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Google Interview Experience | Set 5 (for Java Position)

- Difficulty Level :\nExpert
- Last Updated :\n02 Jan, 2016

The solution will be evaluated on following parameters.
\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0 Object Oriented Design aspects of the solution.
\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0 Overall coding practices.
\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0 Working test cases of the solution.

You can use Ant/Maven as build tools for the solution, Junit, Mockito or other testing frameworks. You may also include a brief explanation of your design and assumptions along with your code.

Problem Statement: In a Formula-1 challenge, there are n teams numbered 1 to n. Each team has a car and a driver. Car\xe2\x80\x99s specification are as follows:
\xe2\x80\x93 Top speed: (150 + 10 * i) km per hour
\xe2\x80\x93 Acceleration: (2 * i) meter per second square.
\xe2\x80\x93 Handling factor (hf) = 0.8
\xe2\x80\x93 Nitro : Increases the speed to double or top speed, whichever is less. Can be used only once.

Here i is the team number.
The cars line up for the race. The start line for (i + 1)th car is 200 * i meters behind the ith car.

All of them start at the same time and try to attain their top speed. A re-assessment of the positions is done every 2 seconds(So even if the car has crossed the finish line in between, you\xe2\x80\x99ll get to know after 2 seconds). During this assessment, each driver checks if there is any car within 10 meters of his car, his speed reduces to: hf * (speed at that moment). Also, if the driver notices that he is the last one on the race, he uses \xe2\x80\x98nitro\xe2\x80\x99.

Taking the number of teams and length of track as the input, Calculate the final speeds and the corresponding completion times.

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