



C Piscine

C 04

Summary: this document is the subject for the C 04 module of the C Piscine @ 42.

Version: 4.3

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Chapter I

Instructions

- Only this page serves as your reference, do not trust rumors.
- Watch out! This document may change before submission.
- Ensure you have the appropriate permissions on your files and directories.
- You must follow the **submission procedures** for all your exercises.
- Your exercises will be checked and graded by your fellow classmates.
- Additionally, your exercises will be evaluated by a program called **Moulinette**.
- **Moulinette** is meticulous and strict in its assessment. It is fully automated, and there is no way to negotiate with it. To avoid unpleasant surprises, be as thorough as possible.
- **Moulinette** is not open-minded. If your code does not adhere to the Norm, it won't attempt to understand it. **Moulinette** relies on a program called **norminette** to check if your files comply with the Norm. TL;DR: Submitting work that doesn't pass **norminette**'s check makes no sense.
- These exercises are arranged in order of difficulty, from easiest to hardest. We **will not** consider a successfully completed harder exercise if an easier one is not fully functional.
- Using a forbidden function is considered cheating. Cheaters receive a grade of **-42**, which is non-negotiable.
- You only need to submit a **main()** function if we specifically ask for a **program**
- **Moulinette** compiles with the following flags: **-Wall -Wextra -Werror**, using **cc**.
- If your program does not compile, you will receive a grade of **0**.
- You **cannot** leave **any** additional file in your directory beyond those specified in the assignment.
- Have a question? Ask the peer on your right. If not, try the peer on your left.

- Your reference guide is called **Google / man / the Internet / ...**
- Check the "C Piscine" section of the forum on the intranet or the Piscine on Slack.
- Carefully examine the examples. They may contain crucial details that are not explicitly stated in the assignment...
- By Odin, by Thor! Use your brain!!!



Norminette must be launched with the `-R CheckForbiddenSourceHeader` flag. Moulinette will use it too.

Chapter II

Foreword

Here are the lyrics for City Hunter's theme song "Moonlight Shadow":

The last time ever she saw him
Carried away by a moonlight shadow
He passed on worried and warning
Carried away by a moonlight shadow.
Lost in a riddle that Saturday night
Far away on the other side.
He was caught in the middle of a desperate fight
And she couldn't find how to push through

The trees that whisper in the evening
Carried away by a moonlight shadow
Sing a song of sorrow and grieving
Carried away by a moonlight shadow
All she saw was a silhouette of a gun
Far away on the other side.
He was shot six times by a man on the run
And she couldn't find how to push through

[Chorus]
I stay, I pray
See you in Heaven far away...
I stay, I pray
See you in Heaven one day.

Four A.M. in the morning
Carried away by a moonlight shadow
I watched your vision forming
Carried away by a moonlight shadow
A star was glowing in the silvery night
Far away on the other side
Will you come to talk to me this night
But she couldn't find how to push through


[Chorus]

Far away on the other side.
Caught in the middle of a hundred and five
The night was heavy and the air was alive
But she couldn't find how to push through
Carried away by a moonlight shadow
Carried away by a moonlight shadow
Far away on the other side.

Unfortunately, this topic has nothing to do with City Hunter.

Chapter III

Exercise 00 : ft_strlen


	Exercise 00
ft_strlen	
Turn-in directory : <i>ex00/</i>	
Files to turn in : ft_strlen.c	
Allowed functions : None	

- Create a function that counts and returns the number of characters in a string.
- The function should be prototyped as follows:

```
int    ft_strlen(char *str);
```

Chapter IV

Exercise 01 : ft_putstr


	Exercise 01
ft_putstr	
Turn-in directory : <i>ex01/</i>	
Files to turn in : ft_putstr.c	
Allowed functions : write	

- Create a function that prints a string of characters to the standard output.
- The function should be prototyped as follows:

```
void    ft_putstr(char *str);
```


Chapter V

Exercise 02 : ft_putnbr

	Exercise 02
ft_putnbr	
Turn-in directory : <i>ex02/</i>	
Files to turn in : ft_putnbr.c	
Allowed functions : write	


- Create a function that displays the number passed as a parameter. The function must be able to handle all possible values of the **int** type.
- The function should be prototyped as follows:

```
void ft_putnbr(int nb);
```

- Example usage:
 - `ft_putnbr(42)` outputs "42".

Chapter VI

Exercise 03 : ft_atoi

	Exercise 03
	ft_atoi
	Turn-in directory : <i>ex03/</i>
	Files to turn in : ft_atoi.c
	Allowed functions : None

- Write a function that converts the initial portion of the string pointed to by **str** into its integer representation.
- The string may begin with an arbitrary amount of whitespace (as determined by `isspace(3)`).
- The string may be preceded by an arbitrary number of '+' and '-' signs. A '-' sign will invert the result depending on whether the number of '-' signs is odd or even.
- The function should then process any consecutive digits in base 10.
- The function reads the string until a non-conforming character is encountered and returns the number obtained so far.
- Overflow and underflow do not need to be handled; the result is undefined in such cases.

- **Example Program Output:**


```
$>./a.out " ---+--+1234ab567"  
-1234
```

- The function should be prototyped as follows:

```
int    ft_atoi(char *str);
```

Chapter VII

Exercise 04 : ft_putnbr_base

	Exercise 04
ft_putnbr_base	
Turn-in directory : <i>ex04/</i>	
Files to turn in : ft_putnbr_base.c	
Allowed functions : write	


- Create a function that displays a number in a given base system in the terminal.
- The number is provided as an **int**, and the base is represented as a **string of characters**.
- The base system consists of all the symbols used to represent the number.
 - 0123456789 is the commonly used base system for representing decimal numbers.
 - 01 is a binary base system.
 - 0123456789ABCDEF is a hexadecimal base system.
 - poneyvif is an octal base system.
- The function must handle negative numbers.
- If an invalid argument is provided, nothing should be displayed.
Examples of invalid arguments:
 - The base is empty or has only one character.
 - The base contains duplicate characters.
 - The base contains '+' or '-'.

- The function should be prototyped as follows:

```
void      ft_putnbr_base(int nbr, char *base);
```

Chapter VIII

Exercise 05 : ft_atoi_base

	Exercise 05
	ft_atoi_base
	Turn-in directory : <i>ex05/</i>
	Files to turn in : ft_atoi_base.c
	Allowed functions : None

- Write a function that converts the initial portion of the string pointed to by **str** into an integer representation.
- **str** is in a specific base, given as a second parameter.
- Except for the base rule, the function should behave exactly like **ft_atoi**.
- If an invalid argument is provided, the function should return 0.
Examples of invalid arguments:
 - The base is empty or has only one character.
 - The base contains duplicate characters.
 - The base contains '+', '-', or whitespace characters.
- The function should be prototyped as follows:

```
int      ft_atoi_base(char *str, char *base);
```

Chapter IX

Submission and peer-evaluation

Submit your assignment to your `Git` repository as usual. Only the work inside your repository will be evaluated during the defense. Make sure to double-check the filenames to ensure they are correct.



You must submit only the files required by the project instructions.