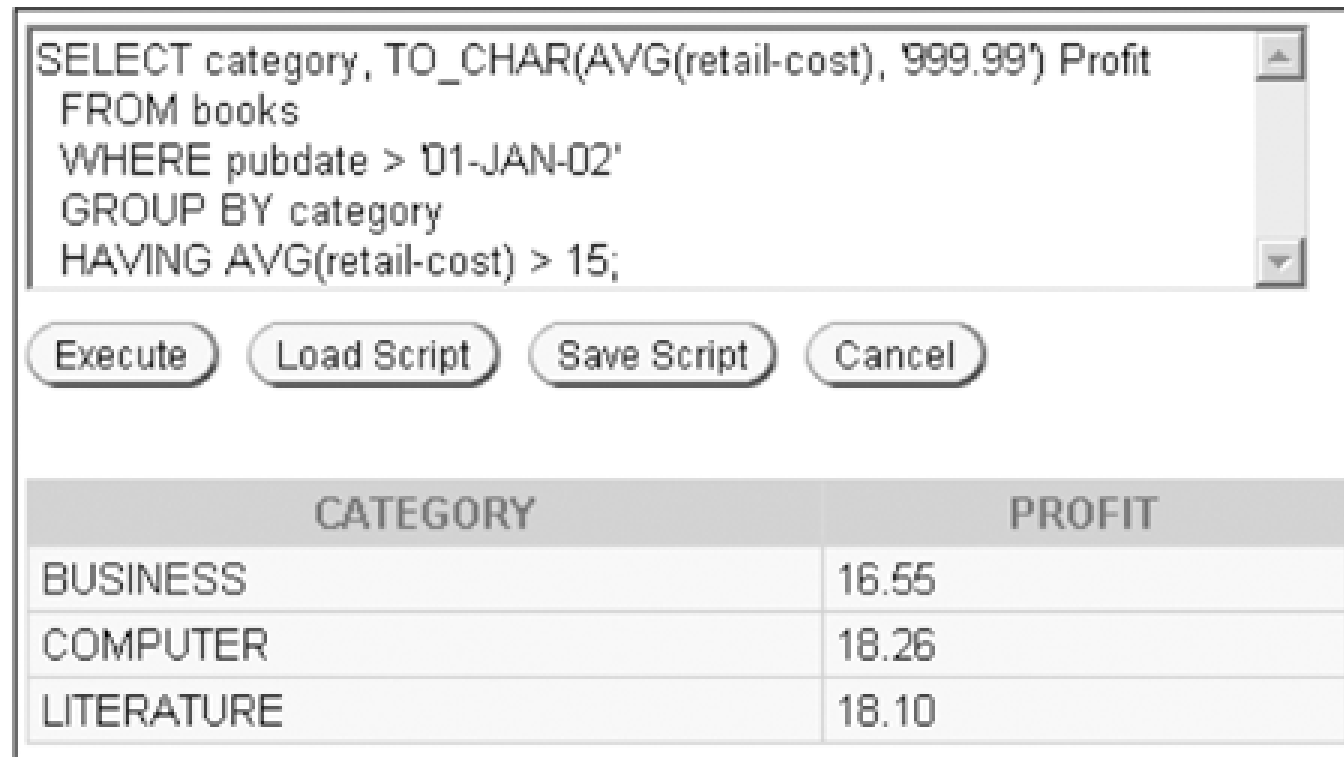
Restricting Aggregated Output (cont'd)

- When included in the same SELECT statement, the clauses are evaluated in the order of:
  - WHERE
  - GROUP BY
  - HAVING

Restricting Aggregated Output (cont'd)


```
SELECT category, TO_CHAR(AVG(retail-cost), '999.99') Profit
  FROM books
  WHERE pubdate > '01-JAN-02'
  GROUP BY category
  HAVING AVG(retail-cost) > 15;
```

| Execute | Load Script | Save Script | Cancel |

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FIGURE 11-17   Using both the WHERE and HAVING clauses

Nesting Functions

- Inner function is resolved first
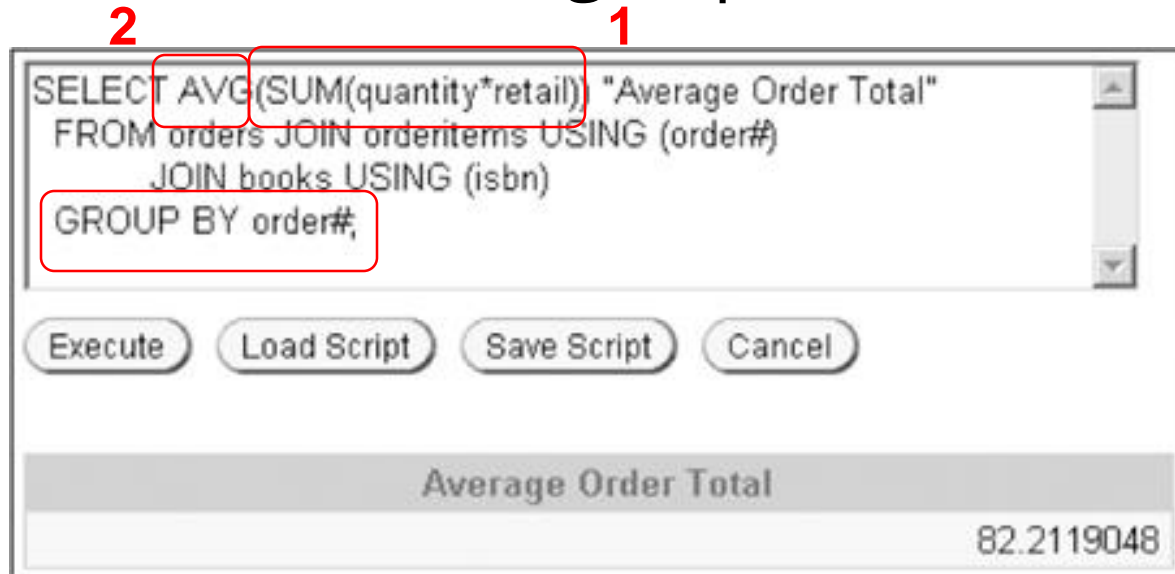- Maximum nesting depth: 2

FIGURE 11-19 Nesting group functions

Statistical Group Functions

- Oracle provides basic statistical functions
- Descriptive statistics
  - Median
  - STDDEV
  - VARIANCE
  - …
- Hypothesis testing
- Correlation
- Regression

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STDDEV/VARIANCE Function

FIGURE 11-20 Using the STDDEV function

FIGURE 11-21 Using the VARIANCE function

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Wrap-up

- HAVING clause
- Statistical Group Functions
  - STDDEV/VARIANCE

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