Health Bank – Application Design

General Setup

The current implementation of the Health Bank Application is split in essentially three parts. Every part runs on its own server to separate the concerns. These three parts consist of a database server, a server for the API and a web server to host the user interface. They are described in more detail in the following paragraphs.

Database

For the database we use the NoSQL database mongoDB[1] with a JSON-style document-oriented storage. For the current setup we are using the Windows 64-bit installation version 2.4.1 in a Win7 environment.

API

The API is completely written in Java using Java Servlets for the RESTful interface. Therefore we use an Apache Tomcat server to run it. So far the Tomcat server runs directly from within the IDE Eclipse on the same Win7 host OS as the DB. The API speaks directly to the database using the mongoDB Java driver[2]. Other libraries used so far are the Apache Commons-Codec[3] and the JSON Simple[4] libraries for encryption of the credentials and dealing with JSON respectively. Until now the API allows its users to register a new user, log in and out of the system, query user information and all data records assigned to the current logged in user as well as adding new records to the users account.

GUI (Webpage)

The GUI is written completely as a web application in HTML5, CSS3 and JavaScript. It is hosted on an Apache web server using XAMPP[5] also on the Win7 machine. Calls to the API are done via AJAX using the JavaScript library jQuery[6].

For the graphical illustration within our first application, the calories counter, we are using the Google Chart Tool[7]. All other calculations were completely written in plain JavaScript by us. To deal with date and time we used the JavaScript library Moment.js[8].

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[1] See http://www.mongodb.org/
[2] See http://docs.mongodb.org/ecosystem/drivers/java/
[3] See http://commons.apache.org/proper/commons-codec/
[4] See https://code.google.com/p/json-simple/
[5] See http://www.apachefriends.org/en/xampp-windows.html
[6] See http://jquery.com/
[7] See https://developers.google.com/chart/
[8] See http://momentjs.com/