Aero Performance Software Assignment

The race car has many pressure sensors and produces several channels of data at a variety of frequencies, with unfortunately varying quality and reliability.
We enhance this data with calculated channels, try to predict missing data and, among other analysis techniques, look for occasions when a set of conditions are satisfied.

Within this assignment you will find two data files: `practice.dat` and `qualifying.dat`.

Each of these files contains times and values for channels 1 to 6, as recorded on the race car. For simplicity we are limiting the number of channels to 6, in reality we can have hundreds so please take that into account in your solution.

Channel 7 is defined as:

- `Channel 7 = Channel 5 – Channel 4`

Our analysis requires us to be aware when either of the following conditions are satisfied and when both are satisfied at the same time:

- `Channel 2 < -0.5`
- `Channel 7 < 0,`

Assignment

1. Develop an application for processing race car data.
   Our preference is for you to use C#, but this is not mandatory, and we will consider solutions written in any other strongly typed language.

2. Your application should demonstrate the following traits:

   - Readability – clear, concise and well structured code.
   - Reliability – tolerant to unexpected use and/or data.
   - Testability – low complexity, high cohesion, easily tested.

3. Using your application, read the data files provided and for each, determine at what time the above conditions are first satisfied.

Please zip your submission along with instructions on how to run it and any tests you have provided.

Bonus

4. Provide the ability to plot the data and visualise the aforementioned conditions

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