Conditional Statements

Unit 2, Lesson 4

Reference & Examples:
https://www.programiz.com/python-programming/operators
https://www.programiz.com/python-programming/if-elif-else

Learning Goals:

B1.5 identify situations in which decision and looping structures are required;

B1.6 describe the function of Boolean operators, comparison operators, and arithmetic operators;

B2.4 write a program that includes a decision structure for two or more choices;

What is a “Conditional Statement”?

Allows your program to **check for conditions** during execution and **make decisions**.

if _____, then _____.

The Conditional Statement Game!

If you had breakfast this morning, then go to the left wall.

Else if you will eat after class, then go to the right wall.

Else if you don’t eat breakfast, then go to the back wall.

Else, (for everyone else) stand up.

The Conditional Statement Game!

If you like watching movies go to the left wall.

Else if you like playing sports go to the front wall.

If you like playing games AND watching movies, go to the right wall.

Else, go to the back wall.

“Operators”

Special characters that tell the compiler to perform some action on variables and return the result.

=, +, -, /, +=, >, !=, <, ==, *,

Assignment Operators

Used to assign a value to a variable or to modify an existing value.

```
=

+=

-=

*=

/=
```

E.G.

Assign an integer value of 5 to the variable numTacos

```
numTacos = 5
```

E.G.

Add 1 to the variable numTacos

```
numTacos += 1
```

Arithmetic Operators

Used to perform mathematical operations on numbers and variables.

+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus (returns the remainder)
**	Exponent (left to power of right)

E.G.

```
myVal = 5 + 10

secondVal = 10 - 20

finalVal = myVal * secondVal
```

E.G.

```
powerOf = 2**8

myMod = 5 % 2

myMod2 = 6 % 2
```

Comparison Operators A.K.A “Comparators”

Needed for writing conditional statements.

== is EQUAL to

!= is NOT equal to

> is GREATER than

< is LESS than

>= is GREATER than or EQUAL to

<= is LESS than or EQUAL to

Basically, the statement will *return* TRUE if the left side meets the given condition of the right side.

If the left side DOES NOT meet the condition then it will *return* FALSE.

A Simple Example:

```
num = 31 #change this number to see how the program responds

if num == 30:
    print("Your number is exactly 30.")
```

must use “ : ”

TAB

MUST INDENT!

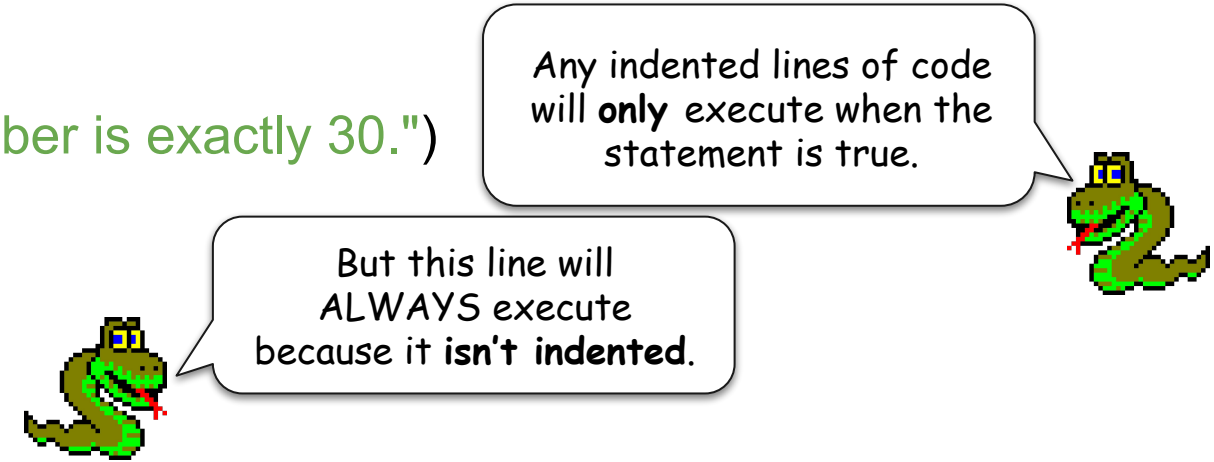
Adding more lines:

```
num = 31


if num == 30:
    print("Your number is exactly 30.")
    calc = num % 2
    print(calc)

print("end of code")
```

TAB



Using More If-Statements

Multiple if-statements will all happen one-after-the-other.

```
num = 31 #change this number to see how the program responds

if num > 30:
    print("Big number!")

if num > 10:
    print("Medium number")

if num > 5:
    print("Small number")

if num > 0:
    print("Tiny number")
```

Checking More Conditions

```
num = 31 #change this number to see how the program responds

if num > 30:
    print("Big number!")

elif num > 10:
    print("Medium number")

elif num > 5:
    print("Small number")

else:
    print("Tiny number")
```

Use elif for Else If:

elif will only happen if the previous condition is FALSE.

Use else for everyone else:

else will only happen if ALL the other conditions are FALSE.

You can use conditional statements to check words too!

Logical Operators: and, or, not

Also called “Boolean Operators” because of what they are used for. They are used to compare the results of multiple conditions.

```
myName = input("What is your name?")

if myName == "Lanz" or myName == "Mr. Singbeil":
    print("Hello Teacher!")

else:
    print("I'm sorry, I don't know who you are...")
```