**Year 11 Computer Science**

**Topic 7 -** Classes and Objects

**Lab -** *ZombiePlant*

Your job is to create **one** **class** called ***ZombiePlant***.

You should pass all of the tests in the **ZombiePlantTester** class (provided).

This question involves the implementation of a zombie plant treatment system that is represented by the ZombiePlant class. A ZombiePlant object is created with parameters that specify the maximum potency for a successful treatment and the initial number of successful treatments required to cure the plant.

The ZombiePlant class provides a constructor and the following methods.

* **treatmentsNeeded**, which returns the number of successful treatments required to cure the plant.
* **isDangerous**, which returns true if the plant requires treatment, false otherwise
* **treat**, which administers a treatment with the specified potency

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

| **Statements and Expressions** | **Value Returned (blank if no value)** | **Comment** |
| --- | --- | --- |
| ZombiePlant plant = new ZombiePlant(10, 3); |  | The plant requires treatments with a potency <= 10. The plant initially needs 3 successful treatments to be cured. |
| plant.treatmentsNeeded(); | 3 | The plant has not yet been treated, so it still needs 3 treatments to be cured. |
| plant.isDangerous(); | true | The plant still needs at least 1 treatment to be cured, so it is dangerous. |
| plant.treat(7); |  | The treatment potency is <- 10, so the treatment is successful |
| plant.treatmentsNeeded(); | 2 | The plant now needs 2 successful treatments to be cured. |
| plant.treat(11); |  | The treatment potency is not <= 10, so the treatment is not successful. |
| plant.treatmentsNeeded(); | 3 | The failed treatment increased the number of successful treatments needed for the plant to be cured by 1. |
| plant.treat(10); |  | The treatment potency is <= 10, so the treatment is successful. |
| plant.treatmentsNeeded(); | 2 | The plant now needs 2 successful treatments to be cured. |
| plant.isDangerous(); | true | The plant still needs at least 1 treatment to be cured, so it is dangerous. |
| plant.treat(8); |  | The treatment potency is <= 10, so the treatment is successful. |
| plant.treat(4); |  | The treatment potency is <= 10, so the treatment is successful. |
| plant.treatmentsNeeded(); | 0 | The successful treatments reduced the number of treatments needed to 0. |
| plant.isDangerous(); | false | The plant has been cured. It is no longer dangerous. |
| plant.treat(4); |  | Additional treatments with a potency <= 10 have no effect. |
| plant.treatmentsNeeded(); | 0 | The additional treatment with a potency <= 10 had no effect. |
| plant.isDangerous(); | false | The plant remains cured. |