# Chapter 2 Retrieving Data Using the SQL SELECT Statement



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## **Objectives**

- After completing this lesson, you should be able to do the following:
  - List the capabilities of SQL SELECT statements
  - Execute a basic SELECT statement



#### **Basic SELECT Statement**

```
SELECT *|{[DISTINCT] column [alias],...}
FROM table;
```

- SELECT identifies the columns to be displayed.
- FROM identifies the table containing those columns.



# **Selecting All Columns**

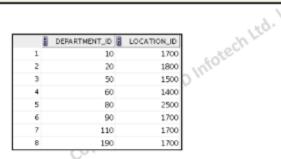


	W 2			
	DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
1	10	Administration	200	1700
2	20	Marketing	201	1800
3	50	Shipping	124	1500
4	60	IT	103	1400
5	80	Sal es	149	2500
6	90	Executive	100	1700
7	110	Accounting	205	1700
8	190	Contracting	(null)	1700



#### **Selecting Specific Columns**

SELECT department id, location id FROM departments;





#### Writing SQL Statements

- NOT case-sensitive
- Can be entered on one or more lines
- lal Curriculum keywords CANNOT be abbreviated or split across lines
  - clauses usually placed on separate lines
  - indents used to enhance readability
- In SQL Developer SQL statements can be optionally terminated by a semicolon (;)
  - Semicolons are required when you execute multiple SQL statements
- In SQL\*Plus SQL statement are required to be terminated with a semicolon (;)



## **Column Heading Defaults**

- SQL Developer
- Default heading alignment: Left-aligned

  Default heading display: 11
- SQL\*Plus
  - Character and Date column headings are left-aligned.
  - Number column headings are right-aligned.
  - Default heading display: Uppercase



## **Arithmetic Expressions**

· Expressions - created with number and date data 4. Official Cu using arithmetic operators.

	Operator	Description
	+	Add
	-	Subtract
	*	Multiply
	1	Divide
Co	6,	

# **Using Arithmetic Operators**

SELECT last\_name, salary, salary + 300

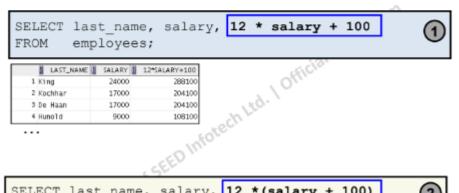
	LAST_NAME	SALARY	SALARY+300
1	King	24000	24300
2	Kochhar	17000	17300
3	De Haan	17000	3 SALARY+300 24300 17300 17300
4	Huno1d	9000	
5	Ernst	6000	6300
6	Lorentz	4200	4500
7	Mourgos	5800	6100
8	Rajs	3500	3800
9	Davies	3100	3400
10	Matos	2500	2900

employees;

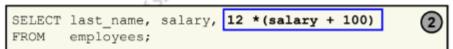
FROM



## **Operator Precedence**



	LAST_NAME	SALARY	12*SALARY+100
1	King	24000	288100
2	Kochhar	17000	204100
3	De Haan	17000	204100
4	Huno1d	9000	108100

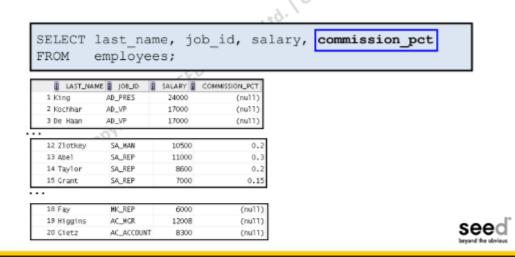


	■ LAST_NAME	SALARY	12°(SALARY+100)
1	King	24000	289200
2	Kochhar	17000	205200
3	De Haan	17000	205200
4	Huno1d	9000	109200



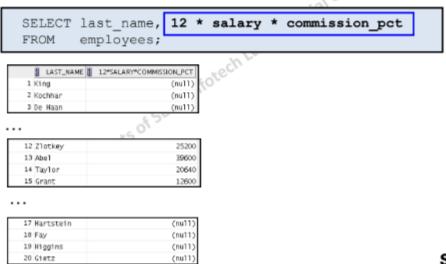
#### What is a NULL Value?

- A value that is unavailable, unassigned, unknown, or It is **NOT** same as zero or a blank space.



#### **NULL Values in Arithmetic Expressions**

 Arithmetic expressions containing a NULL value evaluate to NULL.



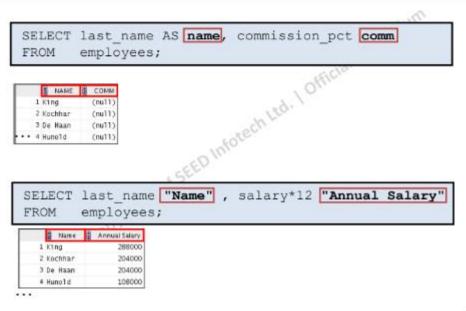


# **Defining a Column Alias**

- A column alias:
  - Renames a column heading
  - Is useful with calculations
- Official Curriculum Immediately follows the column name
  - optional AS keyword between the column name and the alias can be placed
  - Requires double quotation marks if it contains spaces or special characters, or if it is case-sensitive



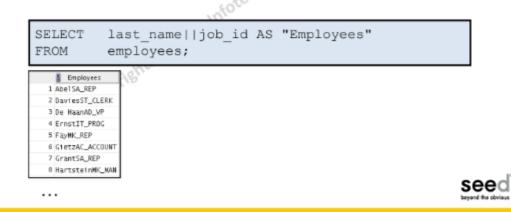
#### **Using Column Aliases**





#### **Concatenation Operator**

- Links columns or character strings to other columns
- Represented by two vertical bars (||)
- Creates a resultant column that is a character expression



## **Literal Character Strings**

What is a literal?

A character, a number, or a date that is included in the SELECT statement

Date and character literal values

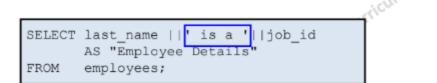
Must be enclosed within single quotation marks

Each character string is output once for each row returned



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#### **Using Literal Character Strings**



I Abel 1s a SALREP
2 Davies is a ST\_CLERK
3 De Haan is a AD\_VP
4 Ernst is a IT\_PROC
5 Fay is a MV 6 Gletz is a AC\_ACCOUNT 7 Grant 1s a SA\_REP 8 Hartstein is a MK\_MAN 9 Higgins is a AC\_NGR 10 Hunold is a IT\_PROG 11 King is a AD\_PRES

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## Alternative Quote (q) Operator

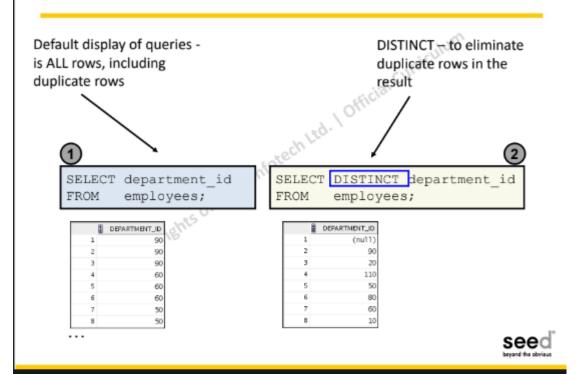
- Official Curriculum Specify your own quotation mark delimiter
- Select any delimiter
- Increase readability and usability

```
SELECT department_name || q'[ Department's Manager Id: ]'
       || manager_id
      AS "Department and Manager"
FROM departments;
```

```
Department and Manager
1 Administration Department's Manager Id: 200
2 Marketing Department's Manager Id: 201
3 Shipping Department's Manager Id: 124
4 IT Department's Manager Id: 103
5 Sales Department's Manager Id: 149
6 Executive Department's Manager Id: 100
7 Accounting Department's Manager Id: 205
8 Contracting Department's Manager Id:
```







## **Displaying Table Structure**

- DESCRIBE command used to display the structure of a table
   OR
- Select the table in the Connections tree and use the Columns tab to view the table structure.





#### **DESCRIBE Command**

DESCRIBE employees

DESCRIBE Employees				
Name	Nu11		Туре	
EMPLOYEE_ID	NOT	NULL	NUMBER(6)	
FIRST_NAME			VARCHAR2(20)	
LAST_NAME	NOT	NULL	VARCHAR2(25)	
EMAIL	NOT	NULL	VARCHAR2(25)	
PHONE_NUMBER			VARCHAR2(20)	
HIRE_DATE	NOT	NULL	DATE	
JOB_ID	NOT	NULL	VARCHAR2(10)	
SALARY			NUMBER(8,2)	
COMMISSION_PCT			NUMBER(2,2)	
MANAGER_ID			NUMBER(6)	
DEPARTMENT_ID			NUMBER(4)	



## Summary

- Literals

  DISTINCT clause

  DESCRIBE comm

