Relational Operators

The operators who compare the values of their operands are called comparison/ relational operators. Python has six most common relational operators. Let X and Y be the two operands and let X = 5 and Y = 10.

Operator	Description	Example
==	If the values of two operands are equal, then the condition is **true**, otherwise, it is **false**. ***Common Mistake:-*** *Do not confuse it with the Assignment Operator(=).*	(X == Y) is **false**
!=	If the values of the two operands are not equal, then the condition is **true.**	(X != Y) is **true.**
>	If the value of the left operand is greater than the value of the right operand, then the condition is **true.**	(X > Y) is **false**
<	If the value of the left operand is less than the value of the right operand, then the condition is **true.**	(X < Y) is **true.**
>=	If the value of the left operand is greater than or equal to the value of the right operand, then the condition is **true.**	(X >= Y) is **false.**
<=	If the value of the left operand is less than or equal to the value of the right operand, then the condition is **true.**	(X <= Y) is **true.**

Logical Operators

The operators which act on one or two boolean values and return another boolean value are called logical operators. There are 3 key logical operators. Let X and Y be the two operands and let **X = True** and **Y = False.**

Operator	Description	Example
and	Logical AND: If both the operands are true then the condition is true.	(X and Y) is **false**
or	Logical OR: If any of the two operands are then the condition is true.	(X or Y) is **true,**
not	Logical NOT: Used to reverse the logical state of its operand.	Not(X) is **false**

The Truth table for all combination of values of X and Y

X	Y	X and Y	X or Y	not(X)	not(Y)
T	T	T	T	F	F
T	F	F	T	F	T
F	T	F	T	T	F
F	F	F	F	T	T

Let us consider an example code to understand the relational operators in Python:

```
x = 9
y = 13

print('x > y is',x > y) # Here 9 is not greater than 13

print('x < y is',x < y) # Here 9 is less than 13

print('x == y is',x == y) # Here 9 is not equal to 13

print('x != y is',x != y) # Here 9 is not equal to 13

print('x >= y is',x >= y) # Here 9 is not greater than or equal to 13

print('x <= y is',x <= y) # Here 9 is less than 13
```

And we get the output as:

```
x > y is False
x < y is True
x == y is False
x != y is True
x >= y is False
x <= y is True
```

Let us consider another example code to understand the logical operators in Python:

```
x = True
y = False

print('x and y is',x and y)
print('x or y is',x or y)
print('not x is',not x)
```

And we get the output as:

```
x and y is False
x or y is True
not x is False
```