

Assignment 03 – Java Concepts, Chapter 03: Implementing Classes
Due: Monday, Jan 26.

Exercise P1.6 pg 29 (modified)

Exercise P3.11 pg 117

Implement a class called **RoachPopulation** as described on page 117. In particular, note that the class should have one constructor and three methods: `breed()`, `spray()` and `getRoaches()`. Think carefully about the instance fields required for **RoachPopulation**. How many fields do you really need? What types of variables makes the most sense?

Write a class called **RoachSimulation** which tests the class as described in the problem. Refer to the appendix below for more details.

Put a copy of your source code files (**RoachPopulation.java & RoachSimulation.java**) into a **.zip** file named **CS125-A03-YOURNAME.zip**. Note: if you have trouble creating zip files in the labs, refer to my tutorial on my CS104 course page.

Upload the **.zip** file to Moodle.

The following rubric will be used for grading

Description	Points
Correct filename(s) are used	2
RoachPopulation has correct instance fields	1
RoachPopulation has constructor is implemented	1
<code>breed()</code> , <code>spray()</code> & <code>getRoaches()</code> methods are implemented correctly	3
Source code compiles without errors	3
Program executes	2
Program output is correct	3
RoachPopulation class is documented	1
RoachPopulation methods & constructor are documented	2
RoachPopulation parameters and return values are documented	2
TOTAL POSSIBLE POINTS:	20

Appendix: RoachSimulation details

```
/**
 * This program simulates the growth of a roach population.
 */
public class RoachSimulation
{
    public static void main(String[] args)
    {
        RoachPopulation population = new RoachPopulation(10);
        System.out.print(population.getRoaches());
        System.out.println(" roaches");

        population.breed();
        population.spray();
        System.out.print(population.getRoaches());
        System.out.println(" roaches");

        population.breed();
        population.spray();
        System.out.print(population.getRoaches());
        System.out.println(" roaches");

        population.breed();
        population.spray();
        System.out.print(population.getRoaches());
        System.out.println(" roaches");

        population.breed();
        population.spray();
        System.out.print(population.getRoaches());
        System.out.println(" roaches");
    }
}
```