PYTHON FUNDAMENTALS

What if

LEARNING OBJECTIVES

- To understand if/else syntax
- To understand and use comparison operators
- To write programs with single and multiple conditions

What if?

Imagine there’s some music on

How do you feel about the music?

Stupid question!

Depends on what the music is!

```
music = "classical"


if music == "classical":
    print("Oh no it's that classical again")
elif music == "no music":
    print("Arh, peace and quiet")
else:
    print("Nice and noisy")
```

Have you noticed that the code is formatted really nicely?

It’s not by accident.
Python is **whitespace dependent.**

That sounds fancy but it basically means it matters where there are indents and new lines

```
if condition1:
    #do this
elif condition2:
    #do this
else:
    #if nothing else matched do this
```

```
if music == "classical":
    print("Oh no it's that classical again")
```

==?

Comparison Operators

==	Equal
!=	Not equal

>=

>

<=

<

```python
music = "classical"


if music == "classical":
    print("Oh no it's that classical again")
elif music == "no music":
    print("Arh, peace and quiet")
else:
    print("Nice and noisy")
```

To VSC

Activity:

Create a variable called age.

Write an if statement that logs “Yes I can serve you” if age is greater than 17 and else logs “You aren’t old enough”.

```
if condition1:
    #do this
else:
    #if nothing else matched do this
```

Possible solution

```
age = 20

if age > 17:
    print("Yes I can serve you!")
else:
    print("You aren't old enough!")
```

And onto the next thing

```
place = "MCR"
weather = "Cloudy"

if place == "MCR" and weather == "Sunny":
    print("Check again")
elif place == “MCR" and weather == "Rain":
    print("Obvs")
else:
    print("What it isn't raining?")
```

Activity:

Take your if statement and add a variable called country.

Now check if age > 17 and country == “UK”

Possible solution (1)

```
age = 20
country = "UK"
if age > 17 and country == "UK":
    print("Yes I can serve you")
elif age > 17 and country != "UK":
    print("Where are you?")
else:
    print("You aren't old enough")
```

Possible solution (2)

```
age = 20
country = "UK"
if age > 17 and country.lower() == "uk":
    print("Yes I can serve you")
elif age > 17 and country.lower() != "uk":
    print("Where are you?")
else:
    print("You aren't old enough")
```

Or not?

```
day = "Saturday"

if day == "Saturday" or day == "Sunday":
    print("It's weekend!")
else:
    print("When's weekend?")
```

```
day = "Saturday"

              true    or        false
if day == "Saturday" or day == "Sunday":
    print("It's weekend!")
else:
    print("When's weekend?")
```

In the condition we have

`expression To Be Evaluated`

logicalOperator

and/or

`expression To Be Evaluated`

It’s only logical

and

True and True —>

True and False —>

False and False —>

and

True and True —> True

True and False —> False

False and False —> False

or

True and True —>

True and False —>

False and False —>

or

True and True —> True

True and False —> True

False and False —> False

LEARNING OBJECTIVES

- To understand if/else syntax
- To understand and use comparison operators
- To write programs with single and multiple conditions

Pre-reading: modulus %

Some of the challenges below require some reading on the use of the modulus symbol %

This would be a starting point:

https://python-reference.readthedocs.io/en/latest/docs/operators/modulus.html

Challenge 1:

Create a variable called password.

Check how many letters are in the password, if there are less than 8 print that the password is too short. Otherwise print the password.

Challenge 2:

Create a variable called num.

Check if the variable is divisible by 3 or 5. If it is print “This number is divisible by 3 or 5” to the console. Otherwise log “This number is not divisible by 3 or 5”.

Challenge 3:

Create a variable called num.

If num is divisible by 3 print “fizz”, if it’s divisible by 7 print “buzz”, if it’s divisible by both 3 and 7 print “fizz buzz”.

Otherwise print num.

Challenge 4:

Create a variable called word that takes a string.

Create an if statement that checks if the last letter is the same as the first. If it is return true, otherwise return false.

Challenge 5:

Create a variable called time, a variable called place_of_work and a variable called town_of_home. Create an if statement that prints where someone is at times of the day. E.g. if the time is 7 I’m at home, at 8 I’m commuting, at 9 I’m at work.

Challenge 6:

Create two variables called num1 and num2. Create an if statement that checks if the result of the sum is even. If it is, return a success message.

Extra Challenges

Challenge 7:

Create a variable called num.

Check if the number is a palindrome (looks the same forward as it does backwards e.g. 1001 or 20202).

Extra

Challenge 8:

Take the string
“jrfndklhgfndjkjlkgperfijfhdknsadcvjhiiohjfkledsopiuhgty
ujwsdxcvhgfdjhiopiwquhejkdsoiufghedjwshi”.
Find the index of a last vowel in the string.

Extra reading

Truthy and Falsey

Conditions can use Truthy and Falsey values for strings

Let’s take this in:

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


if name:
    print("Hello {}, how are you?".format(name))
else:
    print("You did not give me your name!")
```

Let’s take this in:

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


if name:
    print(                              rmat(name))
else:
    print("You did not give me your name!")
```

If this string is a truthy value, so this condition is met.

Let’s take this in:

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


if name:
    print                                       name))
else:
    print("You did not give me your name!")
```

Blank string is falsey, and therefore else will be executed.

Falsey values

- Empty string
- Value 0
- Floating point value 0.0

- Everything else is Truthy