Chapter 3 - Conditionals

Conditionals

Compound Conditionals

Learning Objectives - Compound Conditionals

- **Use two or more boolean expressions in a if statement**
- **Describe the syntax for having more than one boolean expression**
- **Identify when to use compound conditionals and when not to use them**

Compound Conditional Syntax

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A compound conditional is a conditional (an if statement) that has more than one boolean expression. You need to use the `and` or the `or` keywords to link these boolean expressions together. You can use the `not` keyword, but only in combination with `and` or `or`.

```
if True and True:
    print("True")
```

Code Visualizer

challenge

What happens if you:

- Have an if statement that says `if True or False:`?
- Have an if statement that says `if not True or False:`?
- Have an if statement that says `if True not False:`?
- Have an if statement that says `if 5 < 10 and 5 > 0:`?

Code Visualizer

▼ **Compound Less Than or Greater Than**

This is Python specific syntax, but it is possible to combine a compound conditional to look like something from a math class. Imagine you have a variable `a` with the value of `5`. You can rewrite `a < 10 and a > 0` to be `0 < a < 10`.

Compound Conditional Statements

Compound Conditional Statements

Conditional statements (if statements) are used to match an action with a condition being true. For example, print `Even` if a number is even. If you want to test for a number being even and greater than 10, you will need two conditionals.

```
num = 16

if num % 2 == 0 and num > 10:
    print("Even and greater than 10")
```

challenge

What happens if you:

- Change `num` to `8`?
- Change `and` to `or`?
- Change `==` to `!=`?

Why Use Compound Conditionals

Both code snippets below do the same thing — ask if `my_var` is greater than 15 and if `my_var` is less than 20. If both of these are true, then Python will print the value of `my_var`.

```
my_var = 19

if my_var > 15:
    if my_var < 20:
        print(my_var)
```

```
my_var = 19

if my_var > 15 and my_var < 20:
    print(my_var)
```

compound conditional

The code with the compound conditional (on the right) has fewer lines of code, and is easier for a human to read. In fact, it almost reads like a sentence.