Operators in Python

Summary
Arithmetic operators

• +, -, *, /

• a**b
  • a to the power of b

• //
  • Integer division: 7//2 == 3 (because 7 = 3 x 2 + 1)
  • (-7)//2 == -4, but better be safe than sorry, just compute 7//2 and decide what you want to do (-7 = 2 x -4 + 1)

• %
  • Modulo (the remainder): 8 % 3 == 2 (because 8 = 2 x 3 + 2)
  • (-8)%3 == 1, but again, better be safe than sorry (because -8 = -3 x 3 + 1)
Comparison operators

• Equality ==
  • \((2 == 2) == \text{True}, (2 == 1) == \text{False}, ("hello" == "hi") == \text{False}\)

• Inequality !=
  • \((2 != 2) == \text{False}, ...\)

• \(>, <, \geq, \leq\)
  • Behave the way you expect for numbers
  • \("\text{CSC180} > \text{CIV102}\) == \text{True}, \("\text{CSC180} < \text{ESC102}\) == \text{True}
    • Lexicographic (dictionary) ordering
Boolean operators

• a and b: True if both a and b are True, False otherwise
• a or b: True if at least one of a or b is True, False if both are false
• not a: True if a is False, False if a is True

<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>not b</th>
<th>a and b</th>
<th>a or b</th>
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<tbody>
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Tip: do not memorize the table! Understand the logic instead
Assignment

• $a = b$
  • Assign $b$ (the right-hand side) to $a$ (the left-hand sign)
  • Do not confuse with $==$  
• $a *= b$
  • The same as $a = a * b$
• Also works with $a += b$, $a -= b$, $a /= b$, ...
Multiple assignment

• $s, n, f = \text{"hello"}, 5, 4.5$