Weather Report

Programming assignments for Axis.

When solving the assignments, you are encouraged to find solutions from the sources available to you (i.e. books, the internet) but you should solve them yourself. If the code snippet you've been looking for is the first result on Stack Overflow, or you need a NuGet package or VS extension, go with it. If you are hesitant of the description of any of the assignments, do a reasonable interpretation and motivate your decision.

We value quality over quantity. Write your code so it lives long and can be maintained by other colleagues do not only focus getting the right result. If you know that you cannot finish in time, a few well done assignments is preferable over many finished assignments done sloppy. And should you not finish in time, send us what you have got.

When reviewing your solution, we look at different aspects including code structure, design patterns, maintainability, testability and error handling. Please note that the data shown in the examples are for demonstration purposes only. Your result may differ.

Preparations

1. Make sure you have a computer with a reliable internet connection and Windows as operating system.
2. Make sure you have the latest .NET SDK installed
   https://dotnet.microsoft.com/en-us/download
3. Make sure you have the necessary tools to develop a .NET application using C#. We recommend the latest Visual Studio Community Edition, which can be downloaded for free here: https://visualstudio.microsoft.com/downloads/
   Note: Do not confuse Visual Studio Community Edition with Visual Studio Code.
4. Verify that you can build and execute the example application BuildVerification. When executed successfully, the text "Verification successful" should be printed in the console window.
5. If you have any trouble completing the steps above, let us know as soon as possible. If everything works fine, you are now ready to start the assignment!

Assignment

General requirements:

- Write your code in such a way that you could still maintain it a year from now. That means readable code that is easy to refactor and explained with comments where it is needed.
- The assignments should be contained in one application and coded as if they were a part of a larger application. This is because we want to see how you think about larger codebases.
- Write in C# language.

Get to know the Swedish Weather Institute's (SMHI) open API for weather observations:

https://opendata.smhi.se/apidocs/metobs/index.html

Use the API to solve the following assignments:

1. Calculate the average temperature in Sweden for the last hour. Write the result in a console window.

```
The avarage temperature in Sweden for the last hours was 4,587815 degrees
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2. Calculate the total rainfall in Lund for the last months. Write the result and which months in a console window.

```
Between 2017-12-22 and 2018-04-30 the total rainfall in Lund was 203,3 millimeters
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3. Cancellation: with a 100ms pause, write the temperature for each of the institute's weather stations, one by one in a console window. The method should have cancellation support via a CancellationToken. If a user presses any key, the CancellationToken should be cancelled and the output should stop.