Andrew Megeath

CSDS 338

12/14/22

Final Project Overview

For my final project, I have chosen to construct a simulation of how Peterson's algorithm for two processes does not function correctly for three processes. The *Processing* package contains the classes used in simulating CPU processing. The *Demos* package contains programs that run experiments with Peterson's algorithm. Each program is completely self-documenting. I have included screenshots of the outputs for each program below, and I recommend that you read through the programs in the order I have listed them.

NoLocks2Processes.java:

```
PROCESS A CRITICAL SECTION 1/3
PROCESS B CRITICAL SECTION 1/3
PROCESS A CRITICAL SECTION 2/3
PROCESS B CRITICAL SECTION 2/3
PROCESS A CRITICAL SECTION 3/3
PROCESS B CRITICAL SECTION 3/3
```

Petersons2Processes.java:

```
PROCESS A CRITICAL SECTION 1/3
PROCESS A CRITICAL SECTION 2/3
PROCESS A CRITICAL SECTION 3/3
PROCESS B CRITICAL SECTION 1/3
PROCESS B CRITICAL SECTION 2/3
PROCESS B CRITICAL SECTION 3/3
```

Petersons3Processes.java:

```
PROCESS A CRITICAL SECTION 1/3
PROCESS A CRITICAL SECTION 2/3
PROCESS A CRITICAL SECTION 3/3
```
`(the program deadlocks after this point)`

Petersons3ProcessesIncorrectFix.java:

```
PROCESS A CRITICAL SECTION 1/3
PROCESS A CRITICAL SECTION 2/3
PROCESS A CRITICAL SECTION 3/3
PROCESS B CRITICAL SECTION 1/3
PROCESS B CRITICAL SECTION 2/3
PROCESS B CRITICAL SECTION 3/3
PROCESS C CRITICAL SECTION 1/3
PROCESS C CRITICAL SECTION 2/3
PROCESS C CRITICAL SECTION 3/3
```

Petersons3ProcessesIncorrectFixFailing.java:

```
PROCESS A CRITICAL SECTION 1/3
PROCESS A CRITICAL SECTION 2/3
PROCESS A CRITICAL SECTION 3/3
Process A non-critical section 1/8
PROCESS B CRITICAL SECTION 1/3
Process A non-critical section 2/8
PROCESS B CRITICAL SECTION 2/3
Process A non-critical section 3/8
PROCESS B CRITICAL SECTION 3/3
Process A non-critical section 4/8
Process A non-critical section 5/8
PROCESS C CRITICAL SECTION 1/3
Process A non-critical section 6/8
Process B non-critical section 1/3
PROCESS C CRITICAL SECTION 2/3
Process A non-critical section 7/8
Process B non-critical section 2/3
PROCESS C CRITICAL SECTION 3/3
Process A non-critical section 8/8
Process B non-critical section 3/3
```

(the program deadlocks after this point)