

VEX V5 Using Booleans in VEXcode V5 Python

The “bool” data type generates logically true or false.

Basic Python Logical/Comparison Operators

Operators	Name/Description
==	Equal (Do not use “=” as “=” means assignment)
!=	Not equal
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
and	And
or	Or
not	Not (Negate whatever expression after “not”)

Logical/Boolean Expressions

```
if <boolean expressions> :  
  
    <block>
```

The <boolean expressions> will contain a single or complex expression to be evaluated. The <block> means a block of code that will be executed only if the <boolean expressions> are evaluated to be true.

More Boolean Expressions:

Boolean Expression	What it means
if x == 10:	if x is equal to 10
if x <= 10:	if x is less than or equal to 10

if x > 10 or y > 20:	if x is greater than 10 or y is greater than 20
if x <= 10 and y <= 20:	f x<=10 and y<=20
if not (x > 10 or y > 20) :	if x<=10 and y<=20
if not (x <=10 or x >=20):	If x>10 and x<20

Use special caution when using boolean expressions!

A Boolean type (bool) is a simple integer value.

Let's take a look at how `if <boolean expressions>:` is interpreted:

- `if <boolean expressions>` will be computed by the compiler; it produces a meaning of true or false.
- Truth is: when `<boolean expressions>:` produces anything other than 0 (i.e. zero), the `if <boolean expressions>:` will mean true.
- So: the following expressions are always true:
 - if 1 :
 - if 10 :
 - if anything results non-zero:

Common Errors you must pay attention to:

Example 1:

```
x = 10
y = 20
if x = y:
    brain.screen.print("x and y are the same.")
else :
    brain.screen.print("x and y are different.")
```

Output: *SyntaxError: invalid syntax*

Why?

Because the expression “x = y” is an assignment statement, not a comparison statement. In this example, we are trying to assign the value of the variable y to the variable x using the assignment operator “=” inside the if statement. The correct syntax for comparing values in an if statement is to use the comparison operator “==”.

Here is the corrected code:

```
x = 10
y = 20
if x == y:
    brain.screen.print("x and y are the same.")
else :
    brain.screen.print("x and y are different.")
```

Example 2:

```
x = 0
y = 0
if x > y
    brain.screen.print("x is greater than y.")
else :
    brain.screen.print("x is not greater than y.")
```

Output: *SyntaxError: expected “:”*

Why?

Because there is a missing colon “:” at the end of the if statement.

Here is the corrected code:

```
x = 0
y = 0
if x > y:
    brain.screen.print("x is greater than y.")
else :
    brain.screen.print("x is not greater than y.")
```