



Theoretical Exercises 2

Processes

Please submit solutions on Blackboard by Thursday, 11.02.2021 14:00h

2.1 Unix processes

- Init is the process at the top of the Unix process hierarchy. Describe the two cases in which a process is a child process of init.
- Describe the function of `execvp` in your own words (*Hint*: read the man page)
- Explain the output of the following command in your own words. (*Hint*: assume the current directory has at least one pdf file). Which data is transferred through the pipeline and what operating does grep perform here?

```
ls | grep -c .pdf
```

2.2 fork

Consider the following line of C code: (**Caution: Do not try to execute this!**)

```
for (;;) fork();
```

- Describe the program behavior after 1, 2, 3 and n iterations of the for loop. Assume that all processes (especially the for loop) are executed in parallel.
- The behavior of a program like this can lead to problems. Describe the problems that can occur. Try to find a way to avoid the problem in Unix (without changing the program above).