
CMPS 122 Winter 2019

Homework #1

Due: 23:59 Thursday, January 17, 2019
Points: 30 (5% of final grade)
Submission: Upload pdf to Canvas

PROBLEM 1 (15PTS)

Identify the security principle(s) discussed in class that are relevant to each of the following scenarios. Briefly justify your answers.

1. Many retail stores place devices on their products that cause an alarm to sound if not removed by a cashier.
2. Bug-bounties are programs that reward individuals for responsibly disclosing vulnerabilities about a company's systems.
3. The ignition key of antique cars are relatively simple to pick. To prevent theft, owners sometimes install a "kill switch" somewhere in the car that must be flipped before the car will start.
4. When you log in to grunhilda, it displays the date, time, and source IP address of the last successful login.
5. Illegal file-sharing of digital music decreased significantly after streaming music services became widely available.
6. The final project for the Computer Science Master's degree at UCSC is evaluated by two faculty: a "chair" and a "reader."
7. Specialized devices that display a new authentication code every few seconds have been around for decades, but two-factor authentication is far more common now than it was 10-15 years ago.
8. Some stores keep "embarrassing" hygiene products in locked cabinets or behind counters, requiring customers to explicitly ask an employee to purchase them.

PROBLEM 2 (15PTS)

Election security is a hotly debated topic. One aspect that has received recent attention is how voters are authenticated. Discuss two potential threats to voting security relating to authentication and design mechanisms to address them. Clearly state your assumptions about potential attackers and identify security principles that are relevant to your design.