Exercises

** Exercise 1. **

Implement a simple file transfer via TCP and UDP. Send a file content through a socket channel.

** Exercise 2. ** FTP server and client implementation (TCP)

Create a simplified FTP (file transport) client and **blocking** server where the client can send or download text files from the server:

General use-cases

1.) Client connects to the server and sends a 'file listing' message
2.) Server sends back the list of the downloadable files
3.) Client lists the files and asks the user what action they want to take? Upload or download? ('u' or 'd')
4.) In both cases users must give the full file name with extension
5.) The client sends the selected file to the server (upload) or downloads the selected file from the server to a specific directory.

Server viewpoint

1.) After connecting, it reads the files from the /store subdirectory and sends the file names to the client after receiving the listing message.
2.) We are waiting for the client's 'u' or 'd' operation
3.) We get a filename from the client and if the action is 'd' (download), we read the file content and return its contents
4.) If the operation is 'u' (upload), we open a new file with the specified name and wait for the data to be written to the file.

Client viewpoint

1.) The client connects and waits for the list of files coming back and writes it to the console
2.) We ask for the “u” or “d” key
3.) Then we'll ask for the file-name as well.
4.) The client reads the files from the /files folder, or creates the downloaded file here
5.) If you press “d”, it creates /files/ and writes data from the server
6.) If you press “u”, /files/ is sent to the server

** Exercise 3. ** Modify the **blocking** UDP code so that you can transfer a 'wired-in' name and existing binary image file larger than 2 kbytes and verify that it was successfully sent, eg. try to open the sent image by hand, in the Paint app.

** Exercise 4. ** Try out the non-blocking starter Java code and examine/debug it.

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