

# Exercise Sheet 1

(8 Points)

Discussion starts from Wednesday, April 17, 2019

## 1.1 Fundamentals of the Practical Exercises (5 Points)

- Use the credentials you received from your tutor to log in to the Odroid. Get familiar with the user interface and the standard applications: editor, terminal, web browser, file browser.
- Get familiar with the Odroid device by reading the following: [https://wiki.odroid.com/old\\_product/odroid-xu3/odroid-xu3](https://wiki.odroid.com/old_product/odroid-xu3/odroid-xu3) and <https://wiki.odroid.com/odroid-xu4/odroid-xu4> What are major differences between XU-3 and XU-4?
- It is important to be able to use the terminal. Make sure you are able to change, create, delete, rename and edit (e.g. with nano) folders and files.
- We use the version control system **SVN**. Get familiar with SVN.  
**SVN-Repository:** [https://ls12-svn.cs.tu-dortmund.de/svn/course\\_ra19/](https://ls12-svn.cs.tu-dortmund.de/svn/course_ra19/)  
The files required to solve the exercises can be found in the respectively named folders. Please create a folder named according to your account name and work *only* in this folder.
- We use the **gcc** C compiler. Write a simple 'Hello World' program, compile and execute it.
- Try to find possibilities to measure the run-time of a program under Linux and test them with your 'Hello World' application.

## 1.2 Pthread Programming (3 Points)

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 <https://ls12-www.cs.tu-dortmund.de/daes/lehre/lehrveranstaltungen/sommersemester-2019/rechnerarchitektur-ss19.html>. Submitting solutions to the exercise sheets is not required.