# Homework 1

## Problem 1.1
**Solution:**

a) The code for this problem can be found in *"scat.c"*.

b) I observed that the system calls are using drastically more time than the library calls. The system call even spends some time in system mode, while the library call doesn't spend time there at all.
The system call is changing to system mode and back for every character and that is becoming very expensive.
I ran both calls on a file that is 16 MB and it took 0.002s for the library call and 21.393s for the system call. The system call had way too many read/write calls and the library call had maximum 3 read/write calls.

c) The code for this problem can be found in *"scat_extended.c"*.
This Linux specific system call is faster than the read/write system calls but it is still slower than the library call. Running this Linux specific system call, on the same file from *b)*, took 0.01s. Which is 5 times more than what the library call needed to do the same.
This Linux specific system call was faster than the read/write system call, from before, because we increased the buffer as in the library call, as the problem stated.

## Problem 1.2
**Solution:**
The code for this problem can be found in *"watch.c"*.