CS161_F'08 Outcomes List – Dawn Song

1. Be familiar with basic concepts in cryptography such as encryption, authentication, message authentication codes, hash functions, signatures, etc..

2. Understand classic types of software vulnerabilities including buffer overflows and other types of memory-safety vulnerabilities.

3. Know basic techniques and tools for discovering bugs in programs and understand basic techniques for reasoning about program properties and correctness.

4. Be familiar with the basic concepts and fundamental principles in OS security such as privilege separation, isolation, virtualization and trusted computing.

5. Understand the common classes of web vulnerabilities such as cross-site scripting (XSS) vulnerabilities and CSRF vulnerabilities. Understand why they are occurring, their potential consequences and how to detect and defend against such vulnerabilities.

6. Understand basic concepts in network security including security issues in TCP/IP, DNS, BGP.

7. Understand classic large-scale attacks in networks such as distributed denial-of-service (DDoS) attacks, Internet worms and botnets. Understand the cause, the consequences and potential defenses against these attacks.