

# Aggregate Functions and Grouping in SQL

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# Aggregate Functions & Grouping in SQL

The screenshot shows a MySQL IDE window with the following components:

- Query Editor:** Contains a list of SQL queries. The fourth query, `SELECT COUNT(*) FROM Employees;`, is highlighted.
- Result Grid:** Displays the result of the selected query, showing a single row with the value `7` under the column `COUNT(*)`.
- Output Panel:** Shows the execution log with the following data:

#	Time	Action	Message	Duration / Fetch
2	10:58:32	use employee_management	0 row(s) affected	0.000 sec
3	10:58:37	show tables	3 row(s) returned	0.015 sec / 0.000 sec
4	10:58:47	desc employees	6 row(s) returned	0.000 sec / 0.016 sec
5	10:58:54	select * from employees LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
6	11:02:49	SELECT COUNT(*) FROM Employees LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec

## Aggregate Functions & Grouping in SQL

npmysqld64 x

y Database Server Tools Scripting Help

Query 1 x

SQLAdditions

Limit to 1000 rows

Jump to

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

```
47
48
49 • SELECT department, COUNT(emp_id)
50 FROM Employees
51 GROUP BY department;
52
53
54
--
```

Result Grid

	department	COUNT(emp_id)
▶	HR	2
	Finance	2
	IT	2
	Sales	1

Form Editor

Field Types

Result 7 x

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 6	11:02:49	SELECT COUNT(*) FROM Employees LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
✗ 7	11:05:27	select * from employess LIMIT 0, 1000	Error Code: 1146. Table 'employee_management.emplo...	0.000 sec
✓ 8	11:05:49	select * from employees LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
✓ 9	11:12:13	SELECT department, COUNT(*) FROM Employees G...	4 row(s) returned	0.000 sec / 0.000 sec
✓ 10	11:12:41	SELECT department, COUNT(emp_id) FROM Emplo...	4 row(s) returned	0.000 sec / 0.000 sec

# Aggregate Functions & Grouping in SQL

The screenshot shows a SQL IDE window titled 'mysqld64'. The main editor contains the following SQL code:

```
50 FROM Employees
51 GROUP BY department;
52
53
54 select max(salary)
55 from employees;
56
57
58
```

The 'Result Grid' shows a single row with the value '60000.00' for the column 'max(salary)'.

The 'Output' window shows the following messages:

#	Time	Action	Message	Duration / Fetch
49	11:19:26	SELECT department, COUNT(emp_id) FROM Employees GROUP BY department LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
50	11:19:26	select emp_id,max(salary) from employees LIMIT 0, 1000	Error Code: 1140. In aggregated query without GROUP BY, expression #1 of SELECT list contains nonaggregated ...	0.000 sec
51	11:19:33	select emp_id,max(salary) from employees LIMIT 0, 1000	Error Code: 1140. In aggregated query without GROUP BY, expression #1 of SELECT list contains nonaggregated ...	0.000 sec
52	11:19:38	select emp_id,max(salary) from employees LIMIT 0, 1000	Error Code: 1140. In aggregated query without GROUP BY, expression #1 of SELECT list contains nonaggregated ...	0.000 sec
53	11:20:10	select max(salary) from employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

## Aggregate Functions & Grouping in SQL

nysqld64 x

Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

```
58 • select * from employees
59   order by salary desc
60   limit 1;
61
62 • select department,sum(salary)
63   from employees
64   group by department
65   having sum(salary)>90000;
```

Result Grid

	department	sum(salary)
▶	Finance	97000.00
	IT	115000.00

Form Editor

Field Types

Result 47 x

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✗ 51	11:19:33	select emp_id,max(salary) from employees LIMIT 0, 1000	Error Code: 1140. In aggregated query without GROUP...	0.000 sec
✗ 52	11:19:38	select emp_id,max(salary) from employees LIMIT 0, 1000	Error Code: 1140. In aggregated query without GROUP...	0.000 sec
✓ 53	11:20:10	select max(salary) from employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
✓ 54	13:18:49	select * from employees order by salary desc limit 1	1 row(s) returned	0.078 sec / 0.000 sec
✓ 55	13:22:58	select department,sum(salary) from employees group by...	2 row(s) returned	0.000 sec / 0.000 sec

# Aggregate Functions & Grouping in SQL

npmysqld64 x

Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

```
80 • SELECT department, ROUND(AVG(salary), 2) AS avg_salary
81 FROM Employees
82 GROUP BY department;
83
84
85 • SELECT department, AVG(salary) AS avg_salary
86 FROM Employees
87 GROUP BY department;
```

Result Grid

department	avg_salary
HR	39000.000000
Finance	48500.000000
IT	57500.000000
Sales	45000.000000

Result 52 x

Read Only

Output

#	Time	Action	Message
56	13:26:22	SELECT department, COUNT(*) AS total_employees FROM Employees GROUP BY department LIMIT 0, 1000	4 row(s) returned
57	13:27:03	SELECT department, joining_date, COUNT(*) AS total_employees FROM Employees GROUP BY department, joinin...	7 row(s) returned
58	13:28:05	SELECT department, ROUND(AVG(salary), 2) AS avg_salary FROM Employees GROUP BY department LIMIT 0, 1...	4 row(s) returned
59	13:28:50	SELECT department, SUM(salary) AS total_salary, AVG(salary) AS avg_salary FROM Employees GROUP BY depart...	4 row(s) returned
60	13:31:51	SELECT department, AVG(salary) AS avg_salary FROM Employees GROUP BY department LIMIT 0, 1000	4 row(s) returned

npmysqld64 x

Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

```
83
84
85 • SELECT department, AVG(salary) AS avg_salary
86 FROM Employees
87 GROUP BY department;
88
89 • SELECT COUNT(DISTINCT department) AS total_departments
90 FROM Employees;
```

Result Grid

total_departments
4

Result 82 x

Read Only

Context Help

Snippets

Output

#	Time	Action	Message	Duration / Fetch
87	13:36:54	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
88	13:36:54	SELECT COUNT(department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
89	13:37:02	SELECT COUNT(department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
90	13:37:44	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
91	13:38:01	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

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# Aggregate Functions & Grouping in SQL

pmysqld64 x

Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

```
92
93 • SELECT COUNT(*) AS total_employees,
94       SUM(salary) AS total_salary,
95       AVG(salary) AS average_salary,
96       MAX(salary) AS highest_salary,
97       MIN(salary) AS lowest_salary
98 FROM Employees;
99
```

Result Grid

	total_employees	total_salary	average_salary	highest_salary	lowest_salary
▶ 7	7	335000.00	47857.142857	60000.00	38000.00

Result 83 x

Output

Action Output

#	Time	Action	Message
✓ 88	13:36:54	SELECT COUNT(department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 89	13:37:02	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 90	13:37:44	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 91	13:38:01	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 92	13:39:37	SELECT COUNT(*) AS total_employees, SUM(salary) AS total_salary, AVG(salary) AS average_salary, ...	1 row(s) returned

pmysqld64 x

Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

```
101 • SELECT COUNT(department) AS total_departments
102 FROM Employees;
103
104
105 • select department,sum(salary)
106 from employees
107 group by department;
108
```

Result Grid

	department	sum(salary)
▶	HR	78000.00
	Finance	97000.00
	IT	115000.00
	Sales	45000.00

Result 84 x

Output

Action Output

#	Time	Action	Message
✓ 89	13:37:02	SELECT COUNT(department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 90	13:37:44	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 91	13:38:01	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
✓ 92	13:39:37	SELECT COUNT(*) AS total_employees, SUM(salary) AS total_salary, AVG(salary) AS average_salary, ...	1 row(s) returned
✓ 93	16:02:53	select department,sum(salary) from employees group by department LIMIT 0, 1000	4 row(s) returned



# Aggregate Functions & Grouping in SQL

mpmysqld64 x

ry Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

```
68 • SELECT department, COUNT(*) AS total_employees
69 FROM Employees
70 GROUP BY department;
71
72
73 • SELECT department, joining_date, COUNT(*) AS total_employees
74 FROM Employees
75 GROUP BY department, joining_date;
76
```

Result Grid

department	total_employees
HR	2
Finance	2
IT	2
Sales	1

Result 85 x

Output

Action Output

#	Time	Action	Message
90	13:37:44	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
91	13:38:01	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
92	13:39:37	SELECT COUNT(*) AS total_employees, SUM(salary) AS total_salary, AVG(salary) AS average_salary, ...	1 row(s) returned
93	16:02:53	select department,sum(salary) from employees group by department LIMIT 0, 1000	4 row(s) returned
94	16:07:08	SELECT department, COUNT(*) AS total_employees FROM Employees GROUP BY department LIMIT 0, 1000	4 row(s) returned

mpmysqld64 x

ry Database Server Tools Scripting Help

Query 1 x

Limit to 1000 rows

```
77
78
79
80 • SELECT department, ROUND(AVG(salary), 2) AS avg_salary
81 FROM Employees
82 GROUP BY department;
83
84
85 • SELECT department, AVG(salary) AS avg_salary
```

Result Grid

department	avg_salary
HR	39000.00
Finance	48500.00
IT	57500.00
Sales	45000.00

Result 86 x

Output

Action Output

#	Time	Action	Message
91	13:38:01	SELECT COUNT(DISTINCT department) AS total_departments FROM Employees LIMIT 0, 1000	1 row(s) returned
92	13:39:37	SELECT COUNT(*) AS total_employees, SUM(salary) AS total_salary, AVG(salary) AS average_salary, ...	1 row(s) returned
93	16:02:53	select department,sum(salary) from employees group by department LIMIT 0, 1000	4 row(s) returned
94	16:07:08	SELECT department, COUNT(*) AS total_employees FROM Employees GROUP BY department LIMIT 0, 1000	4 row(s) returned
95	16:11:12	SELECT department, ROUND(AVG(salary), 2) AS avg_salary FROM Employees GROUP BY department LIMIT 0, 1...	4 row(s) returned