Worksheet #35: 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 #35 (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.     . . .