Operating Systems with C/C++
Semester 1, 2013
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Assessed Exercise 2

Deadline: Friday 1 November, 4pm

The Task

Write a simple file server. This file server should accept the following commands:

- List contents of a directory on the server. The output should be just a list of filenames.
- Upload a file to the server. If the file already exists on the server, it is overwritten.
- Download a file from the server.

All operations should be relative to a fixed directory in the server. The download-operation should create the file in the current directory.

The server should be multi-threaded and process several connections simultaneously. You should use the `pthread`-library to implement threading.

The server program should accept two arguments, namely the directory in the server and the port the server listens on. TCP-sockets should be used for communication between client and server. If the first argument is not a writeable directory, the server should immediately terminate with an appropriate error message. You should ensure that only one client can write to any file at a given time. If another client attempts to write to the same file, it should get an error message.

The client program should accept two arguments, namely the hostname and the port number. For three bonus marks you should add a Makefile for this system. These marks are on top of a potential full mark.

Marking Scheme

Please use the School submission system for submitting your code. Please submit only the source files you have written yourself. We will compile and run your code on the Linux machines and mark it accordingly. Please in particular note that we will use the compiler option introduced in the lecture and will deduct 6 marks immediately if there is any compiler error or warning.

We will award marks as follows:

- 5 marks for handling the multithreading correctly
- 10 marks for implementing the commands correctly
- 5 marks for correct interaction between client and server
- 3 marks bonus point for adding a correct Makefile