Programming 7, 8

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Vocabulary

Cartesian Join/Cross Join: Results from an invalid or omitted join condition; all combinations of rows are displayed

Equi-Join (inner/simple join): Values in a column in one table are equal to a value in another table; also called an inner join or simple join

Proprietary Connection Command: Connection command exclusive to a specific company

Alias: Gives a table another name to simplify queries and improve performance

Join: Display data from two or more related tables

1. Create a Cartesian product that displays the columns in the d\_play\_list\_items and the d\_track\_listings in the DJs on Demand database.

2. Correct the Cartesian product produced in question 1 by creating an equijoin using a common column.

3. Write a query to display the title, type, description, and artist from the DJs on Demand database.

4. Rewrite the query in question 3 to select only those titles with an ID of 47 or 48.

5. Write a query that extracts information from three tables in the DJs on Demand database, the d\_clients table, the d\_events table, and the d\_job\_assignments table.

6. Create and execute an equijoin between DJs on Demand tables d\_track\_listings and d\_cds. Return the song\_id and the title only.

7. Mark T for the statements that are true and F for the statements that are false.

T - a. A join is a type of query that gets data from more than one table based on columns with the same name.

T - b. To join tables using an equijoin, there must be a common column in both tables and that column is usually a primary key in one of the tables.

F - c. A Cartesian product occurs because the query does not specify a WHERE clause.

F - d. Table aliases are required to create a join condition.

T - e. If a table alias is used for a table name in the FROM clause, it must be substituted for the table name throughout the SELECT statement.

F - f. Table alias must be only one character in length.

T - g. A simple join or inner join is the same as an equijoin.

8. What advantage does being able to combine data from multiple tables have for a business?

Comprehensive data insights, improved decision making, efficiency, streamlined reporting, data accuracy and consistency

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1. Create a join based on the cost of the event between the DJs on Demand tables D\_EVENTS and D\_PACKAGES. Show the name of the event and the code for each event.

2. Using the Oracle database, create a query that returns the employee last name, salary, and job-grade level based on the salary. Select the salary between the lowest and highest salaries.

3. What condition requires the creation of a nonequijoin?

4. Rewrite the following nonequijoin statement using the logical condition operators (AND, OR, NOT): WHERE a.ranking BETWEEN g.lowest\_rank AND g.highest\_rank

5. How do you know when to use a table alias and when not to use a table alias?

6. What kind of join would you use if you wanted to find data between a range of numbers?

7. You need to produce a report for Global Fast Foods showing customers and orders. A customer must be included on the report even if the customer has had no orders.

8. Create a query of the Oracle database that shows employee last names, department IDs, and department names. Include all employees even if they are not assigned to a department.

9. Modify the query in problem 8 to return all the department IDs even if no employees are assigned to them.

10.There are one or more errors in each of the following statements. Describe the errors and correct them.

a. WHERE e.department\_id(+) = d.department\_id (+);

b. SELECT e.employee id, e. last name, d. location id

FROM employees, departments

WHERE e.department\_id = d.department\_id(+);

11.Create a query that will show all CD titles and song IDs in the DJs on Demand database even if there is no CD number in the track-listings table.

12.How many times has someone asked you: “What do you want to be when you grow up?” For most of us, the first thing that comes to mind is something like business manager, engineer, teacher, game designer, doctor, scientist, computer programmer, or accountant -- all pretty much traditional career choices. Have you ever thought about working in an odd job or nontraditional career? There are people who are professional shoppers for busy executives, directors of zoos, recipe designers, insecticide chemists, golf-course designers, and turf managers. Picture yourself in a dream job or nontraditional career doing something that you think would be interesting, life fulfilling, and profitable.

Use Internet resources to explore your idea. Write a brief description of the job to share with the class.

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Vocabulary

AVG Function: Calculates average value excluding nulls

COUNT function: Returns the number of rows with non-null values for the expression

Standard Deviation: For two sets of data with approximately the same mean, the greater the spread, the greater the standard deviation.

Aggregate Functions: Operate on sets of rows to give one result per group

MIN function: Returns minimum value ignoring nulls

Variance: Used with columns that store numeric data to calculate the spread of data around the mean

SUM Function: Calculates the sum ignoring null values

MAX function: Returns the maximum value ignoring nulls

Aggregate: To gather into a sum or whole

1. Define and give an example of the seven group functions: AVG, COUNT, MAX, MIN, STDDEV, SUM, and VARIANCE.

AVG: Average: calculates average value of a numeric column, excluding NULL values

SELECT AVG(salary)

FROM employees;

Example: average salary from employees

COUNT: returns the number of rows with non-NULL values for the specified expression

SELECT COUNT(employee\_id)

FROM employees;

Example: total number of employees with Exmployee\_id

MAX: returns the maximum value in a set of values, ignoring NULL values

SELECT MAX(salary)

FROM employees;

Example: highest salary from employees

MIN: returns the minimum value in a set of values, ignoring NULL values

SELECT MIN(salary)

FROM employees;

Example: lowest salary from employees

STDDEV: Measures the amount of variation or dispersion of a set of values around the mean. A higher standard deviation indicates more spread out data.

SELECT STDDEV(salary)

FROM employees;

Standard deviation of salary values in employees table

SUM: Calculates the total or sum of a numeric column, excluding NULL

SELECT SUM(salary)

FROM employees;

Example: total sum of salaries

VARIANCE:Measures the spread of a set of numeric data points around the mean. Variance is the square of the standard deviation.

SELECT VARIANCE(salary)

FROM employees;

Example: variance of salary values

2. Create a query that will show the average cost of the DJs on Demand events. Round to two decimal places.

3. Find the average salary for Global Fast Foods staff members whose manager ID is 19.

4. Find the sum of the salaries for Global Fast Foods staff members whose IDs are 12 and 9.

5. Using the Oracle database, select the lowest salary, the most recent hire date, the last name of the person who is at the top of an alphabetical list of employees, and the last name of the person who is at the bottom of an alphabetical list of employees. Select only employees who are in departments 50 or 60.

6. Your new Internet business has had a good year financially. You have had 1,289 orders this year. Your customer order table has a column named total\_sales. If you submit the following query, how many rows will be returned?

SELECT sum(total\_sales)

FROM orders;

7. You were asked to create a report of the average salaries for all employees in each division of the company. Some employees in your company are paid hourly instead of by salary. When you ran the report, it seemed as though the averages were not what you expected—they were much higher than you thought! What could have been the cause?

8. Employees of Global Fast Foods have birth dates of July 1, 1980, March 19, 1979, and March 30, 1969. If you select MIN(birthdate), which date will be returned?

9. Create a query that will return the average order total for all Global Fast Foods orders from January 1, 2002, to December 21, 2002.

10.What was the hire date of the last Oracle employee hired?

11.In the following SELECT clause, which value returned by the SELECT statement will be larger?

SELECT SUM(operating\_cost), AVG(operating\_cost)

12.Refer to the DJs on Demand database D\_EVENTS table:

Which code is valid as part of an SQL query?

\_\_\_\_\_\_\_a. FROM event\_date

\_\_\_\_\_\_\_b. SELECT SUM(cost)

\_\_\_\_\_\_\_c. SELECT SUM(event\_date)

\_\_\_\_\_\_\_d. SELECT AVG(cost) AS "Expense"

\_\_\_\_\_\_\_e. WHERE MIN(id) = 100

\_\_\_\_\_\_\_f. SELECT MAX(AVG(cost))

\_\_\_\_\_\_\_g. SELECT MIN(event\_date)

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Vocabulary

COUNT function: Returns the number of non-null values in the expression column

DISTINCT: The keyword used to return only non-duplicate values or combinations of non-duplicate values in a query.

COUNT (Distinct expression)Returns the number of unique non-null values in the expression column.

1. How many songs are listed in the DJs on Demand D\_SONGS table?

2. In how many different location types has DJs on Demand had venues?

3. The d\_track\_listings table in the DJs on Demand database has a song\_id column and a cd\_number column. How many song IDs are in the table and how many different CD numbers are in the table?

4. How many of the DJs on Demand customers have email addresses?

5. Some of the partners in DJs on Demand do not have authorized expense amounts (auth\_expense\_amt). How many partners do have this privilege?

6. What values will be returned when the statement below is issued?

SELECT COUNT(shoe\_color), COUNT(DISTINCT shoe\_color)

FROM shoes;

7. Create a query that will convert any null values in the auth\_expense\_amt column on the DJs on Demand D\_PARTNERS table to 100000 and find the average of the values in this column. Round the result to two decimal places.

8. Which statement(s) is/are True about the following SQL statement:

SELECT AVG(NVL(selling\_bonus, 0.10))

FROM bonuses;

\_\_\_\_\_ a. The datatypes of the values in the NVL clause can be any datatype except date data.

\_\_\_\_\_ b. If the selling\_bonus column has a null value, 0.10 will be substituted.

\_\_\_\_\_ c. There will be no null values in the selling\_bonus column when the average is calculated.

\_\_\_\_\_ d. This statement will cause an error. There cannot be two functions in the SELECT statement.

9. Which of the following statements is/are TRUE about the following query?

SELECT DISTINCT colors, sizes

FROM items;

\_\_\_\_\_ a. Each color will appear only once in the result set.

\_\_\_\_\_ b. Each size will appear only once in the result set.

\_\_\_\_\_ c. Unique combinations of color and size will appear only once in the result set.

\_\_\_\_\_ d. Each color and size combination will appear more than once in the result set.