Assignment 3

Remote procedure call

For the third assignment we were asked for a solution consisting in remote procedure calls from client to the server in order to view historical consumption and the baseline consumption(the average consumption over d days). The client is able to see these in a separate page, by accessing the dedicated page from the sensor tables. It is a page for the home appliances. When seeing the historical consumption over some days(the default value is a week) it will show a line chart with the fluctuations that happened over the last 7 days. Based on this, the baseline history is computed as an average of the values registered each hour during each of the selected days. The page is secured such that only the authenticated user which is a client is able to see it.

For the RPC part I created a SignalR hub to send and receive data in a bidirectional way. The client sends the device id and the number of days for which the consumptions are desired, and the server returns the done calculations(in the same time, for both baseline and historical consumption) and sends them back to the client, where they are displayed using NgCharts library for Angular. SignalR is a free and open source library developed by Microsoft, that has a TypeScript client, that enables bi-directional client-server communication. It provides a high-level API for doing client-to-server RPCs that are called from the browser to the server code, thus being useful for getting real time data.

The troubles I encountered were managing the SignalR connections to make sure that the calls are made to the server, importing the new client libraries and making sure they work, plus different problems/ edgecases I had to take care of during the development.