Mutual Exclusion

Companion slides for

The Art of Multiprocessor Programming

by Maurice Herlihy & Nir Shavit

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Locks (Mutual Exclusion)

```
public interface Lock {

  public void lock();

  public void unlock();
}
```

acquire lock

release lock

Using Locks

```
public class Counter {
  private long value;
  private Lock lock;
  public long getAndIncrement() {
    lock.lock();
    try {
     int temp = value;
     value = value + 1;
    } finally {
      lock.unlock();
    }
    return temp;
  }}
```

acquire Lock

Using Locks

```
public class Counter {
  private long value;
  private Lock lock;
  public long getAndIncrement() {
   lock.lock();
   try {
    int temp = value;
    value = value + 1;
   } finally {
    lock.unlock();
   }
   return temp;
  }}
```

Release lock
(no matter what)

Using Locks

```
public class Counter {
  private long value;
  private Lock lock;
  public long getAndIncrement() {
   lock.lock();
   try {
    int temp = value;
    value = value + 1;
   } finally {
     lock.unlock();
   }
   return temp;
  }}
```

porque modifica valores/variáveis

Critical section