Name: Shubham Chemate

Roll Number: 31118

Subject: LP-1

Assignment Name: Write a program to solve classical problem of synchronization using mutex and semaphore

Code:

**import** java.util.Random;

**import** java.util.concurrent.Semaphore;

**public** **class** DiningPhilo {

**private** **static** **final** **int** ***NUM\_PHILOSOPHERS*** = 4;

**public** **static** **void** main(String[] args) {

Semaphore[] chopsticks = **new** Semaphore[***NUM\_PHILOSOPHERS***];

**for** (**int** i = 0; i < ***NUM\_PHILOSOPHERS***; i++)

chopsticks[i] = **new** Semaphore(1);

Philosopher[] philosophers = **new** Philosopher[***NUM\_PHILOSOPHERS***];

**for** (**int** i = 0; i < ***NUM\_PHILOSOPHERS***; i++) {

philosophers[i] = **new** Philosopher(i, chopsticks[i], chopsticks[(i + 1) % ***NUM\_PHILOSOPHERS***]);

**new** Thread(philosophers[i]).start();

}

}

}

**class** Philosopher **implements** Runnable {

**private** Random numGenerator = **new** Random();

**private** **int** id;

**private** Semaphore leftChopstick;

**private** Semaphore rightChopstick;

**public** Philosopher(**int** id, Semaphore leftChopstick, Semaphore rightChopstick) {

**this**.id = id;

**this**.leftChopstick = leftChopstick;

**this**.rightChopstick = rightChopstick;

}

**public** **void** run() {

**try** {

**while** (**true**) {

think();

pickUpLeftChopstick();

pickUpRightChopstick();

eat();

putDownChopsticks();

}

} **catch** (InterruptedException e) {

System.***out***.println("Philosopher " + id + " was interrupted.\n");

}

}

**private** **void** think() **throws** InterruptedException {

System.***out***.println("Philosopher " + id + " is thinking.\n");

System.***out***.flush();

Thread.*sleep*(numGenerator.nextInt(10));

}

**private** **void** pickUpLeftChopstick() **throws** InterruptedException {

**if** (leftChopstick.availablePermits() == 0) {

System.***out***.println("Philosopher " + id + " is WAITING for left chopstick");

}

leftChopstick.acquire();

System.***out***.println("Philosopher " + id + " is HOLDING left chopstick.\n");

System.***out***.flush();

}

**private** **void** pickUpRightChopstick() **throws** InterruptedException {

**if** (rightChopstick.availablePermits() == 0)

System.***out***.println("Philosopher " + id + " is WAITING for right chopstick");

rightChopstick.acquire();

System.***out***.println("Philosopher " + id + " is HOLDING right chopstick.\n");

System.***out***.flush();

}

**private** **void** eat() **throws** InterruptedException {

System.***out***.println("Philosopher " + id + " is eating.\n");

System.***out***.flush();

Thread.*sleep*(numGenerator.nextInt(10));

}

**private** **void** putDownChopsticks() {

leftChopstick.release();

rightChopstick.release();

}

}

Output:

Philosopher 0 is thinking.

Philosopher 2 is thinking.

Philosopher 1 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 1 is WAITING for left chopstick

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 2 is thinking.

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 1 is HOLDING left chopstick.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 1 is WAITING for left chopstick

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 2 is HOLDING right chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is eating.

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 1 is HOLDING left chopstick.

Philosopher 2 is eating.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 2 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

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Philosopher 1 is HOLDING left chopstick.

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Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

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Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 1 is WAITING for left chopstick

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 1 is HOLDING left chopstick.

Philosopher 2 is eating.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is WAITING for left chopstick

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Philosopher 1 is eating.

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Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

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Philosopher 2 is eating.

Philosopher 0 is thinking.

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Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 2 is WAITING for left chopstick

Philosopher 0 is HOLDING left chopstick.

Philosopher 1 is thinking.

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 2 is thinking.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is WAITING for left chopstick

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 1 is WAITING for left chopstick

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 2 is WAITING for left chopstick

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 2 is WAITING for left chopstick

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 2 is HOLDING left chopstick.

Philosopher 0 is eating.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is eating.

Philosopher 0 is WAITING for left chopstick

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 0 is eating.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 1 is WAITING for left chopstick

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING right chopstick.

Philosopher 1 is eating.

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is WAITING for left chopstick

Philosopher 1 is thinking.

Philosopher 0 is HOLDING right chopstick.

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick

Philosopher 0 is eating.

Philosopher 0 is thinking.

Philosopher 2 is HOLDING right chopstick.

Philosopher 2 is eating.

Philosopher 2 is thinking.

Philosopher 1 is HOLDING left chopstick.

Philosopher 1 is WAITING for right chopstick

Philosopher 0 is HOLDING left chopstick.

Philosopher 0 is WAITING for right chopstick

Philosopher 2 is HOLDING left chopstick.

Philosopher 2 is WAITING for right chopstick