

The purpose of the lab session is to practice with debugging and profiling using Open Source software tools. The hands-on session proposes a series of exercises to complete at your choice depending from your own interest and skill-set. The source of those exercises is provided into the shared folder. Exercises are divided in two categories, A and B, for practicing with debugging and profiling, respectively.

Exercise A-1: the exercise requires to compile and execute the codes contained within the directory FPE. To practice with the use of compiler options and *gdb* it's recommended to follow the instructions contained into the source files.

Exercise A-2: the exercise requires to compile and execute the codes contained within the directory SIGSEGV. A program description is contained into the source file. The purpose of the exercise is to use *gdb* to detect the errors. Discuss with your classmates why the C code runs always correctly if typing the command:  
`$ulimit -s unlimited.`

Exercise A-3: the exercise requires to compile and execute the codes contained within the directory VALGRIND using *valgrind*. The purpose of the exercise is to understand why each code was proposed and what is the problem contained into it. Source contains instruction about how to run the obtained binary.

Exercise A-4: compile and run the file contained into the directory FUNNY. Re-compile the code using *-DDEBUG*. Try to identify the nature of the proposed problem.

Exercise B-1: the exercise requires to compile and execute the codes contained within the directory PROFILE. Codes have to be compiled using profiling options so that the profiling report can be analyzed afterward (use *icc* for compiling C codes).