Activity 2: Dining Philosophers

Start Assignment

Due Monday by 23:59 **Points** 20 **Submitting** a file upload
Available until May 3 at 23:59

Instructions

Understand and implement the solution to the dining-philosophers problem using monitors (Read Chapter 5.8.2) in Java.

Create five philosophers, each identified by a number 0...4. Each philosopher should run as a separate thread. When a philosopher wishes to eat, it should call the method pickup(i), where i identifies the number of the philosopher wishing to eat. When a philosopher finishes eating, it invokes putdown(i). A philosopher may pick up the chopsticks only if both of them are available.

Additional Requirements

1. The driver class is the class Activity2 and it should and it should contain only one method, main. The main method should create the dining philosopher object and an instance of each philosopher followed by starting the execution of each philosopher.

2. When a philosopher is thinking the philosopher should print: Philosopher i is thinking." with i being the number of the philosopher who is thinking. After printing the philosopher thread should sleep for a random amount of time.

3. When a philosopher is eating the philosopher should print: Philosopher i is eating." with i being the number of the philosopher who is eating. After printing the philosopher thread should sleep for a random amount of time.

4. When a philosopher acquires both of its chopsticks the philosopher should print: Philosopher i acquired its left and right chopsticks." with i being the number of the philosopher who acquired its chopsticks. When a philosopher releases both of its chopsticks the philosopher should print: Philosopher i released its left and right chopsticks." with i being the number of the philosopher who released its chopsticks.

5. Do NOT use any graphical user interface code in your program

6. The Java API provides support for semaphores, condition variables, and mutex locks (among other concurrency mechanisms) in the java.util.concurrent package. You can use them for your solution. Do

not use other packages/your own packages so I can run it independent of the file organization in your computer or whatever IDE you used.

7. Use the same grouping as your mini mp 1