Cybersecurity for Future Presidents

Lecture 7:

DEBATE #2:

Debate 2: Resolved: The US should adopt the E.U. “right to be forgotten” online.

My office hours:
Wed. afternoon, 12-3pm, 442 RH. Signup sheet circulating

Any Questions?

- About previous lecture?
- About homework? (debate questions)
- About reading? (D is for Digital Chapters 3, 11; debate articles and videos)

Midterm this Friday!

Reading for next week (after midterm): D is for Digital, Part III, Communications, introduction and Chapter 8, pp. 117-134.

Exercises: based on the reading.

Next Debate (in 2 weeks): Resolved: The U.S. Election Assistance Commission should promote internet voting for public elections on a model similar to Estonia.

Debate teams please sign up to see me this week or next week.

Cybersecurity events from the past week of interest to future (or current) Presidents:

While you were out…

- U.S. DoJ readies indictment of 5 Iranian hackers for 2013 attempt to control Rye NY flood control dam
- $81M theft from New York Fed via malware on Bangladeshi computers – stolen credentials. Further transactions caught via human detection of spelling error
- South Korea energy, transportation, other infrastructure industries hit by "OnionDog" attacks over past 2 years
- Apple – FBI dispute continues to simmer in public press
- Dept of Justice said to be eyeing similar action against WhatsApp (encrypted messaging)
- Happy Madison's Birthday! Author of Bill of Rights.

Coming up: … ?

Today’s Debate Topic

Debate 2: Resolved: The US should adopt the E.U. “right to be forgotten” online.

What we’ve covered so far - Readings

:Texts:

- Kernighan, D is for Digital: Preface, Chapters 1-3 and 10-11
- Anderson, Security Engineering: Chapter 1, pages 3-15

Other

- Clark, Berson, Lin, At the Nexus of Cybersecurity and Public Policy: Tensions between cybersecurity and other public poicy concerns, pp. 93-115.
- Abelson et al: Keys Under Doormats
- Landau, Making Sense of Snowden
- Vance, Report on Smartphone Encryption and Public Safety
- US-CERT, Understanding Web Site Certificates
- EU factsheet on the Right to be Forgotten
- Toobin, “The Solace of Oblivion”

What we've covered so far, Lectures

Technology topics

- Cybersecurity terms and issues, Digital vs. Analog, Information vs. Data, data representation, bit manipulation
- Basic computer architecture
- Basic Telephony (circuit switching vs packet switching)
- Cryptography history and technology, bit operations symmetric vs asymmetric crypto
- Cybersecurity fundamentals: system security, access control, C.I.A. properties, Policy, Mechanism, Assurance, Incentives
- Cyberattacks: DoS/DDoS, Attacks via inputs (B.O.), Supply Chain, Side Channels, Social Aspects

Policy topics

- US Government Structure
- Search and surveillance history, legislation, court cases
- Cryptography policy and legislation
- Privacy Fundamentals: FIPPs, U.S. vs. E.U. policy approaches; Safe harbour, Right to be forgotten

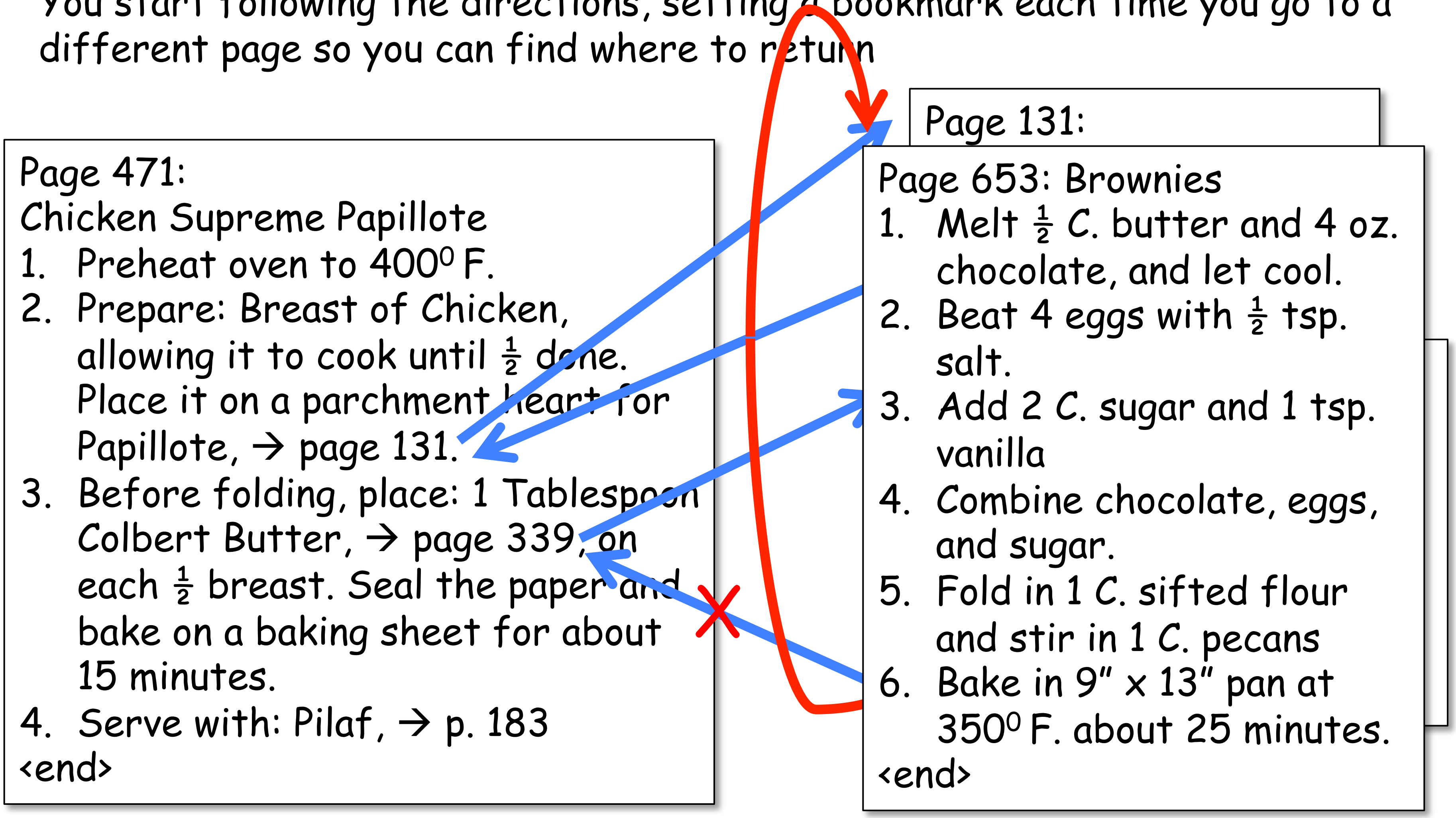
CriticalThinking: Debates #1 and #2

Another way to understand buffer overflow attacks, if you use the web:

- Imagine you click a hyperlink on a web page.
- Your browser knows the page you are currently on and saves its location so when you press “Back” you can return there.
  - Your browser translates the first part of the URL to an IP address via DNS
  - Sends request to the IP address and retrieves a page, which may include Javascript programs that execute within your browser
  - Suppose that Javascript overwrites the place where your browser saved your “Back” address with some other page.
  - Now you press the “Back” button and you end up on some other page entirely
- This is similar to what happens in the buffer overflow attack: you end up executing a program (vs. viewing a web page) that is other than what you intended.

Yet Another way to think about what happens in a buffer overflow, if you enjoy cooking

- Suppose you are cooking something from a recipe with several sub-parts
- You start following the directions, setting a bookmark each time you go to a different page so you can find where to return



Page 471:
Chicken Supreme Papillote

1. Preheat oven to 400^0 F.
2. Prepare: Breast of Chicken, allowing it to cook until ½ done. Place it on a parchment heart for Papillote, → page 131.
3. Before folding, place: 1 Tablespoon Colbert Butter, → page 339, on each ½ breast. Seal the paper and bake on a baking sheet for about 15 minutes.
4. Serve with: Pilaf, → p. 183

<end>

Page 131:

Page 653: Brownies

1. Melt ½ C. butter and 4 oz. chocolate, and let cool.
2. Beat 4 eggs with ½ tsp. salt.
3. Add 2 C. sugar and 1 tsp. vanilla
4. Combine chocolate, eggs, and sugar.
5. Fold in 1 C. sifted flour and stir in 1 C. pecans
6. Bake in 9" x 13" pan at 350^0 F. about 25 minutes.

<end>

What is yet to come …

- Accountability, including identification, authentication, forensics
- History of computer security policy/economics
- Elections and cybersecurity
- Genomics and cybersecurity
- Digital currency technology and policy
- Issues for future presidents

Rubric for Debaters

Criteria	20	15	10	5
Addresses Issues	Always addresses topic	Usually addresses topic	Rarely addresses topic	Did not address topic
Support with Facts	Uses many facts that support topic	Uses some facts that support topic	Uses few facts that support topic	Does not use facts that support topic
Persuasiveness	Arguments clear and convincing	Arguments are sometimes clear and convincing	Arguments are rarely clear and convincing	Arguments are never clear and convincing
Writing	Clear and concise	Mostly clear and concise; Few minor flaws	Somewhat clear and concise; Many minor flaws or a major flaw	Not clear and concise; A few major flaws
Organization	Structure is logical; Transition sentences help connect topics; Progression of ideas evident	Structure is logical but a bit faulty; Transition sentences may be missing for a few topics; Progression of ideas exists but a bit faulty	Structure is partly logical and partly random; Transition sentences may be missing for a many topics; Progression of ideas exists but faulty	Structure is mostly random; Transition sentences are lacking; Progression of ideas does not exist