

2019 AP® 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
<code>StepTracker tr = new StepTracker(10000);</code>		Days with at least 10,000 steps are considered active. Assume that the parameter is positive.
<code>tr.activeDays();</code>	0	No data have been recorded yet.
<code>tr.averageSteps();</code>	0.0	When no step data have been recorded, the <code>averageSteps</code> method returns 0.0.
<code>tr.addDailySteps(9000);</code>		This is too few steps for the day to be considered active.
<code>tr.addDailySteps(5000);</code>		This is too few steps for the day to be considered active.
<code>tr.activeDays();</code>	0	No day had at least 10,000 steps.
<code>tr.averageSteps();</code>	7000.0	The average number of steps per day is $(14000 / 2)$.
<code>tr.addDailySteps(13000);</code>		This represents an active day.
<code>tr.activeDays();</code>	1	Of the three days for which step data were entered, one day had at least 10,000 steps.
<code>tr.averageSteps();</code>	9000.0	The average number of steps per day is $(27000 / 3)$.
<code>tr.addDailySteps(23000);</code>		This represents an active day.
<code>tr.addDailySteps(1100);</code>		This is too few steps for the day to be considered active.
<code>tr.activeDays();</code>	2	Of the five days for which step data were entered, two days had at least 10,000 steps.
<code>tr.averageSteps();</code>	10222.2	The average number of steps per day is $(51111 / 5)$.

```

public class StepTracker {
    private int minActive;
    private int numDays;
    private int totalSteps;
    private int numActive;

    public StepTracker(int minimum) {
        minActive = minimum;
        numDays = 0;
        totalSteps = 0;
        numActive = 0;
    }

    public void addDailySteps(int steps) {
        totalSteps += steps;
        numDays++;
        if(steps >= minActive)
    }
}

```

Interactions Console Compiler Output

Compiler ready: JDK 8.0_144 from C:\Program Files\Java\jdk1.8.0_144\lib\tools.jar.

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