AIPS Coding Challenge

The Task

An automated traffic counter sits by a road and counts the number of cars that go past. Every half-hour the counter outputs the number of cars seen and resets the counter to zero. You are part of a development team that has been asked to implement a system to manage this data - the first task required is as follows :

Write a program that reads a file, where each line contains a timestamp (in *yyyy-mm-dd*T*hh:mm:ss* format, i.e. ISO 8601) for the beginning of a half-hour and the number of cars seen that half hour. An example file is included on page 2. You can assume clean input, as these files are machine-generated.

The program should output:

- The number of cars seen in total
- A sequence of lines where each line contains a date (in *yyyy-mm-dd* format) and the number of cars seen on that day (eg. 2016-11-23 289) for all days listed in the input file.
- The top 3 half hours with most cars, in the same format as the input file
- The 1.5 hour period with **least** cars (i.e. 3 contiguous half hour records)

Constraints

- The program must be written in Java. You are welcome (and encouraged) to use any of the language features of Java 8.
- The program must be accompanied with reasonable levels of unit tests.
- The solution should be developed to professional standards, the code may be used and extended by your teammates.
- The solution should be deliverable within a couple of hours - please do not spend excessive amounts of time on this.

Assessment

Your submission will be assessed on the following:

- Correctness of solution
- Readability and fluency of your code (including tests)
- Effectiveness of your tests

2016-12-01T05:00:00 5
2016-12-01T05:30:00 12
2016-12-01T06:00:00 14
2016-12-01T06:30:00 15
2016-12-01T07:00:00 25
2016-12-01T07:30:00 46
2016-12-01T08:00:00 42
2016-12-01T15:00:00 9
2016-12-01T15:30:00 11
2016-12-01T23:30:00 0
2016-12-05T09:30:00 18
2016-12-05T10:30:00 15
2016-12-05T11:30:00 7
2016-12-05T12:30:00 6
2016-12-05T13:30:00 9
2016-12-05T14:30:00 11
2016-12-05T15:30:00 15
2016-12-08T18:00:00 33
2016-12-08T19:00:00 28
2016-12-08T20:00:00 25
2016-12-08T21:00:00 21
2016-12-08T22:00:00 16
2016-12-08T23:00:00 11
2016-12-09T00:00:00 4