ITIS 6200/8200 (Fall 2018)
Principles of Information Security & Privacy
Homework 1

Deadline: 11:59pm, September 23, 2018. No late submission will be accepted.
Submission method: upload your solutions to Canvas in one PDF file.

Each student is expected to finish this homework **independently**. No collaboration is allowed. Furthermore, if you search the Internet, copy, and paste an answer, you will get **zero** and can be subject to the academic misconduct procedures and sanctions.

1. Read the following three bug reports. For each of them, decide whether an attack exploiting it violates confidentiality, integrity, availability, or some combination thereof. Give reasons for your decision.

1) wxGTK: User-assisted execution of arbitrary code.
http://www.securityfocus.com/archive/1/513491/30/0/threaded
2) Cisco Security Advisory: Cisco IOS XR Software Border Gateway Protocol Vulnerability.
http://www.securityfocus.com/archive/1/513411/30/30/threaded
3) Intuit Lacerte 2017 for Windows security issue. https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2018-11338

2. Consider a computer system with three users: Alice, Bob, and Cyndy. Alice owns the file *alicefs*, and Bob and Cyndy can read it. Cyndy can read and write the file *bobfs*, which Bob owns, but Alice can read and execute it. Only Cyndy can read and write the file *cyndyfs*, which she owns. Assume that the owner of each of these files can execute it. Note that there are four kinds of access rights in this question: read, write, own, and execute.
    a. Create the corresponding access control matrix.
    b. Cyndy gives Alice permission to read *cyndyfs*, and Alice removes Bob's ability to read *alicefs*. Show the new access control matrix.

3. Consider the set of rights {*read, write, execute, append*, *modify*, *own, truncate*}.
    a. Using the syntax in Section 2.3 of the text book (*Introduction to Computer Security*), write a command *delete_all_rights* (*p, q, d*). This command causes *p* to delete all rights the subject *q* has over an object *d*.
    b. Modify your command so that the deletion can occur only if *p* has *modify* right over *d*.