TP n° 1 – éléments de réponse

```c
/**
 * @file iplot.h
 *
 * This program plots the function
 *
 * f(x) = sin(x)/(x)
 *
 * in the range [0..B], where B is read from stdin.  You may
 * enter as many B values as you like, each pops up a new plot
 * window. The program spawns a gnuplot process to display the
 * plot.
 */

void manage_error_and_exit();
void create_command_file(const char *filename, float max_range_value);
void exec_gnuplot(const char *filename);
void manage_parent();

#endif
```

```c
/**
 * @file iplot.c
 *
 * This program plots the function
 *
 * f(x) = sin(x)/(x)
 *
 * in the range [0..B], where B is read from stdin.  You may
 * enter as many B values as you like, each pops up a new plot
 * window. The program spawns a gnuplot process to display the
 * plot.
 */
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/wait.h>
#include <sys/types.h>
#include <fcntl.h>
#include "iplot.h"
```

```
void manage_error_and_exit()
{
    exit(EXIT_FAILURE);
}

void create_command_file(const char *filename, float max_range_value)
{
    FILE *fq;

    fq = fopen(filename, "w");
    fprintf(fq, "set samples 500\n");
    fprintf(fq, "plot [x=-%f:%f] sin(x)/x smooth csplines\n", max_range_value,
 ↪  max_range_value);
    fclose(fq);
}

void exec_gnuplot(const char *filename)
{
    sleep(1); /* Don't be so hurry */
    if (execlp("gnuplot", "gnuplot", "-persist", filename, (void *)0) < 0) {
        fprintf(stderr, "Error!\n");
        exit(EXIT_FAILURE);
    }
}

void manage_parent()
{
    int status;

    /*
     * Wait for child to exit, and store child's exit status
     * wait(NULL) is also correct as the exit in the child does not occured
     */
    wait(&status);
    printf("Child exit code: %d\n", WEXITSTATUS(status));
}
```

```
/**
 * @file main.c
 *
```

```c
 * This program plots the function
 *
 * f(x) = sin(x)/(x)
 *
 * in the range [0..B], where B is read from stdin.  You may
 * enter as many B values as you like, each pops up a new plot
 * window. The program spawns a gnuplot process to display the
 * plot.
 */

#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/wait.h>
#include <sys/types.h>
#include <fcntl.h>
#include "iplot.h"

int main(void)
{
    float max_range_value;
    pid_t pid;

    printf("-- Plotting the sinc function --\n");
    printf("\nEnter your maximum range value (any key to quit)\n");

    while (scanf("%f[^\n]", &max_range_value) == 1) {
        printf("Choosen range: -%f..%f\n", max_range_value, max_range_value);
        create_command_file("commands.gp", max_range_value);

        pid = fork();
        if (pid < 0) {
            manage_error_and_exit();
        }
        if (pid == 0) {
            exec_gnuplot("commands.gp");
        } else {
            manage_parent();
        }
    }
    exit(EXIT_SUCCESS);
}
```