

BU CodeBreakers 2017

Python III: Conditionals, Indentations

WHAT ARE
CONDITIONALS?

Is this a conditional statement?

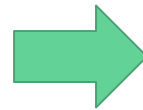
“If it’s raining, I’ll take the T, if it’s not raining I’ll walk!”

What are the two conditions here?



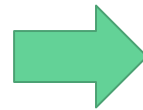
Condition I

If it's raining, I'll take the T



Condition II

If it's not raining, I'll walk



Python Conditionals

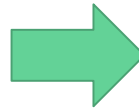
```
if (condition):  
    statement 1  
    statement 2  
    .....  
else:  
    statement a  
    statement b  
    .....
```



WHAT DOES THE
EXAMPLE LOOK LIKE
IN PYTHON?

Python Conditionals

```
if (condition):  
    statement 1  
    statement 2  
    .....  
else:  
    statement a  
    statement b  
    .....
```

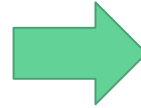


```
if (rain):  
    Take the T  
else:  
    Walk
```



Python Conditionals

```
if (condition):  
    statement 1  
    statement 2  
    .....  
else:  
    statement a  
    statement b  
    .....
```



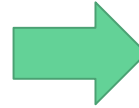
Why do you need (:)?

```
if (rain):  
    Take the T  
else:  
    Walk
```



Python Conditionals

```
if (condition):  
    statement 1  
    statement 2  
    .....  
else:  
    statement a  
    statement b  
    .....
```



Why do you need (:)?

```
if (rain):  
    Take the T  
else:  
    Walk
```

Why do you need this space?

How will you know when the statements have ended? Or who the statements belong to?

INDENTATION: USED TO SEPARATE BLOCK
OF CODES BELONGING TO DIFFERENT
ELEMENTS

VERY IMPORTANT FOR MULTIPLE
CONDITIONALS

Nested Conditionals

When it's raining: if you're late → skip school, otherwise call an uber

When it's not raining: if you're late → take the T, otherwise walk

```
if (rain):  
    if (late):  
        Skip school  
    else:  
        Call uber  
else:  
    if (late):  
        Take the T  
    else:  
        Walk to school
```



Multiple conditions?

Example:

Rainy → do stuff1

Sunny → do stuff2

Cloudy → do stuff3

....

Else if = elif

```
if (rainy):  
    Stuff 1  
elif (sunny):  
    Stuff 2  
elif (cloudy):  
    Stuff 3  
else:  
    bleh!
```



WHAT ARE
OPERATORS?

WHAT IS $=$?

WHAT IS +?

WHAT ABOUT
COMPARISON
OPERATORS?

Comparison Operators

- Also known as relational operators
- Compares two values and gives the relationship between them
- Can you think of some Examples?



Comparison Operators

```
>>> 5 > 4
```



Comparison Operators

>>> 5 > 4 #Greater than?

True

>>> 5 <= 4



Comparison Operators

>>> 5 > 4 #Greater than?
True

>>> 5 <= 4 #less than equal to?
False

>>> 5 == 4



Comparison Operators

>>> 5 > 4 #Greater than?
True

>>> 5 <= 4 #less than equal to?
False

>>> 5 == 4 #equal to?
False

>>> 5 != 4



Comparison Operators

>>> 5 > 4 #Greater than?

True

>>> 5 <= 4 #less than equal to?

False

>>> 5 == 4 #equal to?

False

>>> 5 != 4 #not equal to?

True

WHAT ABOUT
BOOLEAN OPERATORS
AND, OR, NOT

Boolean operators examples

```
>>> True and False  
False
```

```
>>> 5 < 4  
False
```

```
>>> ( 5 > 4) and (3 > 2)  
True
```

```
>>> a=5  
>>> not (a > 2)  
False
```

Boolean Operators

- Used for combining multiple conditionals
- Examples?



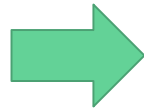
Is this a conditional statement?

“If it’s raining and if I don’t have an umbrella, I’ll take the T,
otherwise I’ll walk!”

What are the two conditions here?

Condition I

If it's raining and if I don't have an umbrella, I'll take the T



AND

NO



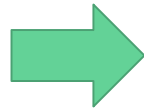
Condition II

Otherwise, I'll walk



AND

NO



What will it look like in Python?

If (*condition*):

 If statement 1

 If statement 2

Else:

 Else statement 1

 Else statement 2

What will it look like in Python?

If (*condition*):

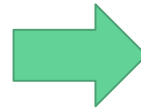
 If statement 1

 If statement 2

Else:

 Else statement 1

 Else statement 2



If (*rain and (not umbrella)*):

 Take the T

Else:

 Walk



Masterlist of all operators

https://www.tutorialspoint.com/python/python_basic_operators.htm



EXERCISE III