



Locks Programming

CSCI 201

Principles of Software Development

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Outline

- Locks Program

Locks Program



- Write three programs – a server program, a client program, and a main program
- The client program should communicate with the server program and add a value into an `ArrayList`
- The server program will maintain the `ArrayList` and return the entire list back to the client
- The main program should instantiate 100 clients and execute them all as threads concurrently
 - › Without any synchronization, this may return lists that do not have the number just added at the end
- Implement synchronization using locks in the server and possibly in the client

Locks Program



- Java has a `Lock` interface that is implemented by the `ReentrantLock` and `ReadWriteLock`
- We are going to now create our own implementation of the `java.util.concurrent.locks.Lock` interface

Locks Program



- Test your implementation of the `Lock` by using your `Lock` instead of the Java `ReentrantLock` in the server program
 - › Note: You may need to modify your `Lock` code to make it reentrant, meaning that you do not need to acquire the lock again to get into another critical section of code that requires the same lock that you have already acquired