

Time limit

HOMEWORK 1

To be submitted for evaluation to mooshak.di.fct.unl.pt until end of 4th October 2024

This work is individual and all solutions will be compared. Do not look at other students' code and do not show your own code to others.

Objective

Implement in C/Unix a command that allows you to limit the execution time of other programs.

Program

Your program will be used from the command line to launch another command and, if the latter does not finish after some given number of seconds, your program will kill it. The time limit and the command to be executed are given as arguments at the command line. For example:

```
tlimit 3 ls -l
```

In this example your program should read "3" as the time limit in seconds and execute, in a child process, the requested command "ls -l". Your program will wait for its child completion but, if after 3 seconds the child process is still running, it will send the SIGTERM signal to that child process. At the end, your program must print to standard output a message with the child process' exit status. For the previous example, if "ls -l" finishes before 3 seconds, this will be:

```
Command exited with status 0.
```

or, if the time limit is reached, the message should be:

```
Command killed after 3 seconds.
```

Suggestions

Base your solution in your code from Lab 02, in the examples from lectures 4 and 5, and in the recommended books.

To test a scenario where your program needs to kill the command passed as argument, you can use the sleep command like in the following example:

```
tlimit 2 sleep 5
```