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Exercise Sheet 1

Discussion starts from Monday, April 27, 2020

1.1 Fundamentals of the Practical Exercises

a. Login to our test system with your use account. For this, you need a ssh client (openssh in linux or PuTTY in Windows). Login first on `ls12sq.cs.tu-dortmund.de` (as gateway), after this type `ssh ls12-epyc0.cs.tu-dortmund.de` to access the test system. Get used to the console environment, you should be able to show, change and create directories. Furthermore, you should be able to create, edit and delete files.

b. Analyze the test system for its hardware properties (number of CPU threads, size of the RAM). Hint: The linux tool `lscpu` provides detailed CPU information.

c. In this exercise, we will use the version control system **SVN**. Get used to SVN first.

   SVN-Repository: https://ls12-svn.cs.tu-dortmund.de/svn/courses-ss2020/ra2020/<username>
   You can find all files for each exercise in the corresponding folder. Please create a "info.txt" file with your names and student ids (Matrikelnummer).

d. As the compiler, we use **gcc**. Write a simple "Hello World" C program. Compile and run your program.

e. Try to find a way to measure the program execution time in linux and measure the execution tim of your "Hello World" program. What can you observe?

1.2 Pthread Programming

Since you hopefully attended the operating systems lecture, you already know **pthreads**. In this exercise, a pthread application should be developed. For this purpose, a sequential program (seq.c) can be found in the SVN repository in which four functions are called. Modify the program in such a way that the four functions are executed in parallel. Verify the proper functioning of your program and measure the run-time.

General Information: Further information can be found under hhttps://ls12-www.cs.tu-dortmund.de/daes/de/lehre/lehrveranstaltungen/summersemester-2020/rechnerarchitektur-deutsch.html. Submitting solutions to the exercise sheets is not required.