## 2019 AP ${ }^{\circledR}$ COMPUTER SCIENCE A FREE-RESPONSE QUESTIONS

2. This question involves the implementation of a fitness tracking system that is represented by the StepTracker class. A StepTracker object is created with a parameter that defines the minimum number of steps that must be taken for a day to be considered active.

The StepTracker class provides a constructor and the following methods.

- addDailySteps, which accumulates information about steps, in readings taken once per day
- activeDays, which returns the number of active days
- averageSteps, which returns the average number of steps per day, calculated by dividing the total number of steps taken by the number of days tracked

The following table contains a sample code execution sequence and the corresponding results.

| Statements and Expressions | Value Returned (blank if no value) | Comment |
| :---: | :---: | :---: |
| $\begin{aligned} & \text { StepTracker tr }=\text { new } \\ & \text { StepTracker }(10000) ; \end{aligned}$ |  | Days with at least 10,000 steps are considered active. Assume that the parameter is positive. |
| tr.activeDays(); | 0 | No data have been recorded yet. |
| tr.averageSteps(); | 0.0 | When no step data have been recorded, the averageSteps method returns 0.0 . |
| tr.addDailySteps (9000); |  | This is too few steps for the day to be considered active. |
| tr.addDailySteps (5000); |  | This is too few steps for the day to be considered active. |
| tr.activeDays (); | 0 | No day had at least 10,000 steps. |
| tr.averageSteps () ; | 7000.0 | The average number of steps per day is (14000/2). |
| tr.addDailySteps (13000); |  | This represents an active day. |
| tr.activeDays(); | 1 | Of the three days for which step data were entered, one day had at least 10,000 steps. |
| tr.averageSteps (); | 9000.0 | The average number of steps per day is (27000 / 3). |
| tr.addDailySteps (23000); |  | This represents an active day. |
| tr.addDailySteps (1111); |  | This is too few steps for the day to be considered active. |
| tr.activeDays(); | 2 | Of the five days for which step data were entered, two days had at least 10,000 steps. |
| tr.averageSteps (); | 10222.2 | The average number of steps per day is (51111/5). |

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Write the complete StepTracker class, including the constructor and any required instance variables and methods. Your implementation must meet all specifications and conform to the example.

