

## Exercise Sheet 3

Deadline: June 27, 2022 – 04:00 am CEST

### 1 RESTful Chat

In this exercise you will develop a chat client application using web services. The server application is provided as a python program or can be accessed via the Internet at <http://restchat.dahahm.de:8080>.

#### 1.1 Getting to know REST services

REST (*Representational State Transfer*) is a programming paradigm, not a specific technology. Like RPC, REST is used in the context of client-server applications where the server is stateless. The underlying protocol is HTTP. A REST server provides access to *resources*, which are described by URLs. To access them, the HTTP methods (GET, POST, PUT, DELETE, etc.) can be used to read or modify the content of the resource. Due to the use of HTTP, REST is basically usable for all platforms and programming languages.

The client that you shall implement has to be written in C. You can implement everything by hand if you want – or you can use a library that will do the work for you. As a suggestion, libcurl is provided here (<https://curl.haxx.se/libcurl/>). Read about the API usage.

Curl is also available as a command line program on Unix machines. This allows you to access REST services directly from the shell. Use this option to explore the REST service and test things.

If you want to use another C-based library, send me a request. If necessary, the library will then be made available to the project (and thus to everyone).

#### 1.2 Exercise: Implementing the REST chat client

- Adapt the provided CLI client to be used with REST.
- The actual implementation has to be done in `restchat_client.c`. The main application in `restchat_cli.c` does not require any modifications. The provided header file provides some documentation.

The documentation of the REST service is - as one would expect - provided as HTML page via the web service itself.

You will find a list of the available resources and, for each resource a description of which HTTP methods are applicable to it and what they do in each case.

The REST service is provided at `http://restchat.dahahm.de:8080`.

The most important REST resource for you at the beginning will be the query of the current version number. The resource URI for this is `/version`.

Test this with `curl`, for example: `curl -v -H "Accept:text/plain" http://restchat.dahahm.de:8080/version1`

---

<sup>1</sup>Per default, the `curl` program makes HTTP GET requests. Other HTTP methods can be specified using the `-X <method>` option.