

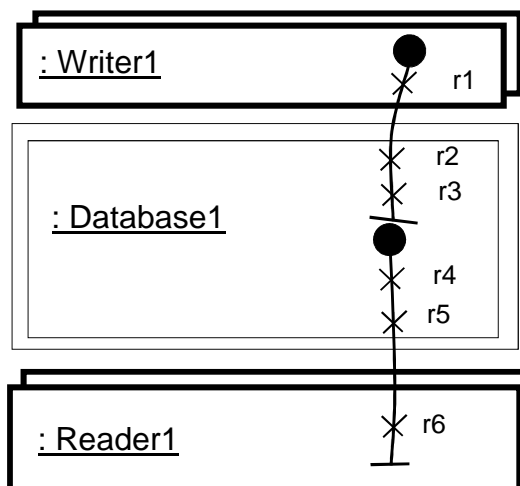
SYSC 3303 Real-Time Concurrent Systems

Assignment #3 Sample Solutions

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- revised April 21st, 2014

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Part 1 UCM



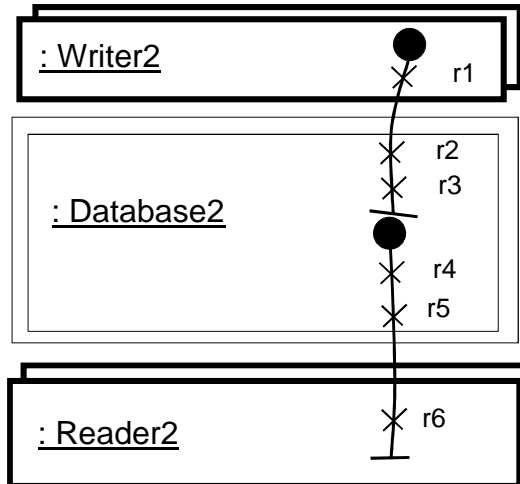
Note that multiple readers may proceed simultaneously (writers may starve)

Responsibilities:

- r1 – produce item
- r2 – start writing to database
- r3 – finish writing to database
- r4 – start reading from database
- r5 – finish reading from database
- r6 – consume item

2

Part 2 UCM



Note that writers cannot be kept waiting (readers may starve)

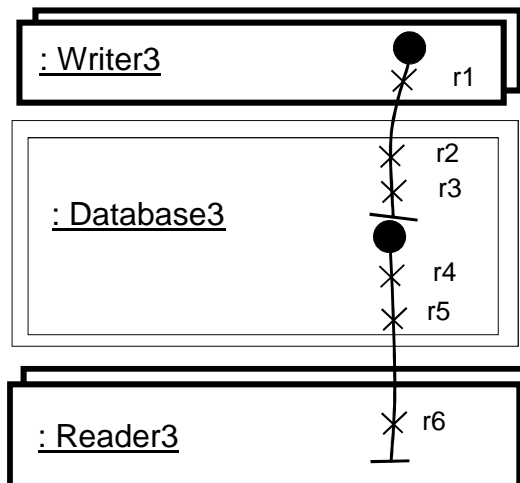
Note that multiple readers may proceed simultaneously

Responsibilities:

- r1 – produce item
- r2 – start writing to database
- r3 – finish writing to database
- r4 – start reading from database
- r5 – finish reading from database
- r6 – consume item

3

Part 3 UCM



Note that neither readers nor writers can starve

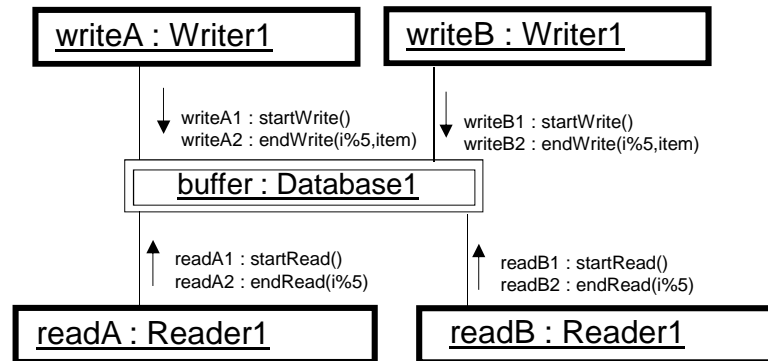
Note that multiple readers may proceed simultaneously

Responsibilities:

- r1 – produce item
- r2 – start writing to database
- r3 – finish writing to database
- r4 – start reading from database
- r5 – finish reading from database
- r6 – consume item

4

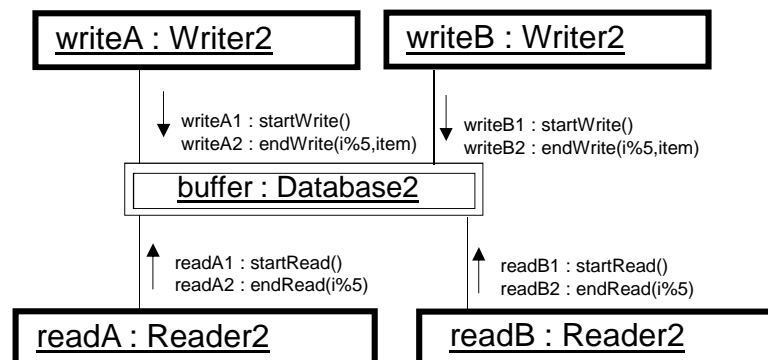
Part 1 UML Collaboration Diagram



For all readers / writers steps 1 and 2 iterate 10 times.

5

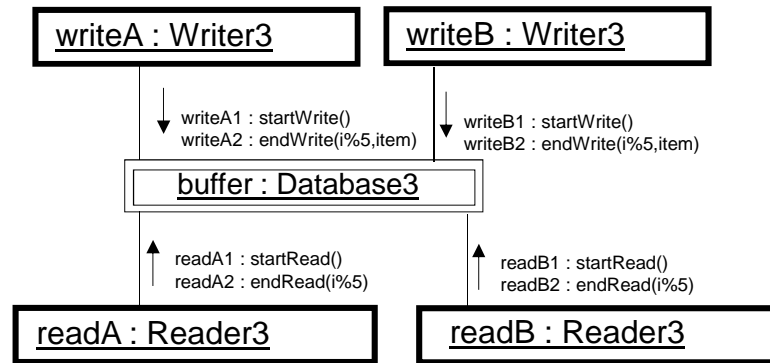
Part 2 UML Collaboration Diagram



For all readers / writers steps 1 and 2 iterate 10 times.

6

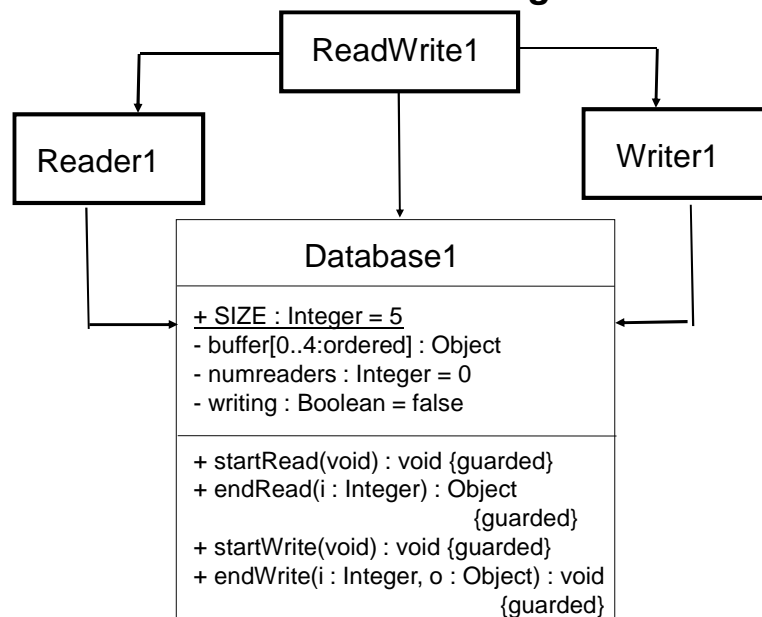
Part 3 UML Collaboration Diagram



For all readers / writers steps 1 and 2 iterate 10 times.

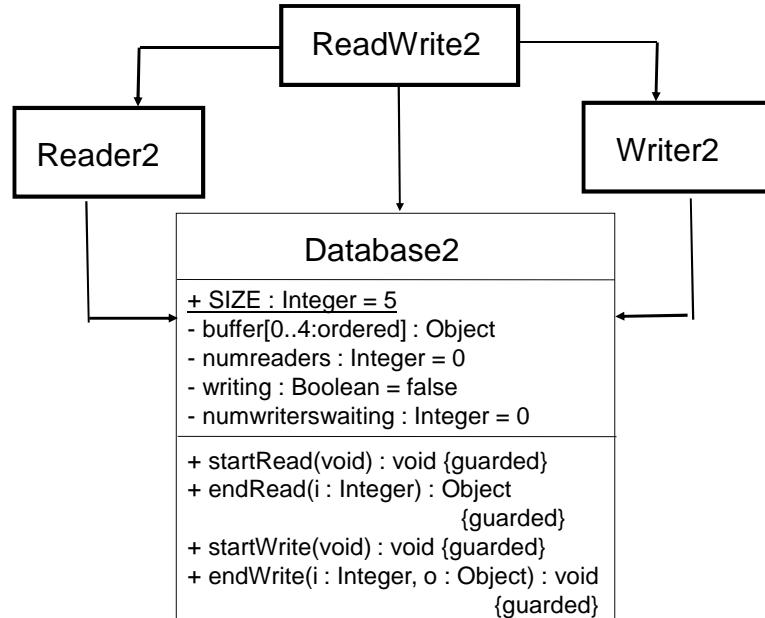
7

Part 1 Class Diagram



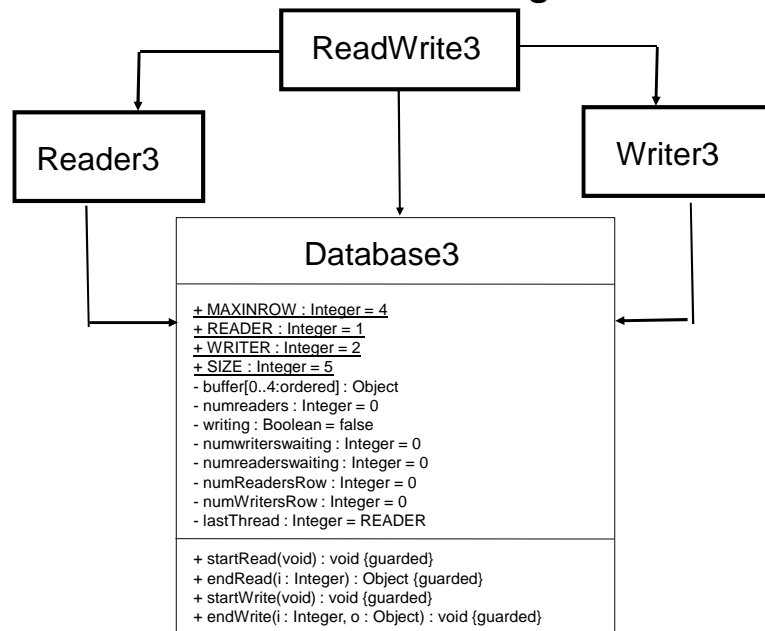
8

Part 2 Class Diagram



9

Part 3 Class Diagram



10