

CS 4235 / CS 8803IIS Homework 2

Assigned: 7 February 2011

Due: 14 February 2011, 5:00pm Atlanta time. Students submitting solutions after that time but by 5:00pm Atlanta time on 16 February will have their scores scaled by 0.8. No solutions will be accepted after 5:00pm on 16 February.

Teaming: Work individually.

Solutions should be typewritten and submitted as a PDF file on T-Square. Be sure to include your name and GTID number on your submission. Scores will be posted on T-Square.

Although you are expected to use outside sources for information, you:

- **must not** copy-and-paste text or figures from those sources, and
- **must** cite the sources. A citation should provide sufficient information for myself or anyone else to find the source that you used.

If you are unsure whether or not you are using outside material appropriately, please ask me rather than guessing.

This homework has one written part worth 100 points. Please solve the following problems.

Written exercises

1. From Chapter 1:
 - (a) #2 (10 points)
 - (b) #4 (10 points)
 - (c) #18 (20 points)
 - (d) #19 (20 points)
2. From Chapter 2: #1 (10 points)
3. (10 points) Java provides the *synchronized* keyword to allow programmers to create critical sections of code. One thread of execution within the critical section will complete the section before any other thread can enter the section. Explain why this protection is or is not sufficient to prevent all time-of-check to time-of-use attacks against programs written in Java.
4. (20 points) Classify each of the following as a violation of confidentiality, integrity, and/or availability. Each example has at least one violation, but some examples may have two or three violations. Name the violation(s) and provide a short statement explaining your answer.
 - (a) Susan alters a \$100 check from Sayeed to read \$1000.
 - (b) A keylogger records keystrokes pressed within a web browser.
 - (c) A badly-written buffer overflow exploit against a server does not give the attacker system access but only crashes the attacked software.
 - (d) A custodian removes printouts with customer information from a trash can and sells the printouts to a competitor.
 - (e) A worm encrypts all files on the hard drive of each computer it infects.
 - (f) Jimmy creates a fake corporate ID listing him as a computer technician so that a security guard will let him into the companys computer room.
 - (g) Ellen discovers Latoyas password by repeatedly trying to log on to a system as Latoya with various test passwords until one password finally succeeds. She then changes the password so Latoya can no longer log in.