Reminders

• THE CLASS IS ALREADY REMOTE!
  • Lectures: Live→Videos (Calendar)
  • Labs: Async Request Form

• NO READING QUIZZES!

• ALL CLASS-RELATED QUESTIONS SHOULD BE SUBMITTED IN ED!

• Assignments
  • Assign 0 due today
Key instructions

• Input
• Output
• Assignments* ✓
• Math/Logic ←
• Conditionals←
• Repetition

*not listed in book
PFTD

- Boolean logic
- Conditionals
- PAY ATTENTION TO ERROR MESSAGES

“The mere imparting of information is not education.”
- Dr. Carter G. Woodson
People to Know:
Dr. Amy J. Ko

- Carnegie Mellon (PhD, CS)
- Oregon State (BS, CS and Psych)
- Professor
- Informatics Program Chair, University of Washington (Seattle)
- CS education, HCl,
Boolean Logic

<table>
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<tr>
<th>AND</th>
<th>OR</th>
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<tr>
<td>$x$</td>
<td>$y$</td>
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$\text{AND}$: $0 \cdot 0 = 0$, $0 \cdot 1 = 0$, $1 \cdot 0 = 0$, $1 \cdot 1 = 1$

$\text{OR}$: $0 + 0 = 0$, $0 + 1 = 1$, $1 + 0 = 1$, $1 + 1 = 1$
Boolean values in Python

• True or False
  • Case matters!!

• Relational operators
  • x == y
  • x != y
  • x > y
  • x < y
  • x >= y
  • x <= y
Comparing Logical Expressions

- and, or, not
- $Expression1$ and $Expression2$
- $Expression1$ or $Expression2$
- not $Expression2$

- Remember order of precedence
  - PEMDAS
  - Relational ($==$, $!=$, $>$, $<$, $\geq$, $\leq$)
  - Logical (and, or, not)
Activity 1: Boolean Expressions
Conditionals
Conditionals: You can’t have it both ways!

- If condition is true ➔ action1
- Or else ➔ action2

```python
if condition1:
    block1
else:
    block2
```

```python
if __name__ == '__main__':
    num1 = 7

    if num1 == 5:
        print("The number is 5!")
    else:
        print("The number is NOT 5!")
```
Selection/Conditionals: \texttt{if...elif...else}

```python
if BOOLEAN_CONDITION:
    CODE_BLOCK_A
elif BOOLEAN_CONDITION:
    CODE_BLOCK_A
else:
    CODE_BLOCK_B
else:
    CODE_BLOCK_B
```

```python
if __name__ == '__main__':
    num1 = 5
    if num1 == 5:
        print("The number is 5!")
    elif num1 < 5:
        print("The number is less than 5!")
    else:
        print("The number is greater than 5!")
```

```python
if __name__ == '__main__':
    num1 = 2
    if num1 == 5:
        print("The number is 5!")
    elif num1 < 5:
        print("The number is less than 5!")
    else:
        print("The number is greater than 5!")
```

What if num1=2?
Activity 2: Sibling Rivalry
Reminders

• Work smarter, not harder
• Design first
• Try to identify where you are stuck
  • Identify resources to help solve problem
• Leverage your design and PythonTutor to understand program flow of control
  • http://pythontutor.com