B1 - Unix & C Lab Seminar

B-CPE-100

count_island

Back to recursion

1.0

{EPITECH.}

count_island

language: C

- The totality of your source files, except all useless files (binary, temp files, obj files,...), must be included in your delivery.

- Don't push your `main` function into your delivery directory, we will be adding our own. Your files will be compiled adding our `main.c`.
- If one of your files prevents you from compiling with `*.c`, the Autograder will not be able to correct your work and you will receive a 0.

All .c files from your delivery folder will be collected and compiled with your `libmy`, which must be found in `lib/my/`. For those of you using .h files, they must be located in `include/` (like the `my.h` file).

The only allowed system call for this project is `write`.

Terminal

```
~/B-CPE-100> cd lib/my && ./build.sh && cd ../..
~/B-CPE-100> gcc -o count_island *.c test_files/our_main.c -I./include -L./lib/my
-lmy
```

Your library will be built using the `lib/my/build.sh` script you previously made (see Day07).
Don't forget that you need a coherent test policy to ensure your program outputs are correct. To do so:

- split your functions in **as many small functions as possible**, so that each function is responsible for one single thing (according to the Coding Style),
- **write unit tests** to test exhaustively all of these functions.

COUNT_ISLAND

Write a function called `count_island` with the following prototype:

```
int count_island(char** world);
```

The `world` 2-dimensional array represent a file containing a series of equal-length lines that contains either the dot character (`.`) or the `X` character.

These lines form a rectangle of '.', which contains islands of '`X`'s.
A line is a series of'.' and '`X`' characters that are terminated by a '`n`'.
Two characters are considered touching each other if they are:

- contiguous and on the same line
  OR
- in the same column and on contiguous lines

An island of '`X`' is formed by the set of characters touching each other.
The function must scan the whole array, line by line, and replace all of the 'X's from the islands by their number in order of appearance in the array.

The function must do this computation starting at the beginning of the array and processing line by line.
There cannot be two different results from the same file.
The function return value of the function must be the number of islands found.

The array contains, at most, 10 islands.