Socket Programming with Java

Startup

You may work in groups with up to three members or on your own. You will work on all exercises. In order to pass the tutorial, we have repeated face-to-face technical discussions in which you will demonstrate your understanding of the material. Attendance at the on-site tutorial sessions is therefore required. Exceptions must be agreed upon.
We will use Linux as working environment. Windows might be possible if you have rights to configure its internal firewall to allow external network connections which is required for our needs.

Socket Programming in Java

With help of the command `telnet`[1] (`telnet` IP-address (port-number) you can test TCP connections interactively. That is especially useful when we try out the (unencrypted) HTTP protocol. You can find more detailed information about the HTTP protocol at Wikipedia.

see `https://en.wikipedia.org/wiki/Hypertext_Transfer_Protocol`

e.g.:

```
telnet stud.fh-wedel.de 80
  GET / HTTP/1.1
  Host: stud.fh-wedel.de
empty line
```

1. **Socket Client**

   (a) Please program a simple client that uses the primitive socket capabilities of Java and that can send a simple HTTP request to a server (e.g. `GET /index.html`). Please try to connect to servers on the FH Wedel intranet and also on the Internet.

   (b) How would the client look like, if you alternatively would use the class `java.net.URL`?

   (c) How to take care of a proxy server?

2. **Socket Server**

   (a) Please program a simple server that can accept and work on simple HTTP requests, e.g. by transmitting local files. Please create a new thread for each incoming request. Talk to your server from a web browser.

   (b) Please test your server with `telnet`.

   (c) Please use your client of exercise 1 to send requests to your server.

   (d) Try and access the servers of your fellow students.

Please be prepared for face-to-face technical discussions. These will happen during the on-site tutorial sessions.

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[1]It might be necessary for you to install the `telnet` command first on your computer as ist is no longer provided out of the box on some systems. See Moodle for details.