

System-oriented Programming
Spring 2018

S03

Professor : Philippe Cudré-Mauroux
Assistant : Michael Luggen

Submitted by Sylvain Julmy

Exercice 1

Exercice 2

Exercice 3

```
// run first time to show the error
run

// set breakpoint and add display for both expr i and N
break 16
display i
display N

// rerun and answer yes when asking for reruning the program
run

// stop each time on the breakpoint
c
c
c

// now we clearly see that N/i is 3/0 and would lead to a arithmetic error
c

// and now the following message is display :
Program received signal SIGFPE, Arithmetic exception.
0x00005555555546d0 in main () at ex3/div_zero.c:12
```

Figure 1: List of gdb command to execute in order to clearly show the error from program 1.

```

1  #include <stdio.h>
2
3  int N = 3;
4
5  int main()
6  {
7      int ctr, i;
8      int res;
9
10     i = N;
11     res = N;
12
13     printf("res N i\n");
14     for (ctr = 0; ctr <= N; ++ctr, --i)
15     { // 'ctr <= N' for exercice 5
16         res = N / i;
17         printf("%3i%3i%3i\n", res, N, i);
18     }
19
20     return 0;
21 }

```

Listing 1: C program that would have an arithmetic error, a division by zero.

Exercise 4