

Gist Used: [ad8153e01ccdcd58e064](#) (for some)

1.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{$   $\}$   $\boxplus$

```
1  $\pi$  emp_no (employees)  $\bowtie$   $\pi$  dept_no (departments)  $\bowtie$   $\pi$  from_date (salaries)  $\bowtie$   $\pi$  title, from_date (titles)
```

▶ execute query

download

history ▼

$\pi$  emp\_no (employees)  $\bowtie$   $\pi$  dept\_no (departments)  $\bowtie$   $\pi$  from\_date (salaries)  $\bowtie$   $\pi$  title, from\_date (titles)

employees.emp_no	departments.dept_no	salaries.from_date	titles.title
0	0	2000-01-01	Engineer
0	0	2000-01-01	Manager
0	0	2001-01-01	Senior Engineer
0	0	2001-01-01	Staff
0	0	2010-12-01	Manager
0	1	2000-01-01	Engineer
0	1	2000-01-01	Manager
0	1	2001-01-01	Senior Engineer
0	1	2001-01-01	Staff
0	1	2010-12-01	Manager
0	2	2000-01-01	Engineer
0	2	2000-01-01	Manager
0	2	2001-01-01	Senior Engineer
0	2	2001-01-01	Staff
0	2	2010-12-01	Manager
1	0	2000-01-01	Engineer
1	0	2000-01-01	Manager
1	0	2001-01-01	Senior Engineer
1	0	2001-01-01	Staff
1	0	2010-12-01	Manager
1	1	2000-01-01	Engineer
1	1	2000-01-01	Manager
1	1	2001-01-01	Senior Engineer
1	1	2001-01-01	Staff
1	1	2010-12-01	Manager
1	2	2000-01-01	Engineer
1	2	2000-01-01	Manager

2.

Relational Algebra
SQL
Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{$   $\}$   $\boxplus$

```

1  $\pi_{emp\_no, dept\_no} (dept\_emp) \ltimes \pi_{emp\_no} (salaries) \ltimes \pi_{dept\_no, emp\_no} (dept\_manager) \ltimes \pi_{emp\_no} (titles)$ 

```

▶ execute query
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$\pi_{emp\_no, dept\_no} (dept\_emp) \ltimes \pi_{emp\_no} (salaries) \ltimes \pi_{dept\_no, emp\_no} (dept\_manager) \ltimes \pi_{emp\_no} (titles)$

dept_emp.emp_no	dept_emp.dept_no
3	0
4	1
5	2
6	2

3.

Relational Algebra

SQL

Group Editor

$\pi \sigma \rho \leftarrow \tau \gamma \wedge \vee \neg = \neq > \leq \cup \div - \times \ltimes \bowtie \Join \ltimes \triangleright = - / * \{ \} \text{grid}$

1 employees  
2  
3

> execute query

download history ▾

## employees

employees.emp_no	employees.birth_date	employees.first_name	employees.last_name	employees.gender	employees.hire_date
0	1953-09-02	Brown	Adam	M	2000-01-01
1	1975-06-12	Blue	Kevin	M	2000-01-01
2	1981-02-23	Green	Ken	M	2000-01-01
3	1960-03-01	Brown	Alicia	F	2000-01-01
4	1974-11-05	Black	Daniel	M	2000-01-01
5	1979-01-31	Flemming	Noah	M	2000-01-01
6	1971-10-13	Tiger	Dominic	M	2010-12-01

4.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1:  $\pi$  emp_no, birth_date, first_name, last_name, gender, hire_date, salary (employees  $\bowtie$  salaries)
2:

```

▶ execute query

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history ▼

$\pi$  emp\_no, birth\_date, first\_name, last\_name, gender, hire\_date, salary (employees  $\bowtie$  salaries)

employees.emp_no	employees.birth_date	employees.first_name	employees.last_name	employees.gender	employees.hire_date	salaries
0	1953-09-02	Brown	Adam	M	2000-01-01	10000
0	1953-09-02	Brown	Adam	M	2000-01-01	12000
1	1975-06-12	Blue	Kevin	M	2000-01-01	15000
2	1981-02-23	Green	Ken	M	2000-01-01	9000
3	1960-03-01	Brown	Alicia	F	2000-01-01	20000
4	1974-11-05	Black	Daniel	M	2000-01-01	21000
5	1979-01-31	Flemming	Noah	M	2000-01-01	25000
6	1971-10-13	Tiger	Dominic	M	2010-12-01	25000

5.

Relational Algebra
SQL
Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/*$   $\{$   $\}$   $\boxplus$

```

1  $\pi$  emp_no, birth_date, first_name, last_name, gender, hire_date, dept_no, dept_name
  (employees  $\bowtie$  dept_emp  $\bowtie$  departments)
2
3
4

```

▶ execute query

download history ▼

$\pi$  emp\_no, birth\_date, first\_name, last\_name, gender, hire\_date, dept\_no, dept\_name (employees  $\bowtie$  dept\_emp  $\bowtie$  departments)

employees.emp_no	employees.birth_date	employees.first_name	employees.last_name	employees.gender	employees.hire_date	dept_no
0	1953-09-02	Brown	Adam	M	2000-01-01	0
1	1975-06-12	Blue	Kevin	M	2000-01-01	0
2	1981-02-23	Green	Ken	M	2000-01-01	1
3	1960-03-01	Brown	Alicia	F	2000-01-01	0
4	1974-11-05	Black	Daniel	M	2000-01-01	1
5	1979-01-31	Flemming	Noah	M	2000-01-01	2
6	1971-10-13	Tiger	Dominic	M	2010-12-01	2

$\pi$  emp\_no, birth\_date, first\_name, last\_name, gender, hire\_date, dept\_no, dept\_name (employees  $\bowtie$  dept\_emp  $\bowtie$  departments)

emp_no	birth_date	first_name	last_name	gender	hire_date	dept_no	dept_name
0	1953-09-02	Brown	Adam	M	2000-01-01	0	Production
1	1975-06-12	Blue	Kevin	M	2000-01-01	0	Production
2	1981-02-23	Green	Ken	M	2000-01-01	1	Development
3	1960-03-01	Brown	Alicia	F	2000-01-01	0	Production
4	1974-11-05	Black	Daniel	M	2000-01-01	1	Development
5	1979-01-31	Flemming	Noah	M	2000-01-01	2	Customer Service
6	1971-10-13	Tiger	Dominic	M	2010-12-01	2	Customer Service

6.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi$  emp_no, birth_date, first_name, last_name, gender, hire_date (employees) -
2  $\pi$  emp_no, birth_date, first_name, last_name, gender, hire_date (employees  $\bowtie$  dept_manager)
3
4
5
6

```

▶ execute query

download

history ▼

$\pi$  emp\_no, birth\_date, first\_name, last\_name, gender, hire\_date (employees) -  $\pi$  emp\_no, birth\_date, first\_name, last\_name, gender, hire\_date (employees  $\bowtie$  dept\_manager)

employees.emp_no	employees.birth_date	employees.first_name	employees.last_name	employees.gender	employees.hire_date
0	1953-09-02	Brown	Adam	M	2000-01-01
1	1975-06-12	Blue	Kevin	M	2000-01-01
2	1981-02-23	Green	Ken	M	2000-01-01

7.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi$  emp_no, birth_date, first_name, last_name, gender, hire_date ( $\sigma$  dept_no=0 (dept_emp)  $\bowtie$  employees)
2
3

```

▶ execute query

download

history ▼

$\pi$  emp\_no, birth\_date, first\_name, last\_name, gender, hire\_date ( $\sigma$  dept\_no = 0 (dept\_emp)  $\bowtie$  employees)

dept_emp.emp_no	employees.birth_date	employees.first_name	employees.last_name	employees.gender	employees.hire_date
0	1953-09-02	Brown	Adam	M	2000-01-01
1	1975-06-12	Blue	Kevin	M	2000-01-01
3	1960-03-01	Brown	Alicia	F	2000-01-01

8.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi_{\text{salary}}$  (salaries) -  $\pi_{\text{s1.salary}}$  (  $\sigma_{\text{s1.salary} < \text{s2.salary}}$  (  $\rho_{\text{s1}}$  (salaries)  $\times$   $\rho_{\text{s2}}$  (salaries)))

```

▶ execute query

download

history ▼

salaries

salaries

$\pi_{\text{salary}}$  (salaries) -  $\pi_{\text{s1.salary}}$  (  $\sigma_{\text{s1.salary} < \text{s2.salary}}$  (  $\rho_{\text{s1}}$  (salaries)  $\times$   $\rho_{\text{s2}}$  (salaries)))

salaries.salary

25000

<https://dev.mysql.com/doc/employee/en/>

9.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi_{\text{salary}}$  (  $\sigma_{\text{to\_date} \geq \text{date}('2016-02-08')}$  (salaries) ) -  $\pi_{\text{s1.salary}}$  (  $\sigma_{\text{s1.salary} < \text{s2.salary}}$  (  $\rho_{\text{s1}}$  (salaries)  $\times$ 
2  $\rho_{\text{s2}}$  (salaries)))
3
4

```

▶ execute query

download

history ▼

$\pi_{\text{salary}}$  (  $\sigma_{\text{to\_date} \geq \text{date}('2016-02-08')}$  (salaries) ) -  $\pi_{\text{s1.salary}}$  (  $\sigma_{\text{s1.salary} < \text{s2.salary}}$  (  $\rho_{\text{s1}}$  (salaries)  $\times$   $\rho_{\text{s2}}$  (salaries)))

salaries.salary

25000

10.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/$   $*$   $\{\}$   $\boxplus$

```

1  $\pi$  salary, emp_no ( $\sigma$  to_date  $\geq$  date('2016-02-08') (salaries)) -  $\pi$  s1.salary, s1.emp_no (  $\sigma$  s1.salary <
2 s2.salary ( $\rho$  s1 (salaries)  $\times$   $\rho$  s2 (salaries)))

```

▶ execute query

download

history ▼

$\pi$  salary, emp\_no (  $\sigma$  to\_date  $\geq$  date('2016-02-08') (salaries)) -  $\pi$  s1.salary, s1.emp\_no (  $\sigma$  s1.salary < s2.salary (  $\rho$  s1 (salaries)  $\times$   $\rho$  s2 (salaries)))

salaries.salary	salaries.emp_no
25000	6

<https://dev.mysql.com/doc/employee/en/>

11.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/$   $*$   $\{\}$   $\boxplus$

```

1  $\pi$  title, from_date, to_date (  $\sigma$  emp_no=0 (titles)  $\bowtie$  (  $\sigma$  dept_name='Production' (departments))  $\bowtie$  titles)

```

▶ execute query

download

history ▼

$\pi$  title, from\_date, to\_date (  $\sigma$  emp\_no = 0 (titles)  $\bowtie$  (  $\sigma$  dept\_name = 'Production' (departments))  $\bowtie$  titles)

titles.title	titles.from_date	titles.to_date
Engineer	2000-01-01	2000-12-31
Senior Engineer	2001-01-01	9999-01-01

12.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\text{grid}$

```

1   $\pi$  salary ( $\sigma$  emp_no=0 (employees)  $\bowtie$  salaries)
2
3

```

▶ execute query

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history ▼

$\pi$  salary ( $\sigma$  emp\_no = 0 (employees)  $\bowtie$  salaries)

salaries.salary
10000
12000

<https://dev.mysql.com/doc/employee/en/>

13.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\text{grid}$

```

1   $\pi$  emp_no (dept_manager  $\bowtie$   $\pi$  dept_no ( $\sigma$  emp_no=0 (dept_emp)))

```

▶ execute query

download

history ▼

$\pi$  emp\_no (dept\_manager  $\bowtie$   $\pi$  dept\_no ( $\sigma$  emp\_no = 0 (dept\_emp)))

dept_manager.emp_no
3

<https://dev.mysql.com/doc/employee/en/>

14.



Relational Algebra

SQL

Group Edit

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi_{dept\_no}$  (departments) -  $\pi_{dept\_no}$  ( $\sigma$  to_date >= date('2016-02-11') (dept_emp))

```

▶ execute query

download

history

$$\pi_{dept\_no}(\text{departments}) - \pi_{dept\_no}(\sigma_{to\_date \geq \text{date}('2016-02-11')}(\text{dept\_emp}))$$

departments.dept\_no

<https://dev.mysql.com/doc/employee/en/>

Source: [gist.github.com](https://github.com)

15.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi_{emp\_no}$  ( $\sigma_{dept\_no=0}$  (dept_emp)) -  $\pi_{emp\_no}$  ( $\sigma_{dept\_no=0 \wedge to\_date \geq \text{date}('2015-02-11')}$  (dept_emp))
2

```

▶ execute query

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history ▼

$$\pi_{emp\_no}(\sigma_{dept\_no=0}(\text{dept\_emp})) - \pi_{emp\_no}(\sigma_{dept\_no=0 \wedge to\_date \geq \text{date}('2015-02-11')}(\text{dept\_emp}))$$

dept\_emp.emp\_no

8

<https://dev.mysql.com/doc/employee/en/>

16.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1:  $\pi$  emp_no (  $\sigma$  to_date > date('2014-12-31')  $\wedge$  to_date <= date('2015-12-31') (dept_emp))
2:
3:
4:

```

▶ execute query

download

history ▼

$\pi$  emp\_no (  $\sigma$  to\_date > date('2014-12-31') and to\_date ≤ date('2015-12-31') (dept\_emp))

dept_emp.emp_no
9

<https://dev.mysql.com/doc/employee/en/>

17.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1:  $\pi$  emp_no (  $\sigma$  from_date > date('2014-12-31')  $\wedge$  from_date <= date('2015-12-31') (dept_emp))
2:
3:
4:
5:

```

▶ execute query

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history ▼

$\pi$  emp\_no (  $\sigma$  from\_date > date('2014-12-31') and from\_date ≤ date('2015-12-31') (dept\_emp))

dept_emp.emp_no
7

<https://dev.mysql.com/doc/employee/en/>

18.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{$   $\}$   $\boxplus$

```

1  nemp_no (  $\sigma$  to_date > date('2014-12-31')  $\wedge$  to_date <=date('2015-12-31')  $\wedge$  from_date > date('2014-12-31')  $\wedge$ 
   from_date <= date('2015-12-31') ) (dept_emp))
2

```

▶ execute query

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dept\_emp

$\pi$  emp\_no (  $\sigma$  to\_date > date('2014-12-31') and to\_date  $\leq$  date('2015-12-31') and from\_date > date('2014-12-31') and from\_date  $\leq$  date('2015-12-31') (dept\_emp))

dept\_emp.emp\_no

<https://dev.mysql.com/doc/employee/en/>

19.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{$   $\}$   $\boxplus$

```

1  nemp_no (  $\sigma$  to_date > date('2015-12-31')  $\wedge$  from_date > date('2014-12-21')  $\wedge$  from_date <= date('2015-12-31')
   (dept_emp))

```

▶ execute query

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history ▼

dept\_emp

$\pi$  emp\_no (  $\sigma$  to\_date > date('2015-12-31') and from\_date > date('2014-12-21') and from\_date  $\leq$  date('2015-12-31') (dept\_emp))

dept\_emp.emp\_no

7

<https://dev.mysql.com/doc/employee/en/>

Source: [gist.github.com](https://gist.github.com)

by anonymous

20.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi_{emp\_no} (\sigma_{to\_date > date('2015-02-15')} \wedge dept\_no=0 (dept\_emp)) - \pi_{emp\_no} (\sigma_{to\_date > date('2015-02-15')} \wedge dept\_no=1 (dept\_emp))$ 

```

▶ execute query

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$$\pi_{emp\_no} (\sigma_{to\_date > date('2015-02-15')} \text{ and } dept\_no = 0 (dept\_emp)) - \pi_{emp\_no} (\sigma_{to\_date > date('2015-02-15')} \text{ and } dept\_no = 1 (dept\_emp))$$

<u>dept_emp.emp_no</u>
0
1
3

<https://dev.mysql.com/doc/employee/en/>

21.

Relational Algebra

SQL

Group Editor

$\pi$   $\sigma$   $\rho$   $\leftarrow$   $\tau$   $\gamma$   $\wedge$   $\vee$   $\neg$   $=$   $\neq$   $\geq$   $\leq$   $\cap$   $\cup$   $\div$   $-$   $\times$   $\bowtie$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\ltimes$   $\triangleright$   $=$   $--$   $/^*$   $\{\}$   $\boxplus$

```

1  $\pi_{emp\_no} (\sigma_{dept\_no=0 \wedge from\_date \geq date('2016-02-11')} (dept\_emp)) - \pi_{emp\_no} (\sigma_{salary > 11000} (salaries))$ 
2

```

▶ execute query

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dept\_emp

salaries

$$\pi_{emp\_no} (\sigma_{dept\_no = 0 \text{ and } from\_date \geq date('2016-02-11')} (dept\_emp)) - \pi_{emp\_no} (\sigma_{salary > 11000} (salaries))$$

<u>dept_emp.emp_no</u>
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<https://dev.mysql.com/doc/employee/en/>

Source: [gist.github.com](https://gist.github.com/bkubiak7)

by bkubiak7