Practices for Lesson 6: Reporting Aggregated Data Using the Group Functions

Chapter 6

Practices for Lesson 6: Overview

Practice Overview

This practice covers the following topics:

- Writing queries that use group functions
- Grouping by rows to achieve multiple results
- Restricting groups by using the `HAVING` clause

Practice 6-1: Reporting Aggregated Data by Using Group Functions

Overview

In this practice, you use group functions and select groups of data.

Tasks

Determine the validity of the following statements. Circle either True or False.

1. Group functions work across many rows to produce one result per group.
   True/False
2. Group functions include nulls in calculations.
   True/False
3. The `WHERE` clause restricts rows before inclusion in a group calculation.
   True/False

   The HR department needs the following reports:
4. Find the highest, lowest, sum, and average salary of all employees. Label the columns `Maximum`, `Minimum`, `Sum`, and `Average`, respectively. Round your results to the nearest whole number. Save your SQL statement as `lab_06_04.sql`. Run the query.

	Maximum	Minimum	Sum	Average
1	24000	2500	175508	8775

5. Modify the query in `lab_06_04.sql` to display the minimum, maximum, sum, and average salary for each job type. Save `lab_06_04.sql` as `lab_06_05.sql`. Run the statement in `lab_06_05.sql`.

	JOB_ID	Maximum	Minimum	Sum	Average
1	IT_PROG	9000	4200	19200	6400
2	AC_MGR	12008	12008	12008	12008
3	AC_ACCOUNT	8300	8300	8300	8300
4	ST_MAN	5800	5800	5800	5800
5	AD_ASST	4400	4400	4400	4400
6	AD_VP	17000	17000	34000	17000
7	SA_MAN	10500	10500	10500	10500
8	MK_MAN	13000	13000	13000	13000
9	AD_PRES	24000	24000	24000	24000
10	SA_REP	11000	7000	26600	8867
11	MK_REP	6000	6000	6000	6000
12	ST_CLERK	3500	2500	11700	2925

6. Write a query to display the number of people with the same job.

	JOB_ID	COUNT(*)
1	AC_ACCOUNT	1
2	AC_MGR	1
3	AD_ASST	1
4	AD_PRES	1
5	AD_VP	2
6	IT_PROG	3
7	MK_MAN	1
8	MK_REP	1
9	SA_MAN	1
10	SA_REP	3
11	ST_CLERK	4
12	ST_MAN	1

Generalize the query so that a user in the HR department is prompted for a job title. Save the script to a file named `lab_06_06.sql`. Run the query. Enter `IT_PROG` when prompted.

	JOB_ID	COUNT(*)
1	IT_PROG	3

7. Determine the number of managers without listing them. Label the column `Number of Managers`.

Hint: Use the `MANAGER_ID` column to determine the number of managers.

	Number of Managers
1	8

8. Find the difference between the highest and lowest salaries. Label the column `DIFFERENCE`.

	DIFFERENCE
1	21500

If you have time, complete the following exercises:

9. Create a report to display the manager number and the salary of the lowest-paid employee for that manager. Exclude anyone whose manager is not known. Exclude any groups where the minimum salary is $6,000 or less. Sort the output in descending order of salary.

	MANAGER_ID	MIN(SALARY)
1	102	9000
2	205	8300
3	149	7000

If you want an extra challenge, complete the following exercises:

10. Create a query to display the total number of employees and, of that total, the number of employees hired in 2009, 2010, 2011, and 2012. Create appropriate column headings.

	TOTAL	2009	2010	2011	2012
1	20	2	2	3	2

11. Create a matrix query to display the job, the salary for that job based on the department numbers 20, 50, 80, and 90, and the total salary for that job. Ensure to give each column an appropriate heading.

	Job	Dept 20	Dept 50	Dept 80	Dept 90	Total
1	IT_PROG	(null)	(null)	(null)	(null)	19200
2	AC_MGR	(null)	(null)	(null)	(null)	12008
3	AC_ACCOUNT	(null)	(null)	(null)	(null)	8300
4	ST_MAN	(null)	5800	(null)	(null)	5800
5	AD_ASST	(null)	(null)	(null)	(null)	4400
6	AD_VP	(null)	(null)	(null)	34000	34000
7	SA_MAN	(null)	(null)	10500	(null)	10500
8	MK_MAN	13000	(null)	(null)	(null)	13000
9	AD_PRES	(null)	(null)	(null)	24000	24000
10	SA_REP	(null)	(null)	19600	(null)	26600
11	MK_REP	6000	(null)	(null)	(null)	6000
12	ST_CLERK	(null)	11700	(null)	(null)	11700