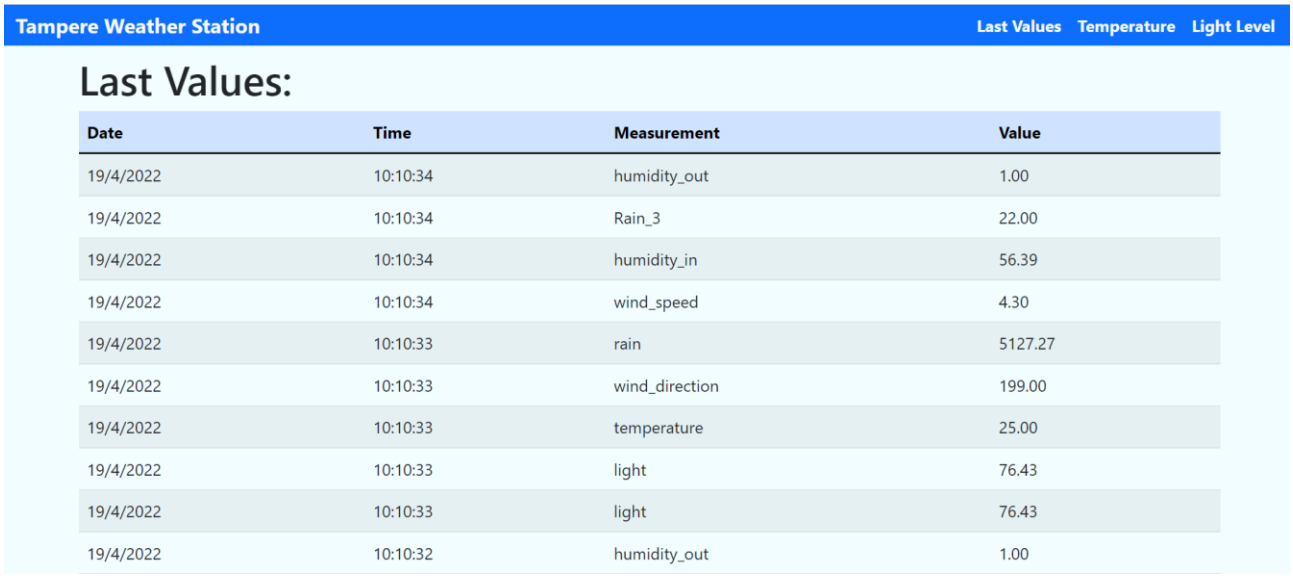
Weather Page - Arto Laitinen

This webpage was done as a project during a web development course at TAMK. All the weather data used in this webpage is provided by TAMK. The purpose of this webpage is to show all the last values of every measurement and show a more detailed stuff of temperature and light level. The measurements are humidity out, humidity in, wind speed, wind direction, light level, temperature and rain.

View 1:


Tampere Weather Station
Last Values
Temperature
Light Level
Last Values:
Date
Time
Measurement
Value
19/4/2022 10:10:34 humidity_out 1.00
19/4/2022 10:10:34 Rain_3 22.00
19/4/2022 10:10:34 humidity_in 56.39
19/4/2022 10:10:34 wind_speed 4.30
19/4/2022 10:10:33 rain 5127.27
19/4/2022 10:10:33 wind_direction 199.00
19/4/2022 10:10:33 temperature 25.00
19/4/2022 10:10:33 light 76.43
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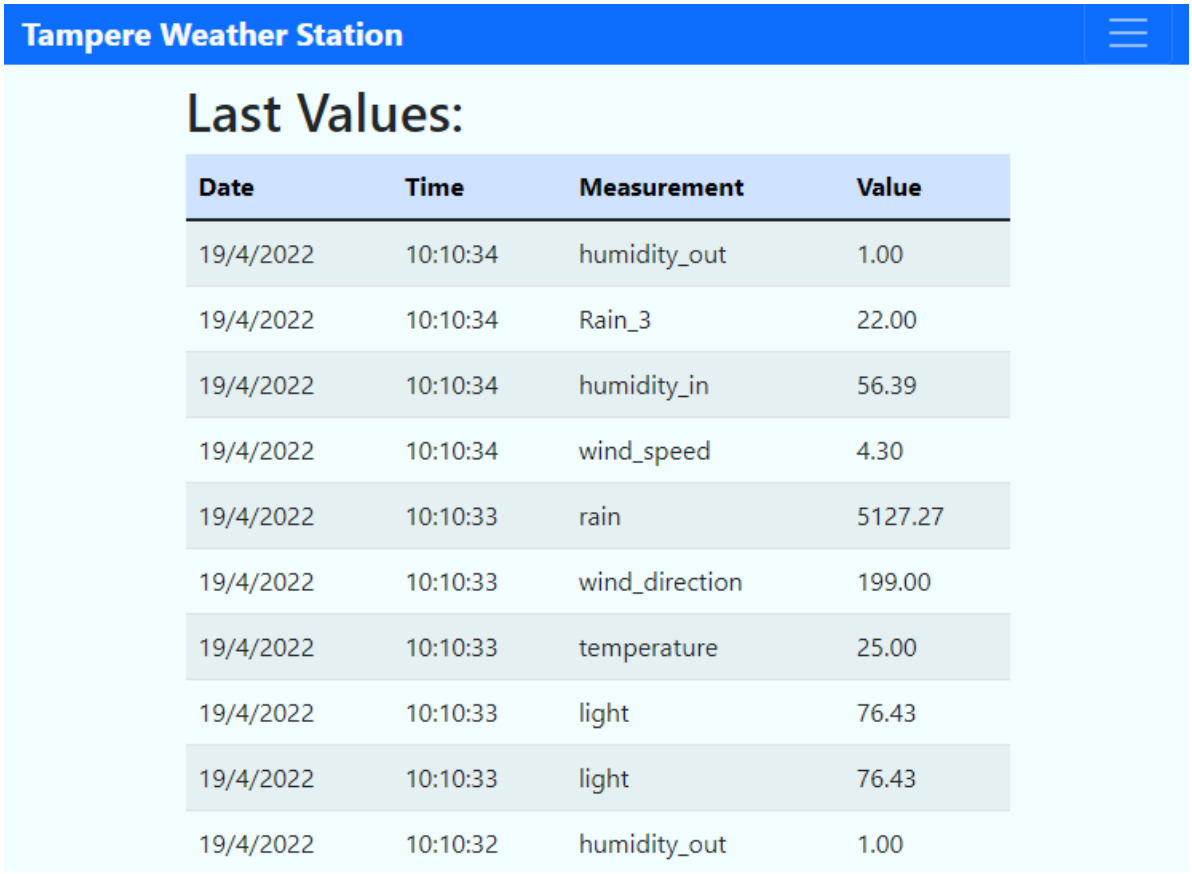
19/4/2022 10:10:32 humidity_out 1.00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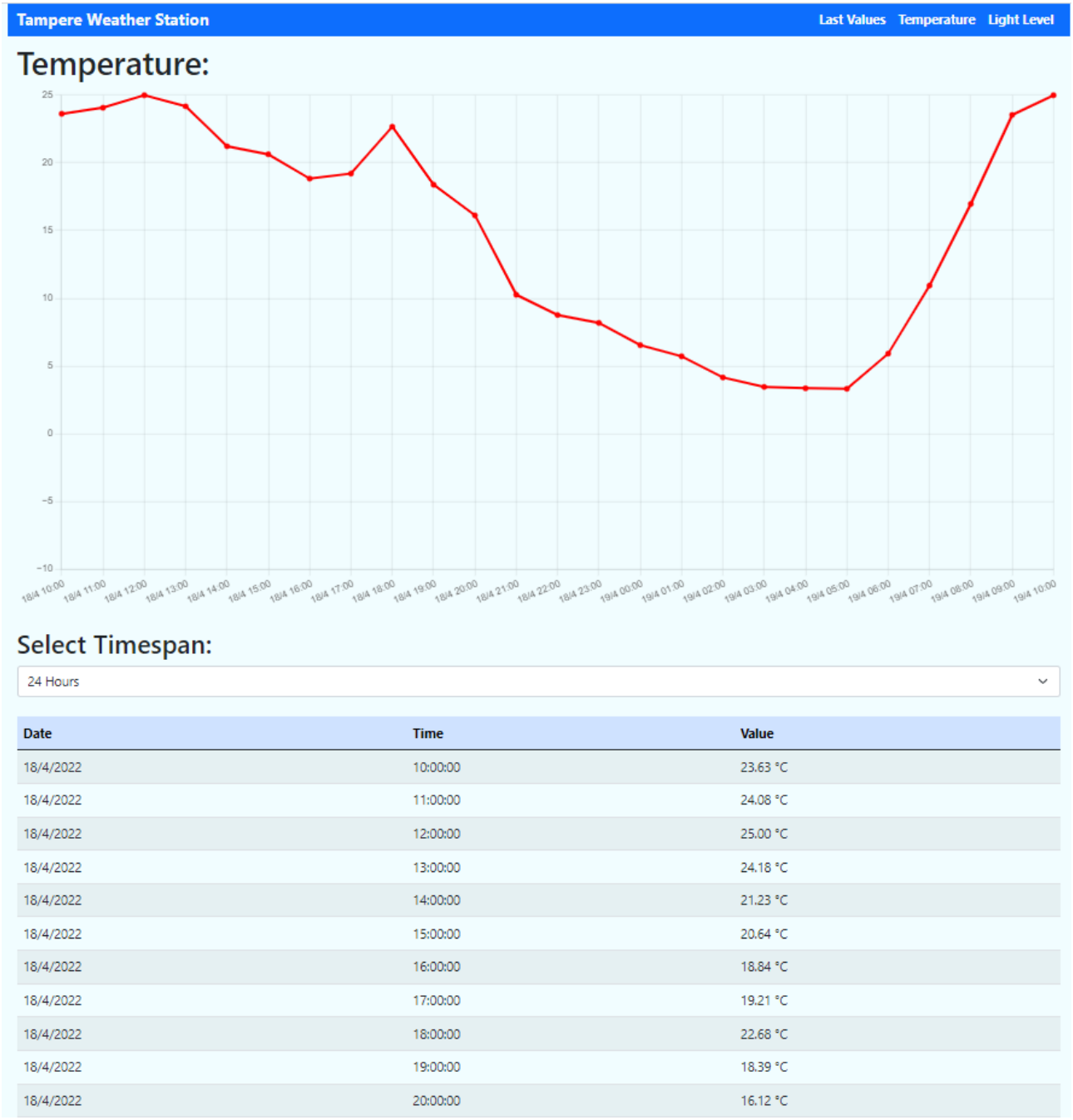
In view 1 you can see the last 50 readings of the weather station. On every view the navigation bar, at the top the page looks the same. When the screen gets smaller the navigation bar changes into a hamburger menu icon. When you click on the icon you will see the same options as in when the screen was bigger. The whole navigation bar is done with Bootstrap. The background color of the page is also the same for every view. The background color is done in a separate CSS-file. On every view everything apart from the navigation bar is inside a Bootstrap container. The table where the data is shown is also done in the same way on every view. The whole table is a Bootstrap table, and all the colors are also done with Bootstrap. Because everything on the page is done with Bootstrap, it scales automatically according to the size of the screen.

The table is filled using JavaScript. In the JavaScript file for view 1 the data is first fetched from https://webapi19sa-1.course.tamk.cloud/v1/weather/limit/50. The data that is fetched looks like this:


```
 {
   "id": 62695332,
   "device_id": "ICT_2018",
   "date_time": "2022-04-19T07:44:41.689Z",
   "data": {
     "humidity_out": 1
   }
 },
```


Then when the data is fetched, a function is called to populate the table with the given data. In the function that populates the table, the date_time is modified so that it has the right format, as seen on the view 1. The measurement value is also modified so that it only shows two decimals.

View 2 & 3



Date	Time	Value
18/4/2022	10:00:00	23.63 °C
18/4/2022	11:00:00	24.08 °C
18/4/2022	12:00:00	25.00 °C
18/4/2022	13:00:00	24.18 °C
18/4/2022	14:00:00	21.23 °C
18/4/2022	15:00:00	20.64 °C
18/4/2022	16:00:00	18.84 °C
18/4/2022	17:00:00	19.21 °C
18/4/2022	18:00:00	22.68 °C
18/4/2022	19:00:00	18.39 °C
18/4/2022	20:00:00	16.12 °C

The views 2 and 3 look and work in the same way apart from the fact that view 2 shows temperature and view 3 shows light level. View 2 looks pretty much the same as view 1 but there is also a chart of the data. The chart is inside a canvas and the canvas is inside the Bootstrap container. On view 2 the user can also select the timespan of the data. The user has 6 different options for the timespan. The options are, now (latest 20 readings), 24 Hours (average per hour), 48 Hours (average per hour), 72 Hours (average per hour), 1 week (average per hour) and 1 month (average per hour). The whole selection thing is also done with only Bootstrap. It has the Bootstrap “form-select” class.

For view 2 the JavaScript is similar to the one of view 1. Firstly the “Select Timespan” has an event listener so every time the value of the selection changes, the table is filled with the new data and the chart is drawn again. When the selection is “now” the data is fetched from https://webapi19sa-1.course.tamk.cloud/v1/weather/temperature/. The data that is fetched looks like this:


```
 {
    "device_id": "ICT_2018",
    "date_time": "2022-04-19T07:55:38.953Z",
    "temperature": "25"
  },
```


If the selection is not “now” the data is fetched from https://webapi19sa-1.course.tamk.cloud/v1/weather/temperature/ + selection. Where selection is the number of hours. For example, if “48 Hours” is chosen the data will be fetched from https://webapi19sa-1.course.tamk.cloud/v1/weather/temperature/48. The data that is fetched looks like this:


```
  {
    "date_time": "2022-04-17T08:00:00.000Z",
    "temperature": "17.70"
  },
```

After the data has been fetched, a function where the table is populated, will be called. The function works exactly the same as in view 1 but at the end of the function a new key-value pair is added. The key-value pair is called “timeFormated”, which is basically the “date_time” formatted into a nicer format for the chart. If the selection is “now” the format is Hours:Minutes:Seconds, otherwise the format is Day/Month Hours:Minutes. So now the data that is fetched looks like this when the selection is “now”:

date_time: "2022-04-19T08:19:48.397Z"

device_id: "ICT_2018"

temperature: "25"

timeFormated: "11:19:48"

And when the selection is something else it looks like this:

date_time: "2022-04-18T08:00:00.000Z"

temperature: "24.46"

timeFormated: "18/4 11:00"

Once the table has been populated, a function is called that draws the chart. The chart is done with chart.js. If the chart has already been drawn once, the previous chart will firstly be destroyed. Then a new chart will be drawn where y axis is “timeFormated” and x axis “temperature”. For the y axis the minimum value is -10 and the maximum 20, but if the value is lower or higher than that the scaling will change according to it. For view 3 the y axis also has a scale but there the minimum is 0 and the maximum 100.