Booleans and If Statements: Takeaways 🖻

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Syntax

COMPARISON OPERATORS

```
• returns:
      • True if both values are equivalent: 5 = 5
      • False if they're different: 5 = 6
 := returns:
      • True if both values are different: 5 != 6
      • False if they're equivalent: 5 != 5
  > returns:
      • True if the first value is greater than the second value: 5 > 1
      • False if the first value is less than the second value: 5 > 6
 < returns:
      • True if the first value is less than the second value: 5 < 6
      • False if the first value is greater than the second value: 5 < 1
  >= returns:
      • True if the first value is greater than or equal to the second value: 1 >= 1
      • False if the first value is less than the second value: 1 >= 3
  <= returns:
      • True if the first value is less than or equal to the second value: 1<=2
      • False if the first value is greater than the second value: 1 \le 0
```

IF STATEMENTS

• Basic if statement syntax:

```
python
sample_rate = 749
if sample_rate > 750:
    print("Higher than 750")
```

• Nested if statements:

```
python
sample_rate = 749
if sample_rate > 750:
    if sample_rate < 748:
        print("Higher than 750 AND lower than 748")</pre>
```

• If statement within a for loop:

```
python
sample_list = [0,1,2]
which_index = 0
for s in sample_list:
    if s == 2:
        which_index = counter
    counter += 1
```

Concepts

- We can use conditional logic to add criteria to the code we write. Some examples of operations that use criteria include:
 - Finding all the *integers* in a *list* that are greater than 5.
 - Identifying which elements in a *list* are *strings*, and printing only those values.
- Python has a class called **Boolean** that helps express conditional logic. There are only two *Boolean* values: True and False. Because they're words, *Boolean* values may look like *strings*, but they're an entirely separate class.

- To complement *Booleans*, Python contains the *if* operator. We can use this operator to write a statement that tests whether certain conditions exist. Our *if* statement will evaluate to either True or False, and only run the specified code when True.
- Similar to *for* loops, we need to format *if* statements in the following way:
 - End the conditional statement with a colon (:)
 - Indent the code (that we want run when True) below the conditional statement
 - Also similar to *for* loops, *if* statements can contain multiple lines in the body, as long as their indentation aligns.

Resources

- Python Documentation: Comparison Operators
- Python Documentation: If Statements



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