

MySQL 运算符

本章节我们主要介绍 MySQL 的运算符及运算符的优先级。MySQL 主要有以下几种运算符：

- 算术运算符
- 比较运算符
- 逻辑运算符
- 位运算符

算术运算符

MySQL 支持的算术运算符包括:

运算符	作用
+	加法
-	减法
*	乘法
/ 或 DIV	除法
% 或 MOD	取余

在除法运算和模运算中，如果除数为0，将是非法除数，返回结果为NULL。

1、加

```
mysql> select 1+2;
+-----+
| 1+2 |
+-----+
|   3 |
+-----+
```

2、减

```
mysql> select 1-2;
+-----+
| 1-2 |
+-----+
|  -1 |
+-----+
```

3、乘

```
mysql> select 2*3;
+-----+
| 2*3 |
+-----+
|    6 |
+-----+
```

4、除

```
mysql> select 2/3;
+-----+
| 2/3 |
+-----+
| 0.6667 |
+-----+
```

5、商

```
mysql> select 10 DIV 4;
+-----+
| 10 DIV 4 |
+-----+
|          2 |
+-----+
```

6、取余

```
mysql> select 10 MOD 4;
+-----+
| 10 MOD 4 |
+-----+
|          2 |
+-----+
```

比较运算符

SELECT 语句中的条件语句经常要使用比较运算符。通过这些比较运算符，可以判断表中的哪些记录是符合条件的。比较结果为真，则返回 1，为假则返回 0，比较结果不确定则返回 NULL。

符号	描述	备注
=	等于	

符号	描述	备注
<>, !=	不等于	
>	大于	
<	小于	
<=	小于等于	
>=	大于等于	
BETWEEN	在两值之间	>=min&&<=max
NOT BETWEEN	不在两值之间	
IN	在集合中	
NOT IN	不在集合中	
<=>	严格比较两个NULL值是否相等	两个操作码均为NULL时，其所得值为1；而当一个操作码为NULL时，其所得值为0
LIKE	模糊匹配	
REGEXP 或 RLIKE	正则式匹配	
IS NULL	为空	
IS NOT NULL	不为空	

1、等于

```
mysql> select 2=3;
+-----+
| 2=3 |
+-----+
|  0 |
+-----+

mysql> select NULL = NULL;
+-----+
| NULL = NULL |
+-----+
```

```
|      NULL |
+-----+
```

2、不等于

```
mysql> select 2<>3;
+-----+
| 2<>3 |
+-----+
|    1 |
+-----+
```

3、安全等于

与 `=` 的区别在于当两个操作码均为 NULL 时，其所得值为 1 而不为 NULL，而当一个操作码为 NULL 时，其所得值为 0 而不为 NULL。

```
mysql> select 2<=>3;
+-----+
| 2<=>3 |
+-----+
|    0 |
+-----+
```

```
mysql> select null=null;
+-----+
| null=null |
+-----+
|      NULL |
+-----+
```

```
mysql> select null<=>null;
+-----+
| null<=>null |
+-----+
|          1 |
+-----+
```

4、小于

```
mysql> select 2<3;
+-----+
| 2<3 |
+-----+
```

```
| 1 |  
+-----+
```

5、小于等于

```
mysql> select 2<=3;  
+-----+  
| 2<=3 |  
+-----+  
| 1 |  
+-----+
```

6、大于

```
mysql> select 2>3;  
+-----+  
| 2>3 |  
+-----+  
| 0 |  
+-----+
```

7、大于等于

```
mysql> select 2>=3;  
+-----+  
| 2>=3 |  
+-----+  
| 0 |  
+-----+
```

8、BETWEEN

```
mysql> select 5 between 1 and 10;  
+-----+  
| 5 between 1 and 10 |  
+-----+  
| 1 |  
+-----+
```

9、IN

```
mysql> select 5 in (1,2,3,4,5);  
+-----+  
| 5 in (1,2,3,4,5) |
```

```
+-----+
|           1 |
+-----+
```

10、 NOT IN

```
mysql> select 5 not in (1,2,3,4,5);
```

```
+-----+
| 5 not in (1,2,3,4,5) |
+-----+
|           0 |
+-----+
```

11、 IS NULL

```
mysql> select null is NULL;
```

```
+-----+
| null is NULL |
+-----+
|           1 |
+-----+
```

```
mysql> select 'a' is NULL;
```

```
+-----+
| 'a' is NULL |
+-----+
|           0 |
+-----+
```

12、 IS NOT NULL

```
mysql> select null IS NOT NULL;
```

```
+-----+
| null IS NOT NULL |
+-----+
|           0 |
+-----+
```

```
mysql> select 'a' IS NOT NULL;
```

```
+-----+
| 'a' IS NOT NULL |
+-----+
|           1 |
+-----+
```

13、LIKE

```
mysql> select '12345' like '12%';
+-----+
| '12345' like '12%' |
+-----+
|          1         |
+-----+

mysql> select '12345' like '12_';
+-----+
| '12345' like '12_' |
+-----+
|          0         |
+-----+
```

14、REGEXP

```
mysql> select 'beijing' REGEXP 'jing';
+-----+
| 'beijing' REGEXP 'jing' |
+-----+
|          1             |
+-----+

mysql> select 'beijing' REGEXP 'xi';
+-----+
| 'beijing' REGEXP 'xi' |
+-----+
|          0             |
+-----+
```

逻辑运算符

逻辑运算符用来判断表达式的真假。如果表达式是真，结果返回 1。如果表达式是假，结果返回 0。

运算符号	作用
NOT 或 !	逻辑非
AND	逻辑与
OR	逻辑或
XOR	逻辑异或

1、与

```
mysql> select 2 and 0;
```

```
+-----+  
| 2 and 0 |  
+-----+  
|      0 |  
+-----+
```

```
mysql> select 2 and 1;
```

```
+-----+  
| 2 and 1 |  
+-----+  
|      1 |  
+-----+
```

2、或

```
mysql> select 2 or 0;
```

```
+-----+  
| 2 or 0 |  
+-----+  
|      1 |  
+-----+
```

```
mysql> select 2 or 1;
```

```
+-----+  
| 2 or 1 |  
+-----+  
|      1 |  
+-----+
```

```
mysql> select 0 or 0;
```

```
+-----+  
| 0 or 0 |  
+-----+  
|      0 |  
+-----+
```

```
mysql> select 1 || 0;
```

```
+-----+  
| 1 || 0 |  
+-----+  
|      1 |  
+-----+
```

3、非


```
mysql> select not 1;
```

```
+-----+  
| not 1 |  
+-----+  
|      0 |  
+-----+
```

```
mysql> select !0;
```

```
+-----+  
| !0 |  
+-----+  
|   1 |  
+-----+
```

4、异或

```
mysql> select 1 xor 1;
```

```
+-----+  
| 1 xor 1 |  
+-----+  
|        0 |  
+-----+
```

```
mysql> select 0 xor 0;
```

```
+-----+  
| 0 xor 0 |  
+-----+  
|        0 |  
+-----+
```

```
mysql> select 1 xor 0;
```

```
+-----+  
| 1 xor 0 |  
+-----+  
|        1 |  
+-----+
```

```
mysql> select null or 1;
```

```
+-----+  
| null or 1 |  
+-----+  
|          1 |  
+-----+
```

```
mysql> select 1 ^ 0;
```

```
+-----+  
| 1 ^ 0 |
```

```
+-----+
|      1 |
+-----+
```

位运算符

位运算符是在二进制数上进行计算的运算符。位运算会先将操作数变成二进制数，进行位运算。然后再将计算结果从二进制数变回十进制数。

运算符号	作用
&	按位与
	按位或
^	按位异或
!	取反
<<	左移
>>	右移

1、按位与

```
mysql> select 3&5;
+-----+
| 3&5 |
+-----+
|    1 |
+-----+
```

2、按位或

```
mysql> select 3|5;
+-----+
| 3|5 |
+-----+
|    7 |
+-----+
```

3、按位异或

```
mysql> select 3^5;
+-----+
| 3^5 |
```

```
+-----+
|    6   |
+-----+
```

4、按位取反

```
mysql> select ~18446744073709551612;
+-----+
| ~18446744073709551612 |
+-----+
|                3      |
+-----+
```

5、按位右移

```
mysql> select 3>>1;
+-----+
| 3>>1 |
+-----+
|    1  |
+-----+
```

6、按位左移

```
mysql> select 3<<1;
+-----+
| 3<<1 |
+-----+
|    6  |
+-----+
```

运算符优先级

最低优先级为：`:=`。

优先级顺序	运算符
1	:=
2	, OR, XOR
3	&&, AND
4	NOT
5	BETWEEN, CASE, WHEN, THEN, ELSE
6	=, <=>, >=, >, <=, <, <>, !=, IS, LIKE, REGEXP, IN
7	
8	&
9	<<, >>
10	-, +
11	*, /, DIV, %, MOD
12	^
13	-(一元减号), ~(一元比特反转)
14	!

最高优先级为：**!**、**BINARY**、**COLLATE**。

← MySQL IFNULL() 函数

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