C Piscine

C 02

Summary: This document is the subject for the C 02 module of the C Piscine @ 42.

Version: 5.2

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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 before submission.
- Make sure you have the appropriate permissions on your files and directories.
- You have to follow the submission procedures for all your exercises.
- 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 `norminette` to check if your files respect the norm. TL;DR: it would be idiotic to submit a piece of work that doesn't pass `norminette`'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.
- You'll only have to submit a main() function if we ask for a program.
- Moulinette compiles with these flags: -Wall -Wextra -Werror, and uses `cc`.
- If your program doesn't compile, you'll get `0`.
- You cannot leave any 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, or the slack Piscine.
- 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 !!!

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

Chapter II

Foreword

Here is a discuss extract from the `Silicon Valley` serie:

```
- I mean, why not just use Vim over Emacs? (CHUCKLES)
- I do use Vim over Emac.
- Oh, God, help us! Okay, uh you know what? I just don't think this is
  going to work. I'm so sorry. Uh, I mean like, what, we're going to bring
  kids into this world with that over their heads? That's not really fair
  to them, don't you think?
- Kids? We haven't even slept together.
- And guess what, it's never going to happen now, because there is no
  way I'm going to be with someone who uses spaces over tabs.
- Richard! (PRESS SPACE BAR MANY TIMES)
- Wow. Okay. Goodbye.
- One tab saves you eight spaces! - (DOOR SLAMS) - (BANGING)

. . .

(RICHARD MOANS)

- Oh, my God! Richard, what happened?
- I just tried to go down the stairs eight steps at a time. I'm okay, though.
- See you around, Richard.
- Just making a point.
```

Hopefully, you are not forced to use emacs and your space bar to complete the following exercices.

Chapter III

Exercise 00 : ft_strcpy

	Exercise 00
ft_strcpy	
Turn-in directory : *ex*00/	
Files to turn in : `ft_strcpy.c`	
Allowed functions : `None`	

- Reproduce the behavior of the function **strcpy** (man strcpy).
- Here's how it should be prototyped :

```
char        *ft_strcpy(char *dest, char *src);
```

Chapter IV

Exercise 01 : ft_strncpy

	Exercise 01
ft_strncpy	
Turn-in directory : *ex*01/	
Files to turn in : `ft_strncpy.c`	
Allowed functions : `None`	

- Reproduce the behavior of the function **strncpy** (man strncpy).
- Here's how it should be prototyped :

```
char        *ft_strncpy(char *dest, char *src, unsigned int n);
```

Chapter V

Exercise 02 : ft_str_is_alpha

	Exercise 02
ft_str_is_alpha	
Turn-in directory : *ex*02/	
Files to turn in : `ft_str_is_alpha.c`	
Allowed functions : `None`	

- Create a function that returns 1 if the string given as a parameter contains only alphabetical characters, and 0 if it contains any other character.
- Here's how it should be prototyped :

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

- It should return 1 if `str` is empty.

Chapter VI

Exercise 03 : ft_str_is_numeric

	Exercise 03
ft_str_is_numeric	
Turn-in directory : *ex*03/	
Files to turn in : `ft_str_is_numeric.c`	
Allowed functions : `None`	

- Create a function that returns 1 if the string given as a parameter contains only digits, and 0 if it contains any other character.
- Here's how it should be prototyped :

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

- It should return 1 if `str` is empty.

Chapter VII

Exercise 04 : ft_str_is_lowercase

	Exercise 04
ft_str_is_lowercase	
Turn-in directory : *ex*04/	
Files to turn in : `ft_str_is_lowercase.c`	
Allowed functions : `None`	

- Create a function that returns 1 if the string given as a parameter contains only lowercase alphabetical characters, and 0 if it contains any other character.
- Here's how it should be prototyped :

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

- It should return 1 if `str` is empty.

Chapter VIII

Exercise 05 : ft_str_is_uppercase

	Exercise 05
ft_str_is_uppercase	
Turn-in directory : *ex*05/	
Files to turn in : `ft_str_is_uppercase.c`	
Allowed functions : `None`	

- Create a function that returns 1 if the string given as a parameter contains only uppercase alphabetical characters, and 0 if it contains any other character.
- Here's how it should be prototyped :

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

- It should return 1 if `str` is empty.

Chapter IX

Exercise 06 : ft_str_is_printable

	Exercise 06
ft_str_is_printable	
Turn-in directory : *ex*06/	
Files to turn in : `ft_str_is_printable.c`	
Allowed functions : `None`	

- Create a function that returns 1 if the string given as a parameter contains only printable characters, and 0 if it contains any other character.
- Here's how it should be prototyped :

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

- It should return 1 if `str` is empty.

Chapter X

Exercise 07 : ft_strupcase

	Exercise 07
ft_strupcase	
Turn-in directory : *ex*07/	
Files to turn in : `ft_strupcase.c`	
Allowed functions : `None`	

- Create a function that transforms every letter to uppercase.
- Here's how it should be prototyped :

```
char        *ft_strupcase(char *str);
```

- It should return `str`.

Chapter XI

Exercise 08 : ft_strlowcase

	Exercise 08
ft_strlowcase	
Turn-in directory : *ex*08/	
Files to turn in : `ft_strlowcase.c`	
Allowed functions : `None`	

- Create a function that transforms every letter to lowercase.
- Here's how it should be prototyped :

```
char        *ft_strlowcase(char *str);
```

- It should return `str`.

Chapter XII

Exercise 09 : ft_strcapitalize

	Exercise 09
ft_strcapitalize	
Turn-in directory : *ex*09/	
Files to turn in : `ft_strcapitalize.c`	
Allowed functions : `None`	

- Create a function that capitalizes the first letter of each word and transforms all other letters to lowercase.
- A word is a string of alphanumeric characters.
- Here's how it should be prototyped :

```
char        *ft_strcapitalize(char *str);
```

- It should return `str`.
- For example:

```
salut, comment tu vas ? 42mots quarante-deux; cinquante+et+un
```

- Becomes:

```
Salut, Comment Tu Vas ? 42mots Quarante-Deux; Cinquante+Et+Un
```

Chapter XIII

Exercise 10 : ft_strlcpy

	Exercise 10
ft_strlcpy	
Turn-in directory : *ex*10/	
Files to turn in : `ft_strlcpy.c`	
Allowed functions : `None`	

- Reproduce the behavior of the function **`strlcpy`** (man strlcpy).
- Here's how it should be prototyped :

```
unsigned int ft_strlcpy(char *dest, char *src, unsigned int size);
```

Chapter XIV

Exercise 11 : ft_putstr_non_printable

	Exercise 11
ft_putstr_with_non_printable	
Turn-in directory : *ex*11/	
Files to turn in : `ft_putstr_non_printable.c`	
Allowed functions : `write`	

- Create a function that displays a string of characters onscreen. If this string contains characters that aren't printable, they'll have to be displayed in the shape of hexadecimals (lowercase), preceeded by a "backslash".
- For example :

```
Coucou\ntu vas bien ?
```

- The function should display :

```
Coucou\0atu vas bien ?
```

- Here's how it should be prototyped :

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

Chapter XV

Exercise 12 : ft_print_memory

	Exercise 12
ft_print_memory	
Turn-in directory : *ex*12/	
Files to turn in : `ft_print_memory.c`	
Allowed functions : `write`	

- Create a function that displays the memory area onscreen.
- The display of this memory area should be split into three "columns" separated by a space:
  - The hexadecimal address of the first line's first character followed by a ':'.
  - The content in hexadecimal with a space each 2 characters and should be padded with spaces if needed (see the example below).
  - The content in printable characters.
- If a character is non-printable, it'll be replaced by a dot.
- Each line should handle sixteen characters.
- If `size` is equal to 0, nothing should be displayed.

- Example:

```
$> ./ft_print_memory
000000010a161f40: 426f 6e6a 6f75 7220 6c65 7320 616d 696e Bonjour les amin
000000010a161f50: 6368 6573 090a 0963 0720 6573 7420 666f ches...c. est fo
000000010a161f60: 7509 746f 7574 0963 6520 7175 206f 6e20 u.tout.ce qu on
000000010a161f70: 7065 7574 2066 6169 7265 2061 7665 6309 peut faire avec.
000000010a161f80: 0a09 7072 696e 745f 6d65 6d6f 7279 0a0a ..print_memory..
000000010a161f90: 0a09 6c6f 6c2e 6c6f 6c0a 2000           ..lol.lol. .
$> ./ft_print_memory | cat -te
0000000107ff9f40: 426f 6e6a 6f75 7220 6c65 7320 616d 696e Bonjour les amin$
0000000107ff9f50: 6368 6573 090a 0963 0720 6573 7420 666f ches...c. est fo$
0000000107ff9f60: 7509 746f 7574 0963 6520 7175 206f 6e20 u.tout.ce qu on $
0000000107ff9f70: 7065 7574 2066 6169 7265 2061 7665 6309 peut faire avec.$
0000000107ff9f80: 0a09 7072 696e 745f 6d65 6d6f 7279 0a0a ..print_memory..$
0000000107ff9f90: 0a09 6c6f 6c2e 6c6f 6c0a 2000           ..lol.lol. .$
$>
```

- Here's how it should be prototyped:

```
void        *ft_print_memory(void *addr, unsigned int size);
```

- It should return `addr`.

Chapter XVI

Submission and peer-evaluation

Turn in your assignment in your `Git` repository as usual. Only the work inside your repository will be evaluated during the defense. Don't hesitate to double check the names of your files to ensure they are correct.

`You need to return only the files requested by the subject of this project.`