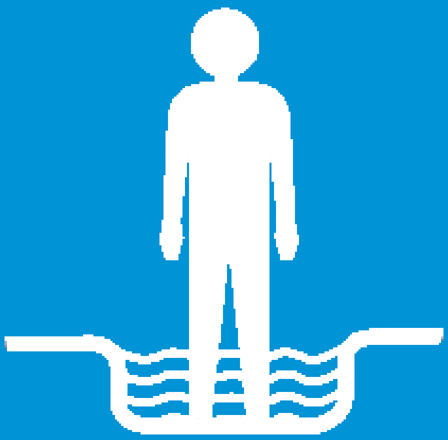
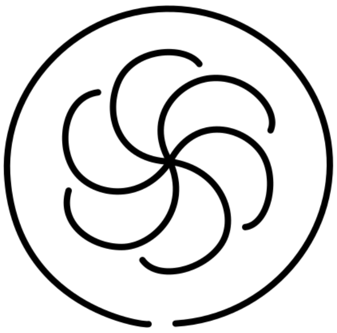
PRE-POOL

DAY 06



PRE-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

Can you explain this piece of code?

```
def f(x):
    return 2 * x + 1

def g():
    return 7

y = f(2)
print(y)
y = f(5) + g()
print(y)
```

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("============")
```

You could write it on Flowgorithm.

Task 1.3

Make 42 of those lettuce-tomato-double ham sandwiches.

Flowgorithm again and again.

Task 1.4

Write a function that takes the number of sandwiches to prepare as a parameter and displays as many sandwiches as requested.

You must check that the parameter is correct (strictly positive).
If not, print “I can’t do this”.

Task 1.5

Add a new parameter to your previous function.
It should provide the possibility to make a vegetarian sandwich (double vegetables and no ham).
If this option is not specified, by default, the sandwich must be a lettuce-tomato-double ham one.

CHALLENGE

Write a little program that computes the power function as fast as possible.
How long does it take to compute 42^{84}?
How long does it take to compute 42^{168}?

You are not allowed to use the system function.

Recursion

Task 2.1

Write a recursive function that tests if a string is a palindrome, such as “kayak”, “never odd or even” or “Was it a car or a cat I saw?”.

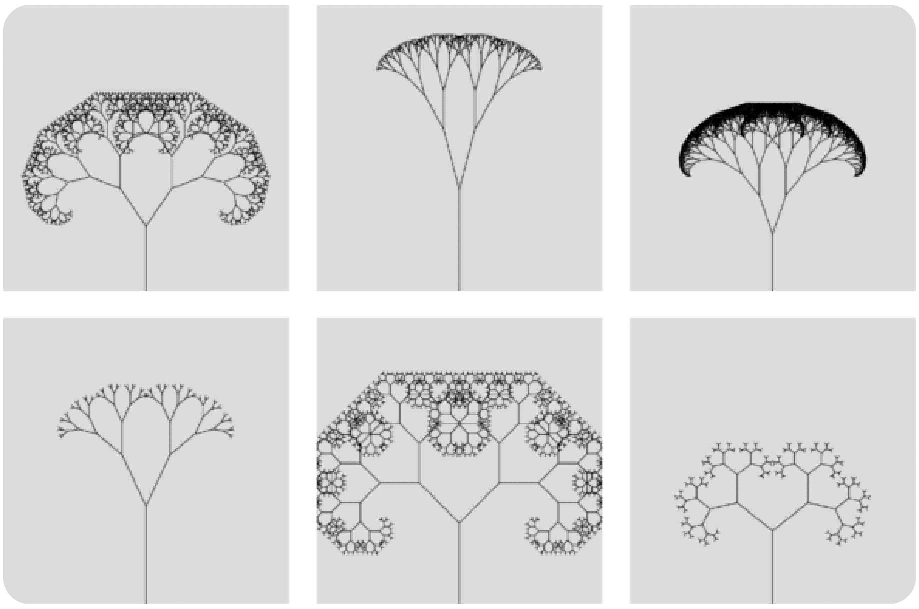
You should strip out the spaces and punctuation signs.

Task 2.2

Write a 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.

`os.listdir()`, `os.path`, `os.walk()`,...



Higher-order functions

Task 3.1

Write 5 functions, each taking a string s and an integer n as parameters and returning a boolean:

- ✓ $funA$ checks if s contains at least n lowercase letters;
- ✓ $funB$ checks if s contains at least n uppercase letters;
- ✓ $funC$ checks if s contains at least n characters;
- ✓ $funD$ checks if s contains at least n special characters;
- ✓ $funE$ checks if s contains at least n numbers.

Task 3.2

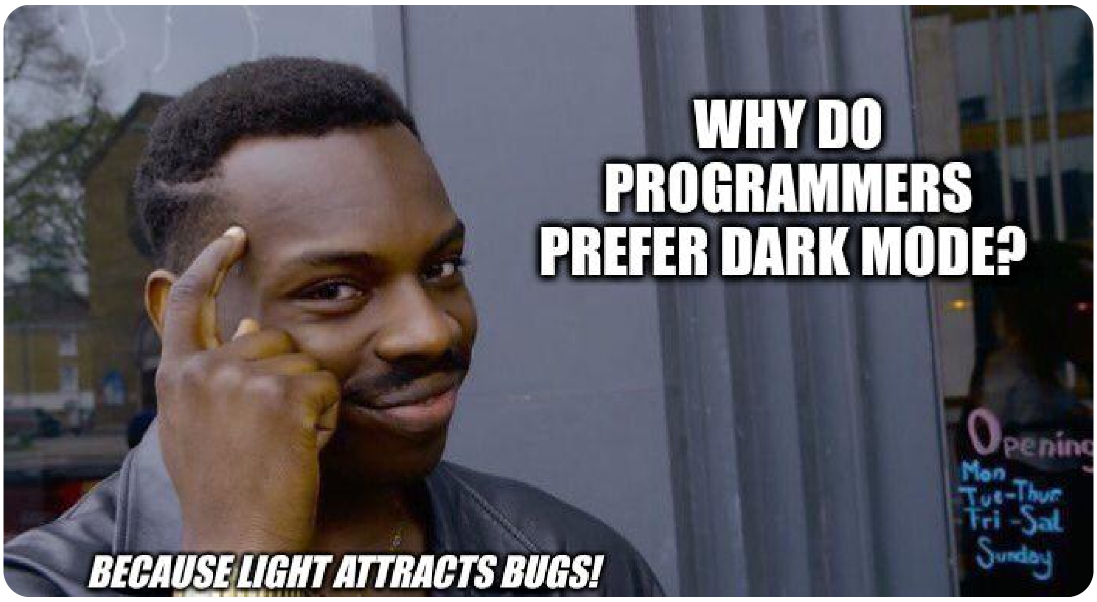
Write a generic function that checks if a password is valid.
This function should be callable the following way:

```
check_password(lower, 4, "mysecretpassword") and check_password(special, 2, "
    mysecretpassword")
```

`lower` and `special` are functions.
Think about it: you can reuse what you've already done ;)

Task 3.3

Add an error management system to your previous function.


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

v 1.0.1

{EPITECH}