

PA 3

Checklist

- BaseThread
- Philosopher
- Monitor
- DiningPhilosophers
- Makefile (ignore it)

Yield vs Sleep

- `Thread.yield` to temporarily pause the running thread and allow other threads to execute
- `Thread.sleep` to suspend the running thread for the specified number of milliseconds

Philosopher

- Read TODO in comments
- Implements eat, think, talk

Monitor (Most important)

- pickUp
- putDown
- requestTalk
- endTalk

Pickup

- Condition: Both the left & right chopsticks are available
- Waits until condition true, pick both and returns
- Using `wait` method of Java Monitor

PutDown

- Returns a pair of holding chopstick
- `notifyAll` to all waiting philosophers
- P2 put down can trigger both P1 and P3

Monitor Notes

- Calling `wait` and `notifyAll` must be inside `synchronized`

requestTalk

- Condition: No one is talking
- Waits until condition true, mark as talking, return permit
- Using `wait`

endTalk

- marks as no one is talking
 - notify one is enough but carefully
 - If requestTalk & endTalk are sharing Monitor with Pickup/Putdown. notifyAll is required
1. A waiting for chopsticks & B waiting for talk
 2. C signals end talk but A is awoken up

Sharing Monitor or not

- Eat and talk are independent task
- Separating monitors are better
- But you can use a shared monitor

Application Arguments

```
class Adder {  
    public static void main (String[] args) {  
        if (args.length == 2) {  
            try {  
                int first = Integer.parseInt(args[0]);  
                int second = Integer.parseInt(args[1]);  
                int sum = first + second;  
                System.out.println("" + first + " + " + second + " = " + sum);  
            } catch (NumberFormatException e) {  
                System.err.println("Both must be integers: " + args[0] + ", " + args[1]);  
            }  
        } else {  
            System.err.println("Usage: java Adder x y");  
        }  
    }  
}
```

Command-Line Arguments

1. Launch application from command line
2. Configure program arguments in IDE

References:

<http://docs.oracle.com/javase/tutorial/essential/environment/cmdLineArgs.html>