Networked Systems Programming (A.A. 2023/24)

Lab n. 5 – November 7, 2023

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Exercise 5.1

Write a thread class (`Printer`) whose `run()` method writes 100 times a message (stored in an instance variable initialized by the constructor) and a progressive integer to the standard output. Write a simple program to test the class by creating two threads of type Printer, each one initialized with a different message. Use both the approaches you know for the definition of the thread body: (a) one based on the extension of `Thread`; (b) the other one based on the implementation of `Runnable`.

Exercise 5.2

Write a client/server application, based on the stream-oriented communication model, to remotely calculate the factorial of a number. The client reads an integer from stdin and sends it to the server to calculate the factorial. Once received, the server calculates the factorial and returns this number to the client for the presentation.

Change the implementation to define a server-side concurrent behaviour: each client should be served by a dedicated thread, launched by the server. Check whether the second implementation works in a concurrent way.

Exercise 5.3

Write the Producer/Consumer application analysed during lecture 18 without and with the coordination mechanisms based on wait() and notify(). You find the code of the implementation without coordination in Handy.

Upload the exercises of this lab into your shared folder before November 9, 2023.