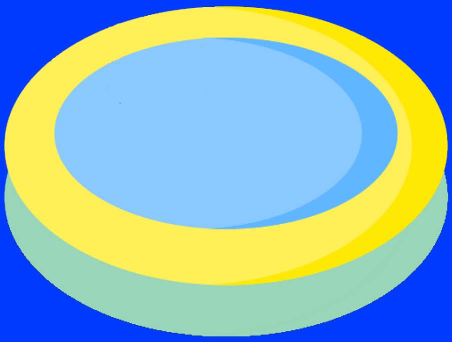
{EPITECH}

WADING POOL

< 04 - CONTROL FLOW />



WADING POOL

If you need a little break in your day, we suggest you to play the bandit wargame.
We also encourage you to resume your game later.

Conditionals

From now on, if ever you are stuck on a task, we warmly recommend you to try a no-code tool, such as Flowgorithm, that generates code from graphical flowcharts.

Task 1.1

Evaluate and explain the following lines:

✓ $(42 > 12)$
✓ $(12 = 12)$
✓ $(12 == 12)$
✓ (”hello” == ”world”)
✓ $(218 >= 118)$
✓ (”a”.upper() == ”A”)
✓ $(1 * 2 * 3 * 4 <= 9)$
✓ (”z” in ”azerty”)

Task 1.2

Ask an integer to the user. If it's equal to 42, display ”This is correct!”.

Task 1.3

Prompt the user for an integer. Then, if it is:

- ✓ odd, display ”This integer is odd” ;
- ✓ even, display ”This integer is even”.

Task 1.4

Prompt the user for a string:

- ✓ if it's ”open sesame”, display ”access granted” ;
- ✓ if it's ”will you open, you goddamn !@&/°”, display ”access fucking granted” ;
- ✓ else, display ”permission denied”.

Flowgorithm

Task 1.5

Prompt the user for an integer:

- ✓ if it's 42, display ”a” ;
- ✓ if it's smaller or equal than 21, display ”b” ;
- ✓ if it's even, display ”c” ;
- ✓ if this integer divided by 2 is smaller than 21 (excluded), display ”d” ;
- ✓ finally, if it's is odd and greater or equal than 45, display ”e” ;
- ✓ in any other cases, display ”f”.

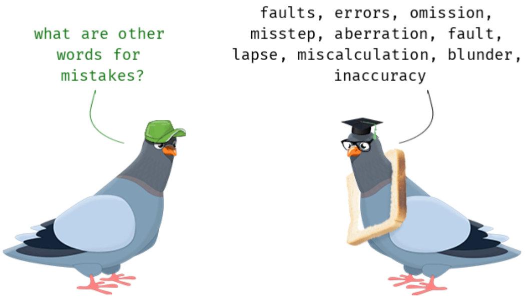
For instance, the input `20` outputs `bcd`.

Task 1.6

Dig the following code.
Then, run it.
Finally, fix it.

```
a == 42
b == 41
if a = b
    print("A and B is the sames")
if b =< a
    print("B is equal or lower as A")
if b =! a
    print("B his different from A")
```

As you are at it, also correct the grammar and orthographic mistakes...


what are other words for mistakes?
faults, errors, omission, misstep, aberration, fault, lapse, miscalculation, blunder, inaccuracy

Loops

Task 2.1

Write a snippet of code that prints all integers from 1 to 1000.

Task 2.2

Prompt the user for a string.
Display all the characters of this string twice.

> For instance `taxi` will return `ttaaxxii`.

Task 2.3

Print all integers, decreasingly from 10 000 to 1, that are divisible by 7.

2 THANK	3 YOU	4 ALL
5 FOR	6 HAVING	7 NOT YOU
8 EASY	9 DIVISIBILITY	10 RULES

Task 2.4

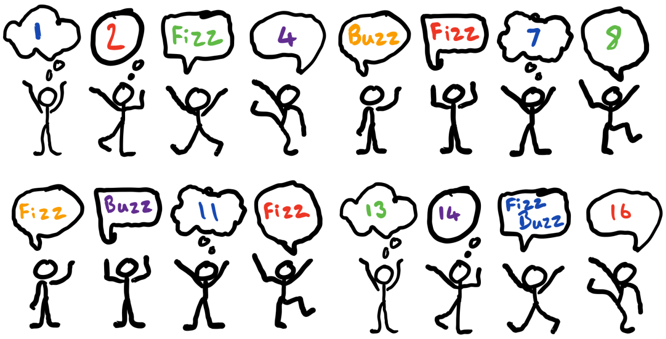
For all integers from -30 to 30:

✓ if it's a multiple of 3, display ”Fizz” ;

✓ if it's a multiple of 5, display ”Buzz” ;

✓ if it's a multiple of 3 and 5, display ”FizzBuzz” ;

✓ if it does not meet any of the previous conditions, just print the integer itself.



Task 2.5

Generate the lyrics of the song ”99 bottles of beer”.
The songs ends when there is no more bottles on the wall.

1 bottle is singular...

Task 2.6

Write a program that takes an integer n as input. Then, for each integer from 2 to $n/2$, display the list of its multiples strictly smaller than n, in descending order.

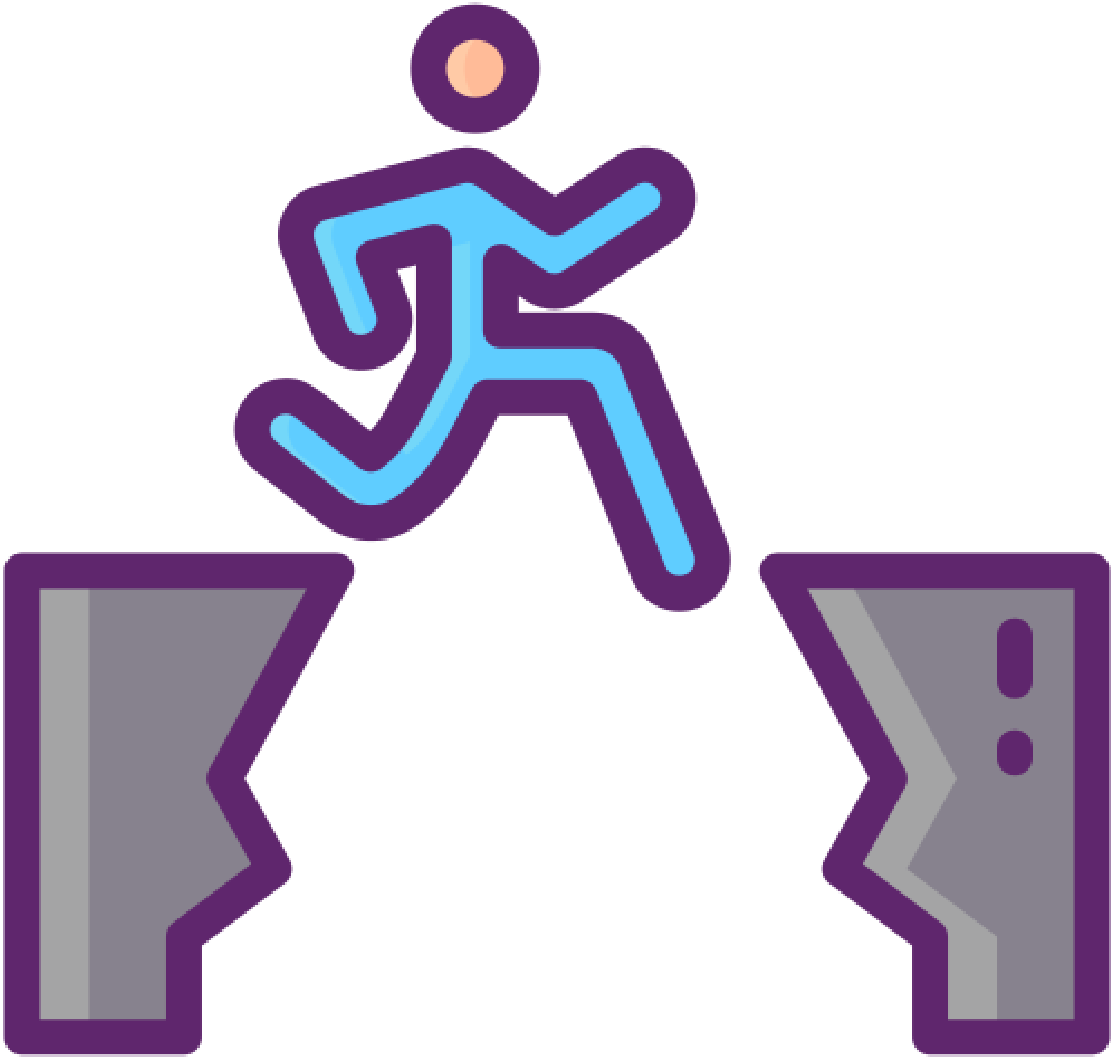
For example, for $n = 14$, your program should display:

```
12 10 8 6 4 2
12 9 6 3
12 8 4
10 5
12 6
7
```

CHALLENGE

Write the shortest code possible that realizes the following:

- ✓ prompt the user simultaneously for an integer and a string ;
- ✓ if the integer is 0, then quit ;
- ✓ if the string contains a vowel, display the integer ;
- ✓ if the integer is greater or equal than 42, display the integer ;
- ✓ else display the string.



Encryption

Task 3.1

The Caesar Cipher is a simple encryption technique named after Julius Caesar, who used it to encrypt messages of military significance.

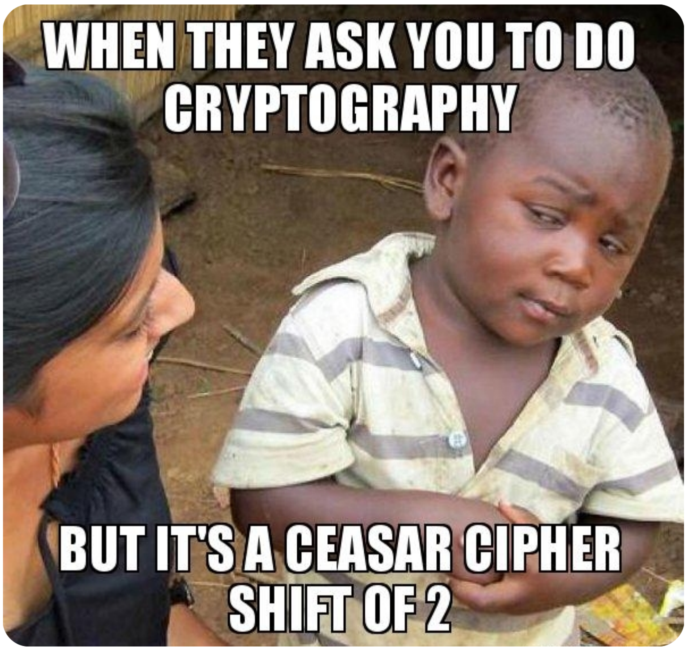
It is a type of substitution cipher in which each letter of a plaintext is replaced by a letter with a fixed number of positions down the alphabet.

The encryption key is an integer between 1 and 25 that determines the shift of the letters.
To decrypt the message, the recipient simply uses the same key to shift the letters back.

As examples:

- ✓ `ab` with a key of 3 gives `de` ;
- ✓ `hello world` with a key of 4 gives `lipps asvph` ;
- ✓ `the zen of python` with a key of 13 gives `gur mra bs clguba`.

Prompt the user for a clear message and a key. Then, use Caesar cipher to encrypt the clear message with the key. Finally, print the encrypted message.


WHEN THEY ASK YOU TO DO CRYPTOGRAPHY
BUT IT'S A CEASAR CIPHER SHIFT OF 2

Website, such as dcode may help you.

Is that not enough for you?

Task 3.2 🌶

Write a program that can decrypt any Caesar-ciphered text.

Task 3.3 🌶

Write a program that can encrypt and decrypt a text using a Vigenère cipher.

Task 3.4 🌶

Write a program that can decrypt an English Vigenère-ciphered text given the length of the key, but without knowing the key.

Day 03 Task 3.5

v 2.2

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