Database Programming with SQL

9-1: Using GROUP BY and HAVING Clauses

Practice Activities

Objectives

* Construct and execute a SQL query using GROUP BY
* Construct and execute a SQL query using GROUP BY … HAVING
* Construct and execute a GROUP BY on more than one column
* Nest group functions

Vocabulary

Identify the vocabulary word for each definition below.

|  |  |
| --- | --- |
| HAVING | Used to specify which groups are to be displayed; restricts  groups that do not meet group criteria |
| GROUP BY | Divides the rows in a table into groups |

Try It / Solve It

1. In the SQL query shown below, which of the following is true about this query?

SELECT last\_name, MAX(salary)

FROM employees

WHERE last\_name LIKE 'K%'

GROUP BY manager\_id, last\_name

HAVING MAX(salary) >16000

ORDER BY last\_name DESC ;

\_\_\_\_\_\_\_ a. Kimberly Grant would not appear in the results set.

\_\_\_\_\_\_\_ b. The GROUP BY clause has an error because the manager\_id is not listed in the

SELECT clause.

\_\_\_\_\_\_\_ c. Only salaries greater than 16001 will be in the result set.

\_\_\_\_\_\_\_ d. Names beginning with Ki will appear after names beginning with Ko.

\_\_\_\_\_\_\_ e. Last names such as King and Kochhar will be returned even if they don’t have

salaries > 16000.

2. Each of the following SQL queries has an error. Find the error and correct it. Use Oracle

Application Express to verify that your corrections produce the desired results.

a. SELECT manager\_id

FROM employees

WHERE AVG(salary) <16000

GROUP BY manager\_id;

HAVING avg(salary)<16000

b. SELECT cd\_number, COUNT(title)

FROM d\_cds

WHERE cd\_number < 93;

c. SELECT ID, MAX(ID), artist AS Artist

FROM d\_songs

WHERE duration IN('3 min', '6 min', '10 min')

HAVING ID < 50

GROUP by ID;

SELECT type\_code, MAX(duration)

FROM d\_songs

where id < 50 and duration in ('3 min', '6 min', '9 min')

group by type\_code

d. SELECT loc\_type, rental\_fee AS Fee

FROM d\_venues

WHERE id <100

GROUP BY "Fee"

ORDER BY 2;

SELECT loc\_type, AVG(

CASE

WHEN INSTR(rental\_fee, '/hour') != 0 THEN TO\_NUMBER(REPLACE(rental\_fee,'/hour',''))\*5

WHEN INSTR(rental\_fee, '/flat fee') != 0 THEN TO\_NUMBER(REPLACE(rental\_fee,'/flat fee',''))

WHEN INSTR(rental\_fee, '/per person') != 0 THEN TO\_NUMBER(REPLACE(rental\_fee,'/per person',''))\*10

ELSE 0

END

) AS Fee

FROM d\_venues

WHERE id <100

GROUP BY loc\_type

ORDER BY 2;

3. Rewrite the following query to accomplish the same result:

SELECT DISTINCT MAX(song\_id)

FROM d\_track\_listings

WHERE track IN ( 1, 2, 3);

SELECT track, MAX(song\_id)

FROM d\_track\_listings

group by track

having track in (1, 2, 3)

4. Indicate True or False

\_\_\_\_\_ a. If you include a group function and any other individual columns in a SELECT clause,

then each individual column must also appear in the GROUP BY clause.

\_\_\_\_\_ b. You can use a column alias in the GROUP BY clause.

\_\_\_\_\_ c. The GROUP BY clause always includes a group function.

5. Write a query that will return both the maximum and minimum average salary grouped by

department from the employees table.\*

SELECT department\_id, max(salary), min(salary)

from employees

group by department\_id

6. Write a query that will return the average of the maximum salaries in each department for the

employees table.

SELECT avg(max(salary))

from employees

group by department\_id