

Ethics / Crime / Security

# Ethics

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- Some key issues
  - Ethics / Computer ethics
    - People's ethics change behind a keyboard
  - Electronic waste...
  - Digital divide
  - Information privacy / security
    - Target, chip and PIN
  - Identity theft
    - Happens every two seconds,
    - Cost of \$25 billion, 2012

- **Electronic Waste**
  - Before we get to statistics, let's take a look at some images that illustrate the impact of electronic waste on developing countries:







# Ethics





# Ethics





# Ethics



# Ethics

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- Electronic Waste
  - Ghana, Nigeria, India, China, among many others, are used as tech dumps
  - Some stats:
    - 1.6 billion cell phones manufactured in 2012
    - Average American keeps phone 18 months
    - 60% of eWaste ends up in landfills
    - 30% is non-recyclable



# Ethics

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- Electronic Waste
  - We will cover more about this in our next presentation
  - For now: Some infamous hacks

# Ethics

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- Recent large-scale hacks
  - IRS, May 2015, 330,000 users' data stolen
  - Office of Personnel Management, ongoing hack discovered June 2015, every federal employee and retiree affected, plus 1 million former workers
  - Anthem, March 2015, 80 million users' info stolen
  - iCloud, ~Sept. 2014, celebrity photos stolen



# Ethics

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- Recent large-scale hacks
  - Target
  - Ashley Madison, discovered July 2015, 37 million users' data stolen (and posted)
  - Sony, December 2014, 100 terabytes of internal data
  - Sony, May 2011, 20,000 users' personal and financial information stolen
  - Sony, April 2011, 70 million users' accounts, passwords, and bank information

# Ethics

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- We think about information security differently online then off
- How to maintain your security, privacy and identity online
  - Secure / monitored / verified websites
  - The privacy / security policy
  - Be careful about cookies
  - Anonymous surfing, if necessary
  - Opt-out emails



# Ethics

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# Ethics

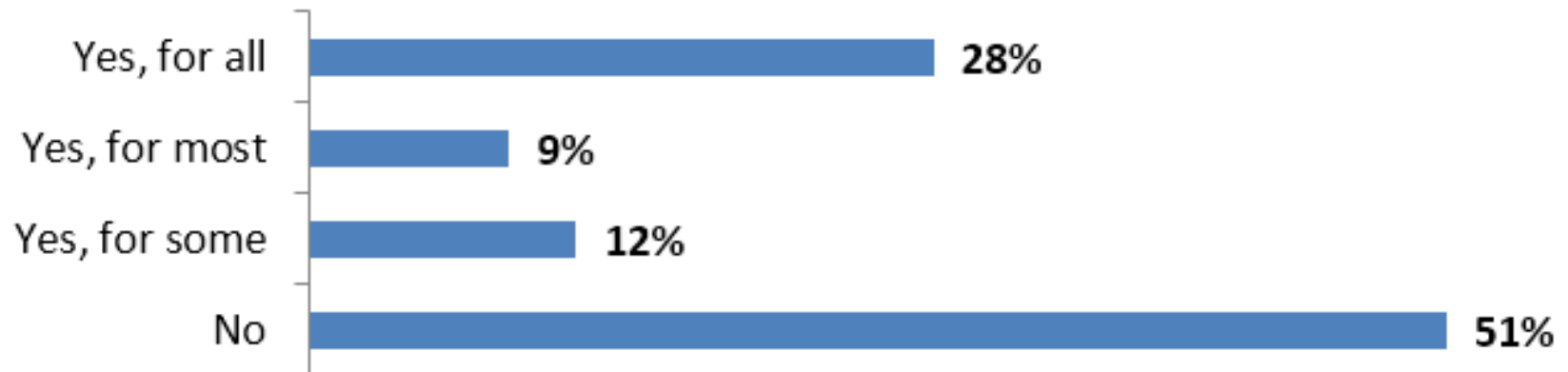
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# Ethics

Have you read the most recent privacy policy for your social media accounts?



# Ethics

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- Information and image accuracy
  - Technology can be used to portray unrealistic images / abilities
  - Inconsistency of stored data
- Information property
  - Intellectual property / fair use
  - Data privacy
  - Spam, spyware
  - Cybersquatting



# Ethics

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- The need for an ethical code of conduct
  - Many organizations have distinct ethical guidelines
  - Technology companies do as well
  - Responsible computer use
  - computer crime

# Crime

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- Computer Crime
  - Definition
  - The computer access debate
  - Unauthorized computer access
  - Laws
    - Computer Fraud and Abuse act of 1986
    - Electronic Communications Privacy Act of 1986
    - The Identity Theft and Assumption Deterrence Act of 1998

- Information Accessibility
  - What is it?
  - Carnivore, DCSNet
  - ECPA
  - Who owns, and has a right to examine, email messages or other digital content?



# Crime

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- Computer crime (con't)
  - Computer forensics
  - Hacking / black hat / white hat
    - Risks of the Internet of Things
  - Cyberwar / Cyberterrorism
    - Pentagon reports 10 million attempts / day
    - <http://map.norsecorp.com/>
  - Vigilantism / digital activism (hacktivism)
  - Who does this?

# Crime

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- Computer crime (con't)
  - Cyberbullying
  - Digital threats and harassment
  - Shaming
  - Laws are ineffective, sometimes nonexistent
  - Education and awareness campaigns are most effective

# Security

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## ● Piracy

- Has been around for a very long time
- Costs companies billions
- \$53 Billion globally, conservatively (2011)
- Microsoft: \$22 billion for malware, \$114 billion for cyberattacks (2013)
- In 2010, 95 percent of music downloads were done illegally (International Federation of the Phonographic Industry)



# Security

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## ● Piracy

- File sharing / Physical counterfeiting
- Creates an 'everything should be free mentality'
- Facilitated by distribution costs as compared to production costs for digital goods
- Combated somewhat with the rise of iTunes
- Movie downloaders wealthier, more willing to go to movies, stop behavior if it hurts the industry

# Security

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## ● Ways systems are compromised

- Unauthorized access
  - CAPTCHA
  - Information modification
  - Denial of service
  - SQL Injection
  - Heap spray / NOP Slide
  - Social engineering
  - Zombie computers / botnets
- Some compromised PCs even hosted illegal images and files

# Security

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## ● Ways systems are compromised

- Malware
  - Viruses
  - Worms
  - Trojan horses (Logic bomb)
  - Evil twins
  - Keyloggers
  - Ransomware



# Security

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## ● Ways systems are compromised

- Spyware, Spam, Spoofing
  - Adware
  - Spam
  - Phishing – especially dangerous
  - Pharming
  - 419 scam

# Security

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- Three categories of security

- Physical
- Logical
- Behavioral

# Security

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- Access control (Authentication)

- Passwords
- Tokens
- Smart cards
- Biometrics

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Encryption



# Worst Passwords of 2017

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1. 123456
2. password
3. 12345678
4. qwerty
5. 12345
6. 123456789
7. letmein (up 12!)
8. 1234567
9. football (down 2)
10. iloveyou (new)
11. admin (new)
12. Welcome (new)
13. Monkey (up 5)
14. Login (up 6)
15. abc123
16. Starwars (up 9)
17. 123123 (new)
18. dragon
19. passw0rd (up 5)
20. Master (new)
21. hello (new)
22. freedom (new)
23. whatever (new)
24. qazwsx (new)
25. trustno1
26. 654321

# Security

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- Access control (Authentication)

- Passwords
- Tokens
- Smart cards
- Biometrics

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Encryption

# Security

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- Encryption

- Many types, for data in all states
- Usually algorithmic
  - Public key (PGP)
- Wireless encryption
  - WEP/WPA/WPA2
  - WIFI protected setup

# Security

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- Physical ailments
  - Carpal tunnel syndrome
  - Repetitive stress injury
  - Technostress