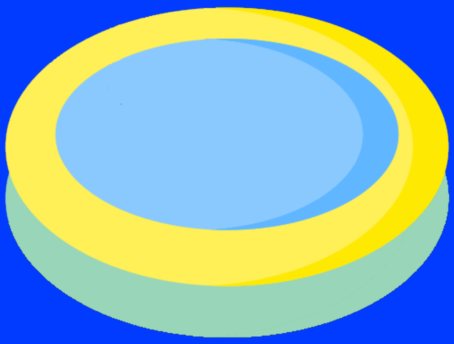
{EPITECH}

WADING POOL_

< 07 - BASIC FUNCTIONS />



WADING POOL

Code wars
In addition to the tasks below, you must go as far as possible in this code wars collection. Try to solve the first one until the last one without skipping challenges!
Work on it as soon as you have a bit of time, or whenever you need a break in you day!

Basic functions

Task 1.1 🥕

Dig this piece of code and try to predict the values of a and b. Then, run it to check it.

```
def f1():
    return 42
def f2(x):
    return 2 * x

print(f1())
print(f2(5) + f1())
```

Task 1.2 🥕

Using the following functions, display a lettuce-tomato-double ham sandwich in your terminal.

```
def bread():
    print("<//////////>")

def lettuce():
    print("~~~~~~~~~~~~")

def tomato():
    print("O O O O O O")

def ham():
    print("============")
```

Task 1.3

Make 4 of those lettuce-tomato-double ham sandwiches.

Please, be smart and lazy.

Task 1.4

Write a function that:

✓ takes the number of sandwiches to prepare as a parameter ;

✓ then displays as many sandwiches as requested.

You MUST check that the parameter is correct (an integer strictly positive).
If not, you MUST print `I can't do this!`, for instance for parameters `toto` or `3.14`.

Task 1.5

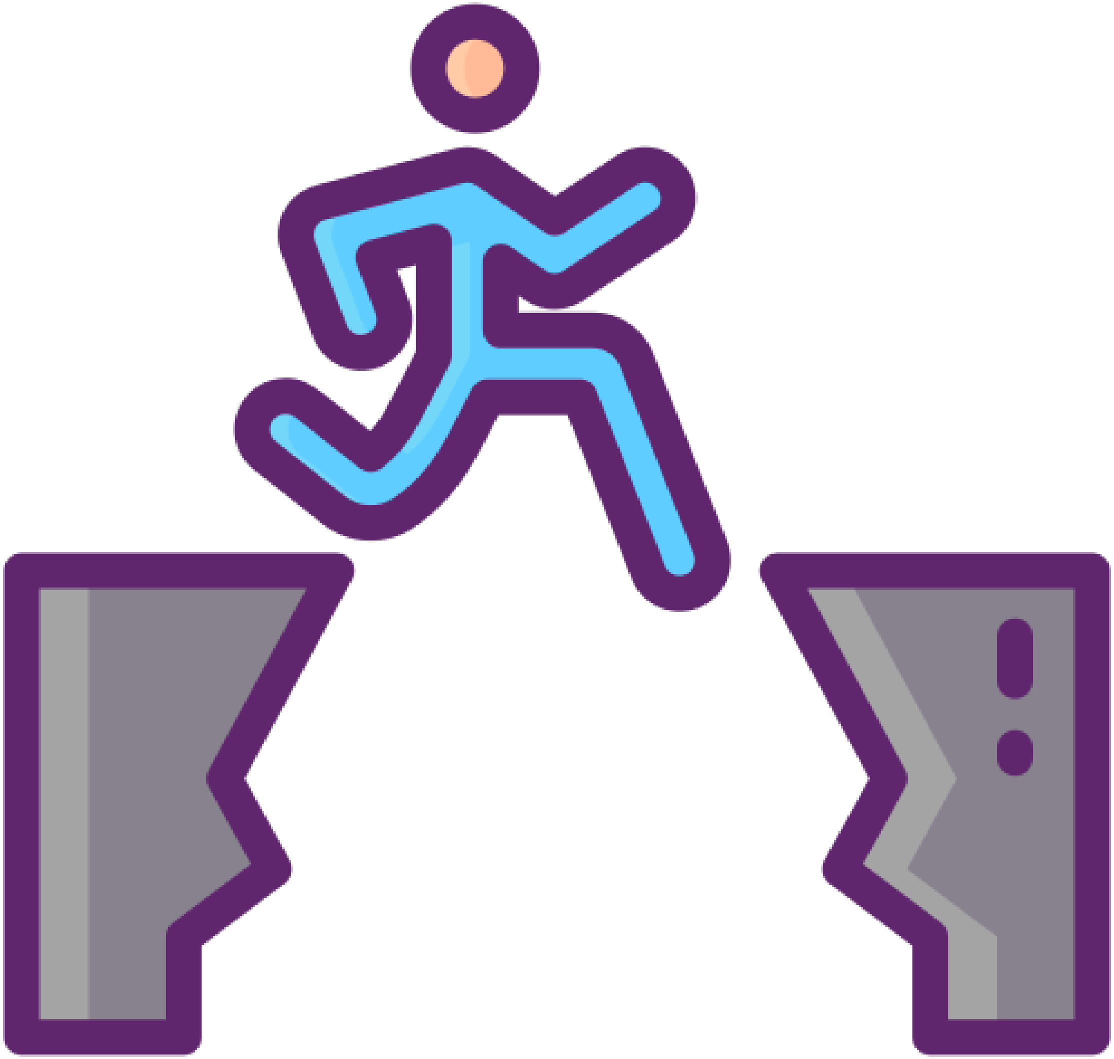
Add a parameter to provide the possibility for veg sandwich (double vegetables + no ham).
If this option isn't specified, the sandwich must be a lettuce-tomato-double ham one by default.

CHALLENGE

Write a little program that computes the power function as fast as possible.

How long does your program takes to compute 42^{84}? and 42^{168}?

Compare your times and your code with your neighbors.



⚠ You are not allowed to use the system function.

Recursion

Task 2.1

Write a **recursive** function that computes the sum of all integers from 1 to n, a given parameter.

The parameter `42` should return `903`.

Task 2.2

Write a **recursive** function that prompt the user for a string of characters, strip out the spaces and punctuation signs, lowercase the string, then test if is a palindrome.

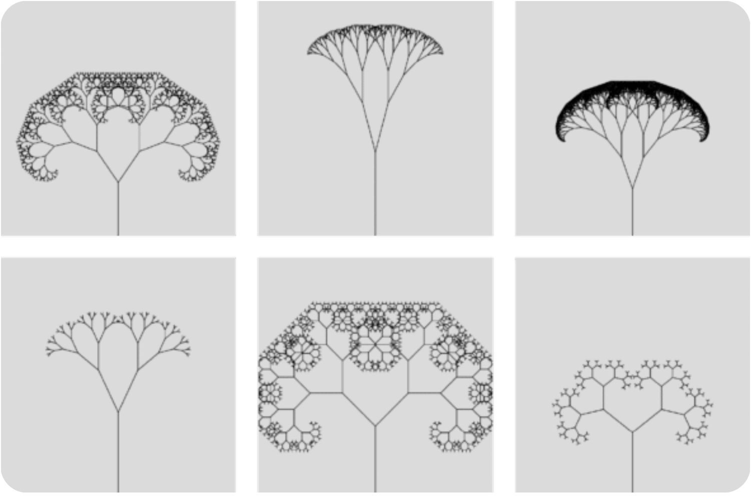
It should return ”True” for `never odd or even` and `A Santa Lived As a Devil at NASA`.

Task 2.3

Write a **recursive** program that lists all the files and directories in the current directories, as well as all files and directories in its sub-directories and so on.

It should behave similarly as the `ls -R` command.

Check out the python **o**perating **s**ystem interface.



Higher-order functions

Task 3.1

Write 3 functions, each taking a string s and an integer n as parameters and returning a **boolean**:

- ✓ $funA$ checks if s contains at least n characters;
- ✓ $funB$ checks if s contains at least n special characters;
- ✓ $funC$ checks if s contains at least n numbers.

Task 3.2

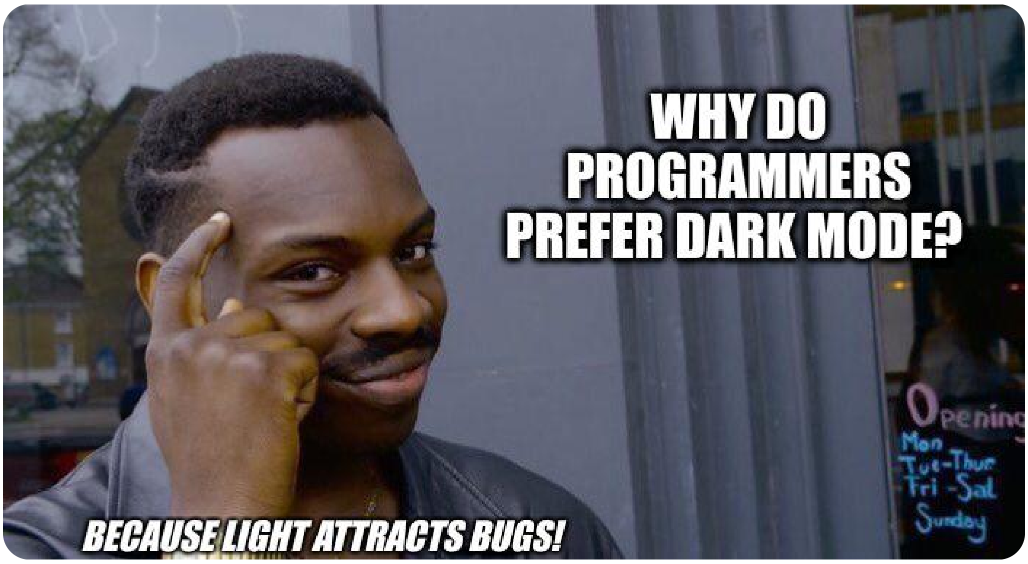
Write a generic function to checks passwords : they must contain more than 16 characters, at least 3 special character and 1 number.
This function should be callable the following way:

```
passcheck(fun1, 16, "mysecretpassword")
passcheck(fun2, 3, "mysecretpassword")
passcheck(fun3, 1, "mysecretpassword")
```

> `fun1`, `fun2` and `fun3` are functions. You can/must reuse what you've already done ;)

Task 3.3

Add error handling to your previous function.
A common misuse would be providing input of the wrong type (integer, boolean, string, ...).


WHY DO PROGRAMMERS PREFER DARK MODE?
BECAUSE LIGHT ATTRACTS BUGS!
Opening
Mon
Tue-Thur
Fri-Sat
Sunday

v 2.2

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