

CSci 4271W
Development of Secure Software Systems
Day 26: Final exam review

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Outline

Final exam information and review

Announcements intermission

Kahoot

Time for SRTs

Final exam basic information

- Saturday, May 10th, 4–6pm
- Same location as lectures, 3-115 Keller Hall
- Open book, open notes, any paper materials OK, but no electronics
- Pencil or erasable pen recommended

Final exam structure and content

- Structure:
 - 3 homework-like questions (40 points total)
 - 10–15 short-answer questions (60 points total)
- Comprehensive, but with extra emphasis on topics since midterm 2

Midterm 1 topics

- Threat models, risk
- DFDs
- STRIDE and other approaches to threats
- Memory corruption and mitigations
- Defensive programming and design

Midterm 2 topics

- Authentication (3 factors, attacks, defenses)
- Access control (subjects, objects, UNIX)
- Protection (isolation, MAC, sandboxing, containers)
- Network basics: layers, protocols
- Network threats
- Network perimeter defense

Post-midterm-2: cryptography

- Crypto primitives (symmetric, asymmetric, RNGs, hashes)
- Crypto attacks
 - Mal-in-the-Middle: relay, replay, reflection, downgrade
 - Traffic analysis and side channels
- Crypto in network protocols
 - Certificates
 - TLS, SSH, IPsec
 - DNSSEC and DoH

Post-midterm-2: web

- Web basics: HTTP, JavaScript, cookies, inclusion
- Web app threats:
 - S TLS, authentication cookies, password handling
 - T parameter tampering, cookie settings
 - R logging, clickjacking, CSRF
 - I access controls, serial filenames, directory traversal
 - D (nothing new here, really)
 - E SQL injection, XSS, shell passthru

Post-midterm-2: human factors

- Models
 - WYSIATI, habituation, conditioning, goal orientation
- Threats
 - Social engineering, Stajano-Wilson
- Threat elicitation
 - Ceremonies, cognitive walkthrough
- Validation
 - NEAT, SPRUCE, 5Ws+H

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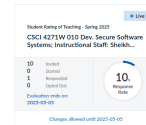
Kahoot

Time for SRTs

Upcoming assignments

- There will a lab, on replay attacks, next Monday
- Project part 3 coming up
 - One section draft due this Thursday
 - Final report due Monday 5/5, no extensions
- Final exam Saturday 5/10 4–6pm

SRTs and completion incentive



- Available now and through Monday May 5th
 - srt.umn.edu/blue or via Canvas
- Collective completion incentive if at least 6 (resp. 7) students complete evaluations

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Kahoot game

- Go to kahoot.it in a web browser
- Your player name can be a pseudonym

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