

Worksheet #36: Double Checked Locking Idiom in Java

Name: _____

Netid: _____

Consider two threads calling the `getHelper()` method in parallel:

1) Can you construct a possible data race if they call the unoptimized version of `getHelper()` in lines 3-8?

2) Can you construct a possible data race if they call the optimized version of `getHelper()` in lines 12-21?

3) How will your answer to 2) change if the `helper` field in line 11 was declared as `volatile`?



Worksheet #36 (contd)

```
1. class Foo { //unoptimized version
2.     private Helper helper; // Singleton pattern
3.     public synchronized Helper getHelper() {
4.         if (helper == null) {
5.             helper = new Helper();
6.         }
7.         return helper;
8.     }
9.     . . .
```

```
10.class Foo { //Optimized version
11.     private Helper helper; // Singleton pattern
12.     public Helper getHelper() {
13.         if (helper == null) {
14.             synchronized(this) {
15.                 if (helper == null) {
16.                     helper = new Helper();
17.                 }
18.             }
19.         }
20.         return helper;
21.     }
22.     . . .
```

