

C Piscine

Day 08

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Abstract: This document is the subject for Day08 of the C Piscine @ 42.

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#### Chapter I

#### Instructions

- Only this page will serve as reference: do not trust rumors.
- Watch out! This document could potentially change up to an hour before submission.
- Make sure you have the appropriate permissions on your files and directories.
- You have to follow the submission procedures for every exercise.
- Your exercises will be checked and graded by your fellow classmates.
- On top of that, your exercises will be checked and graded by a program called Moulinette.
- Moulinette is very meticulous and strict in its evaluation of your work. It is entirely automated and there is no way to negotiate with it. So if you want to avoid bad surprises, be as thorough as possible.
- Moulinette is not very open-minded. It won't try and understand your code if it doesn't respect the Norm. Moulinette relies on a program called Norminator to check if your files respect the norm. TL;DR: it would be idiotic to submit a piece of work that doesn't pass Norminator's check.
- These exercises are carefully laid out by order of difficulty from easiest to hardest.
   We will not take into account a successfully completed harder exercise if an easier one is not perfectly functional.
- Using a forbidden function is considered cheating. Cheaters get -42, and this grade is non-negotiable.
- If ft\_putchar() is an authorized function, we will compile your code with our ft\_putchar.c.
- You'll only have to submit a main() function if we ask for a program.

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- Moulinette compiles with these flags: -Wall -Wextra -Werror, and uses gcc.
- If your program doesn't compile, you'll get 0.
- You <u>cannot</u> leave <u>any</u> additional file in your directory than those specified in the subject.
- Got a question? Ask your peer on the right. Otherwise, try your peer on the left.
- Your reference guide is called Google / man / the Internet / ....
- Check out the "C Piscine" part of the forum on the intranet.
- Examine the examples thoroughly. They could very well call for details that are not explicitly mentioned in the subject...
- By Odin, by Thor! Use your brain!!!

#### Chapter II

#### Foreword

Here's what Wikipedia have to say about Platypus:

The platypus (Ornithorhynchus anatinus), also known as the duck-billed platypus, is a semiaquatic egg-laying mammal endemic to eastern Australia, including Tasmania. Together with the four species of echidna, it is one of the five extant species of monotremes, the only mammals that lay eggs instead of giving birth. The animal is the sole living representative of its family (Ornithorhynchidae) and genus (Ornithorhynchus), though a number of related species have been found in the fossil record.

The unusual appearance of this egg-laying, duck-billed, beaver-tailed, otter-footed mammal baffled European naturalists when they first encountered it, with some considering it an elaborate hoax. It is one of the few venomous mammals, the male platypus having a spur on the hind foot that delivers a venom capable of causing severe pain to humans. The unique features of the platypus make it an important subject in the study of evolutionary biology and a recognisable and iconic symbol of Australia; it has appeared as a mascot at national events and is featured on the reverse of its 20-cent coin. The platypus is the animal emblem of the state of New South Wales.

Until the early 20th century, it was hunted for its fur, but it is now protected throughout its range. Although captive breeding programs have had only limited success and the platypus is vulnerable to the effects of pollution, it is not under any immediate threat.

This subject is absolutly not talking about platypus.

#### Chapter III

## Exercise 00: ft\_split\_whitespaces

Exercice: 00	
ft_split_whitespaces	/
Files to turn in: ft_split_whitespaces.c	
	ft_split_whitespaces

42 - Classics : Theses exercises are key assignments that do not earn points, but are mandatory to validate in order to access to the real assignments of the day.

- Create a function that splits a string of characters into words.
- Separators are spaces, tabs and line breaks.
- This function returns an array where each box contains a character-string's address represented by a word. The last element of this array should be equal to 0 to emphasise the end of the array.
- There can't be any empty strings in your array. Draw the necessary conclusions.
- The given string can't be modified.
- Here's how it should be prototyped:

char \*\*ft\_split\_whitespaces(char \*str);

# Chapter IV

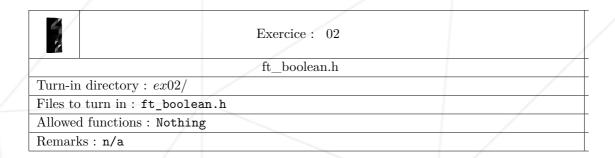
Exercise 01: ft.h

	Exercice: 01	
/	ft.h	
Turn-in directory: $ex01$	1	
Files to turn in: ft.h		
Allowed functions: Nothing		
Remarks: n/a		

- Create your ft.h file.
- $\bullet$  It contains all prototypes of your libft.a functions.

### Chapter V

## Exercise 02: ft\_boolean.h



• Create a ft\_boolean.h file. It'll compile and run the following main appropriately :

• This program should display

I have an even number of arguments.

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• OU  I have an odd number o	of arguments	
I have an east humber (	2 de gamenoo.	
• followed by a line by	ali whan adaguata	
• followed by a line bre	ak when adequate.	
	8	

# Chapter VI

Exercise 03: ft\_abs.h

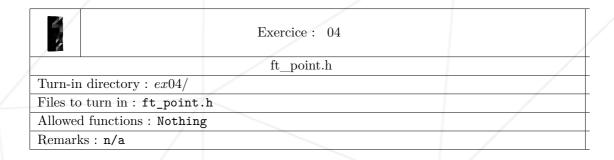
	Exercice: 03	
/	ft_abs.h	
Turn-in directory : $ex03/$		
Files to turn in : ft_abs.h		
Allowed functions: Nothin	ng	
Remarks: n/a		

 $\bullet$  Create a macro ABS which replaces its argument by it absolute value :

#define ABS(Value)

## Chapter VII

# Exercise 04: ft\_point.h



 $\bullet$  Create a file  ${\tt ft\_point.h}$  that'll compile the following main :

### Chapter VIII

Exercise 05: ft\_param\_to\_tab

N. P.	Exercice: 05	
	ft_param_to_tab	/
Turn-in	directory: $ex05/$	/
Files to	turn in : ft_param_to_tab.c, ft_stock_par.h	/
Allowed	functions: ft_split_whitespaces, ft_show_tab, malloc	/
Remark	xs:n/a	

- Create a function that stores the program's arguments within an array structure and that returns the address of that array's first box.
- All elements of the array must be processed, including av [0].
- Here's how it should be prototyped :

```
struct s_stock_par *ft_param_to_tab(int ac, char **av);
```

• The structure array should be allocated and its last box shall contain 0 in its str element to point out the end of the array.

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• The structure is defined in the ft\_stock\_par.h file, like this:

```
typedef struct s_stock_par
{
   int size_param;
   char *str;
   char *copy;
   char **tab;
}
   t_stock_par;
```

- size\_param being the length of the argument ;
- str being the address of the argument ;
- copy being the copy of the argument;
- $\circ$  tab being the array returned by  ${\tt ft\_split\_whitespaces}.$
- We'll test your function with our ft\_split\_whitespaces and our ft\_show\_tab (next exercise). Take the appropriate measures for this to work!

### Chapter IX

## Exercise 06: ft\_show\_tab

Exercice: 06

ft\_show\_tab

Turn-in directory: ex06/

Files to turn in: ft\_show\_tab.c, ft\_stock\_par.h

Allowed functions: ft\_putchar

Remarks: n/a

- Create a function that displays the content of the array created by the previous function.
- Here's how it should be prototyped :

```
void ft_show_tab(struct s_stock_par *par);
```

• The structure is defined in the ft\_stock\_par.h file, like this:

```
typedef struct s_stock_par
{
  int size_param;
  char *str;
  char *copy;
  char **tab;
}
  t_stock_par;
```

- For each box, we'll display (one element per line):
  - the argument
  - the size
  - each word (one per line)

C Piscine Day 08 • We'll test your function with our ft\_param\_to\_tab (previous exercise). Take the appropriate measures for this to work! 14