B1 - Unix & C Lab Seminar

B-CPE-101

mini_printf

a simple version of printf

mini_printf

language: C
compilation: gcc *.c

- The totality of your source files, except all useless files (binary, temp files, obj files,...), must be included in your delivery.
- All the bonus files (including a potential specific Makefile) should be in a directory named *bonus*.
- Error messages have to be written on the error output, and the program should then exit with the 84 error code (0 if there is no error).

You must create a function named **mini_printf** to learn how to use va_args.
mini_printf is a first step to achieve the project my_printf. You will need to implement few flags and would not manage any text formating and buffering.
You should not push your **main** function as we are going to compile using **gcc *.c**.

The whole libC is forbidden, except **write**, **va_start**, **va_arg**, **va_end**, **malloc**, **free**.

.gitignore is a good way to manage it

You function must be prototyped like this:

```
int mini_printf(const char *format, ...);
```

That function has to print all the characters in the string **format** and print variable when **%** is used before.
You must process all of the following flags :

%d, %i, %s, %c, %%

Upon successful return, the function should returned the number of characters printed (excluding the null byte used to end output to strings).
If an output error is encountered, a negative value is returned.

The manual of printf and stdarg is available for your understanding man 3 printf / man 3 stdarg

You do not have to implement the C library printf buffer handling.

UNIT TESTS

Criterion includes mechanisms to test standard output and standard error, you can learn more about it there...

```c
#include <criterion/criterion.h>
#include <criterion/redirect.h>
#include "my.h"

void redirect_all_std(void)
{
    cr_redirect_stdout();
    cr_redirect_stderr();
}

Test(mini_printf, simple_string, .init = redirect_all_std)
{
    mini_printf("hello world");
    cr_assert_stdout_eq_str("hello world");
}
```

EXAMPLES

```c
char str[6];

my_strcpy(str, "world");
mini_printf("Hello %s\n", str);
```

Terminal

```
~/B-CPE-101> ./a.out
Hello world
~/B-CPE-101>
```

```c
int nb = 21;
```

```
mini_printf("If you multiple %d by %d, the result is %i.\n", nb, 2, nb * 2);
```

Terminal

```
~/B-CPE-101> ./a.out | cat -e
If you multiple 21 by 2, the result is 42.$
~/B-CPE-101>
```

```
char str[8];

my_strcpy(str, "Epitech");
mini_printf("The word %%%s%% has %i characters.\n", str, my_strlen(str));
```

Terminal

```
~/B-CPE-101> ./a.out | cat -e
The word %Epitech% has 7 characters.$
~/B-CPE-101>
```