04- Field studies, ecological validity, and ethics

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Usable Privacy and Security

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Today!

- Another Lorrie NSA anecdote
- “Users are not the enemy”
- Homework
- Field studies
  - Ecological validity and ethics
- Mechanical Turk
- IRB process and example

Users are not the enemy!!!

Users are not the enemy

- “These observations cannot be disputed, but the conclusion that this behavior occurs because users are inherently careless — and therefore insecure — needs to be challenged.”
- Study methods:
  - – Online survey with 139 responses
  - – 30 semi-structured interviews

Discussion points

- Are the participants representative?
  - Would a different group of participants produce different results?
- “Without feedback from security experts, users created their own rules on password design that were often anything but secure… many users do not understand how password cracking works.”
  - What feedback should we give?

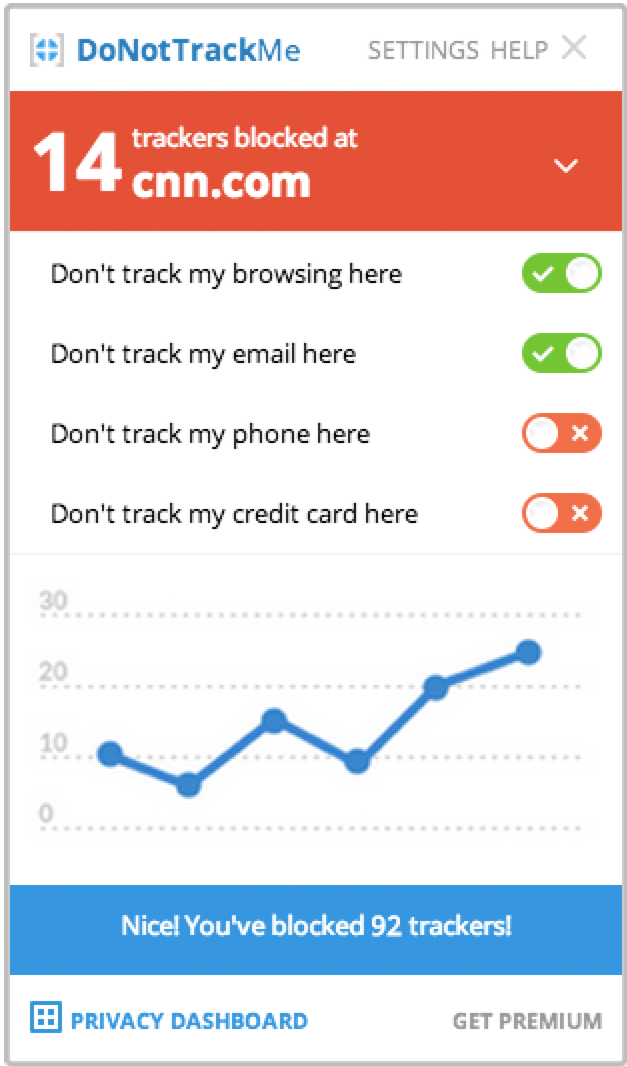
Discussion points

- “Users identified certain systems as worthy of secure password practices, while others were perceived as ‘not important enough.’”
  - How do you motivate users?
  - How do you treat users as partners?
- Are shared passwords the solution?
- Are single-sign-on passwords the solution?

Homework

Homework 1

- Privacy tools’ usability
  - – Usability problems?
  - – Improvements?
  - – Comparison to paper



14 trackers blocked at cnn.com

Don't track my browsing here ✓

Don't track my email here ✓

Don't track my phone here ✕

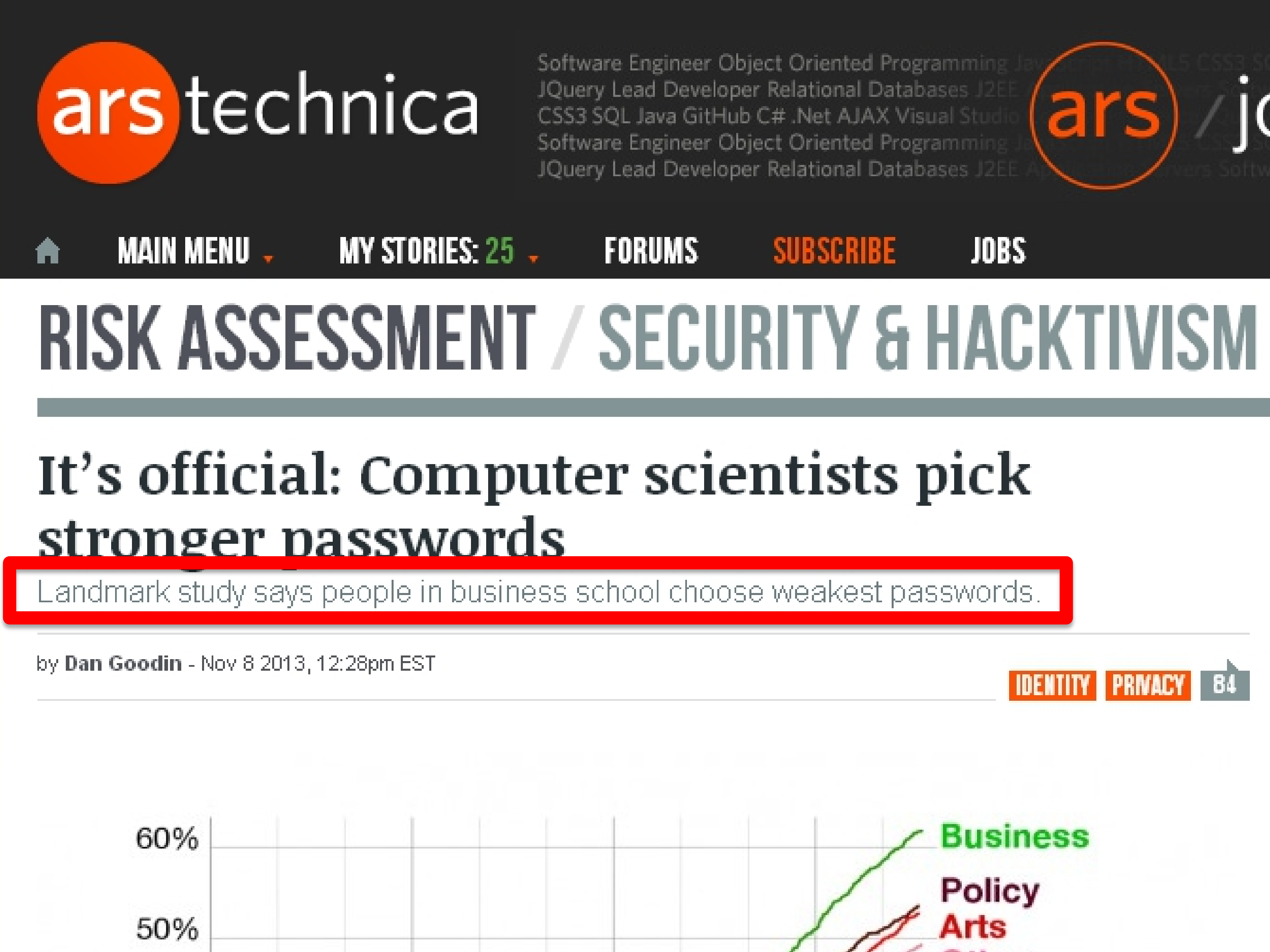
Don't track my credit card here ✕

Nice! You've blocked 92 trackers!

Field studies

An entire university’s passwords

- 25,000 faculty, staff, students at CMU
- What are their password characteristics?
- How guessable are their passwords?
- How do demographic factors correlate with password strength?
- How do these real passwords compare to leaked / collected passwords?



It's official: Computer scientists pick stronger passwords

Landmark study says people in business school choose weakest passwords.

by **Dan Goodin** - Nov 8 2013, 12:28pm EST

Ethics questions

- How did we get people’s passwords?
- How did we obtain consent?
- What ethical concerns are there?
  - What seemed to be done well?
  - What could have been done better?

Ecological validity / external validity

- Is this study ecologically valid?
  - How could it have been improved?
  - Are other password studies ecologically valid?
- To what degree can we generalize about our results?
  - Do all b-school students make bad passwords?

Social phishing

- Use social networking sites to get information for targeted phishing
  - “In the study described here we simply harvested freely available acquaintance data by crawling social network Web sites.”
- “We launched an actual (but harmless) phishing attack targeting college students aged 18–24 years old.”

Social phishing

- Control group: message from stranger
- Experimental group: message from a friend
- Used university's sign-on service to verify passwords phished

Ethics

- How did they obtain consent?
- What ethical concerns are there?
  - What seemed to be done well?
  - What could have been done better?
- Who was potentially affected by the study?
- “The number of complaints made to the campus support center was also small (30 complaints, or 1.7% of the participants).”

Amazon’s Mechanical Turk

Image from http://www.salon.com

MTurk

- Human intelligence tasks (HITs)
- Studies usually start with consent form
- Pay relatively low wages (ethics concerns)
- Quality control necessary
  - Lots of shady folks; lots of good folks
  - Can be done through obvious questions
  - Can be done through open-ended questions
- Don’t need to host study on Mturk

Institutional Review Board (IRB)

IRB process

- Is it research? Are there human subjects?
- Full review vs. expedited vs. exempt
- Fill out and submit protocol
  - Include all study materials (e.g., surveys)
  - Include recruitment text and/or poster
  - Leave plenty of time