

Chapter 5: Information Privacy



COMP422 Ethics and Professional Issues in Computing
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Based on
Ethics for the Information Age (5th Ed.)
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Chapter Overview

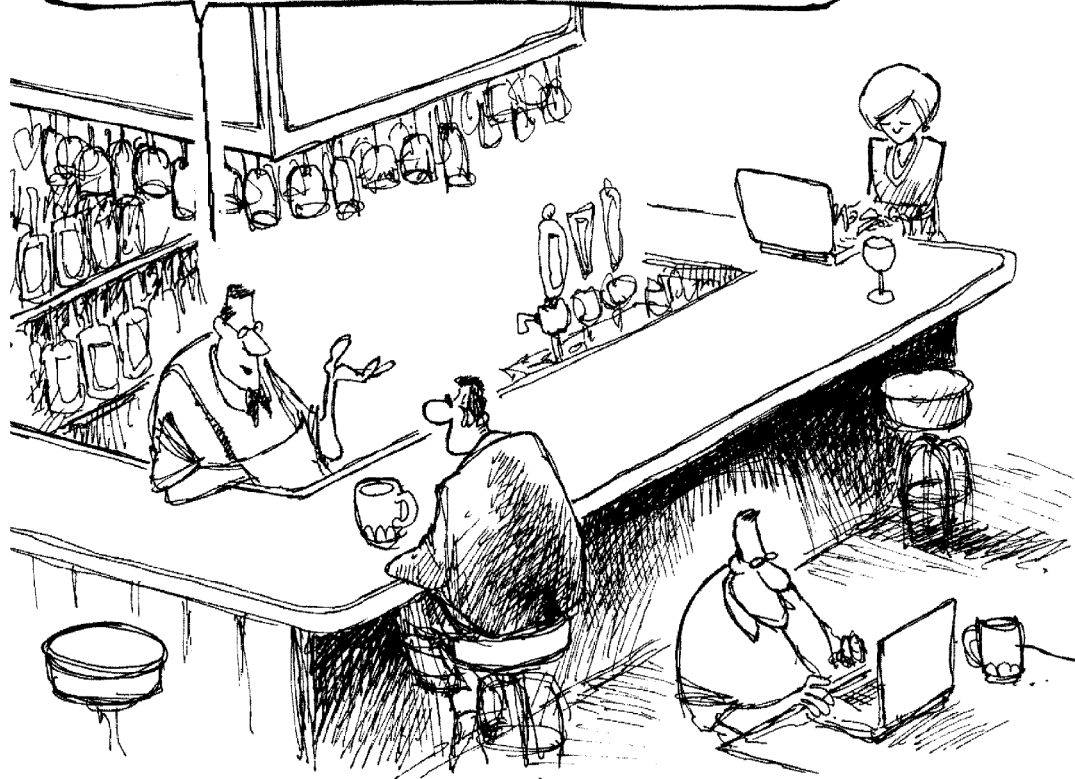
- Introduction
- Perspectives on privacy
- Information disclosures
- Data mining

5.1 Introduction

Information Technology Erodes Privacy

- Information collection, exchange, combination, and distribution easier than ever means less privacy
- Scott McNealy: “You have zero privacy anyway. Get over it.”
- We will consider how we leave an “electronic trail” of information behind us and what others can do with this info

SHE SAYS THANKS FOR THE DRINK
AND WILL DECIDE ON WHETHER TO
TALK TO YOU OR NOT AS SOON AS
SHE FINISHES GOOGLING YOU



THE TOO MUCH INFORMATION AGE



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5.2 Perspectives on Privacy

Defining Privacy

- Privacy related to notion of access
- Access
 - Physical proximity to a person
 - Knowledge about a person
- Privacy is a “zone of inaccessibility”
- Privacy violations are an affront to human dignity
- Too much individual privacy can harm society
- Where to draw the line?

Harms of Privacy

- Cover for illegal or immoral activities
- Burden on the nuclear family
- Hidden dysfunctional families
- Ignored people on society's fringes

Benefits of Privacy

- Individual growth
- Individual responsibility
- Freedom to be yourself
- Intellectual and spiritual growth
- Development of loving, trusting, caring, intimate relationships

Is There a Natural Right to Privacy?

- Privacy rights stem from property rights: “a man’s home is his castle”
- Coercive Acts before American Revolution led to 3rd Amendment to U.S. Constitution
- Samuel Warren and Louis Brandeis: People have “the right to be let alone”
- Judith Jarvis Thomson: “Privacy rights” overlap other rights
- Conclusion: Privacy is not a natural right, but it is a *prudential right*, meaning that rational agents agree to recognize some privacy rights for the benefit of society

Do People Have the Right to Be Left Alone?



Privacy and Trust

- Perhaps modern life is actually more private than life centuries ago
 - Most people don't live with extended families
 - Automobile allows us to travel alone
 - Television v. public entertainment
- Challenge: we now live among strangers
- Remedy: establishing reputations
 - Ordeal, such as lie detector test or drug test
 - Credential, such as driver's license, key, ID card, college degree
- Establishing reputation is done at the cost of reducing privacy

Case Study: Secret Monitoring

- Sullivans have a baby girl
- Both work; they are concerned about performance of full-time nanny
- Purchase program that allows monitoring through laptop's camera placed in family room
- They do not inform nanny she is being monitored

Rule Utilitarian Evaluation

- If everyone monitored nannies, it would not remain a secret for long
- Consequences
 - Nannies would be on best behavior in front of camera
 - Might reduce child abuse and parents' peace of mind
 - Would also increase stress and reduce job satisfaction of child care providers
 - Might result in higher turnover rate and less experienced pool of nannies, who would provide lower-quality care
- Harms appear greater than benefits, so we conclude action was wrong

Social Contract Theory Evaluation

- It is reasonable for society to give people privacy in their own homes
- Nanny has a reasonable expectation that her interactions with baby inside home are private
- Sullivan's decision to secretly monitor the nanny is wrong because it violates her privacy

Kantian Evaluation

- Imagine rule, “An employer may secretly monitor the work of an employee who works with vulnerable people”
- If universalized, there would be no expectation of privacy by employees, so secret monitoring would be impossible
- Proposed rule is self-defeating, so it is wrong for Sullivans to act according to the rule

Summary

- Three analyses have concluded Sullivans were wrong to secretly monitor how well their nanny takes care of their baby
- Morally acceptable options
 - Conduct more comprehensive interview of nanny
 - More thoroughly check nanny's references
 - Spend a day or two at home observing nanny from a distance
 - Be up-front with nanny about desire to install and use surveillance software on laptop

5.3 Information Disclosures

Public Records

- Public record: information about an incident or action reported to a government agency for purpose of informing the public
- Examples: birth certificates, marriage licenses, motor vehicle records, criminal records, deeds to property
- Computerized databases and Internet have made public records much easier to access

Records Held by Private Organizations

- Credit card purchases
- Purchases made with loyalty cards
- Voluntary disclosures
- Posts to social network sites

Data Gathering and Privacy Implications

- Facebook tags
- Enhanced 911 services
- Rewards or loyalty programs
- Body scanners
- RFID tags
- Implanted chips
- OnStar
- Automobile “black boxes”
- Medical records
- Digital video recorders
- Cookies and flash cookies

Facebook Tags

- Tag: Label identifying a person in a photo
- Facebook allows users to tag people who are on their list of friends
- About 100 million tags added per day in Facebook
- Facebook uses facial recognition to suggest name of friend appearing in photo
- Does this feature increase risk of improper tagging?

Enhanced 911 Services

- Cell phone providers in United States required to track locations of active cell phones to within 100 meters
- Allows emergency response teams to reach people in distress
- What if this information is sold or shared?

Rewards or Loyalty Programs

- Shoppers who belong to store's rewards program can save money on many of their purchases
- Computers use information about buying habits to provide personalized service
 - ShopRite computerized shopping carts with pop-up ads
- Do card users pay less, or do non-users get overcharged?

Body Scanners

- Some department stores have 3-D body scanners
- Computer can use this information to recommend clothes
- Scans can also be used to produce custom-made clothing

Body Scanner Takes Measurements



AP Photo/Richard Drew

RFID Tags

- RFID: Radio frequency identification
- An RFID tag is a tiny wireless transmitter
- Manufacturers are replacing bar codes with RFID tags
 - Contain more information
 - Can be scanned more easily
- If tag cannot be removed or disabled, it becomes a tracking device

Implanted Chips

- In many places: Every domesticated dog must have an implanted microchip
 - Size of a grain of rice; implanted into ear
 - Chip contains name, address of owner
 - Allows lost dogs to be returned to owners
- RFID tags approved for use in humans
 - Can be used to store medical information
 - Can be used as a “debit card”

OnStar

- OnStar manufactures communication system incorporated into rear-view mirror
- Emergency, security, navigation, and diagnostics services provided subscribers
- Two-way communication and GPS
- Automatic communication when airbags deploy
- Service center can even disable gas pedal

RFID Tags Speed Inventory Process



Employees take inventory more quickly and make fewer errors when items are marked with RFID tags

Automobile “Black Boxes”

- Modern automobiles come equipped with a “black box”
- Maintains data for five seconds:
 - Speed of car
 - Amount of pressure being put on brake pedal
 - Seat belt status
- After an accident, investigators can retrieve and gather information from “black box”

Medical Records

- Advantages of changing from paper-based to electronic medical records
- Quicker and cheaper for information to be shared among caregivers
 - Lower medical costs
 - Improve quality of medical care
- Once information in a database, more difficult to control how it is disseminated

Digital Video Recorders

- TiVo service allows subscribers to record programs and watch them later
- TiVo collects detailed information about viewing habits of its subscribers
- Data collected second by second, making it valuable to advertisers and others interested in knowing viewing habits

Cookies

- Cookie: File placed on computer's hard drive by a Web server
- Contains information about visits to a Web site
- Allows Web sites to provide personalized services
- Put on hard drive without user's permission
- You can set Web browser to alert you to new cookies or to block cookies entirely

Flash Cookies

- Flash cookie: File placed on your computer's hard drive by a Web server running the Adobe Flash Player
- Flash cookie can hold 25 times as much information as a browser cookie
- Flash cookies not controlled by browser's privacy controls
- Some Web sites use flash cookies as a way of backing up browser cookies. If you delete browser cookie, it can be “respawned” from the flash cookie
- Half of 100 most popular Web sites use flash cookies

5.4 Data Mining

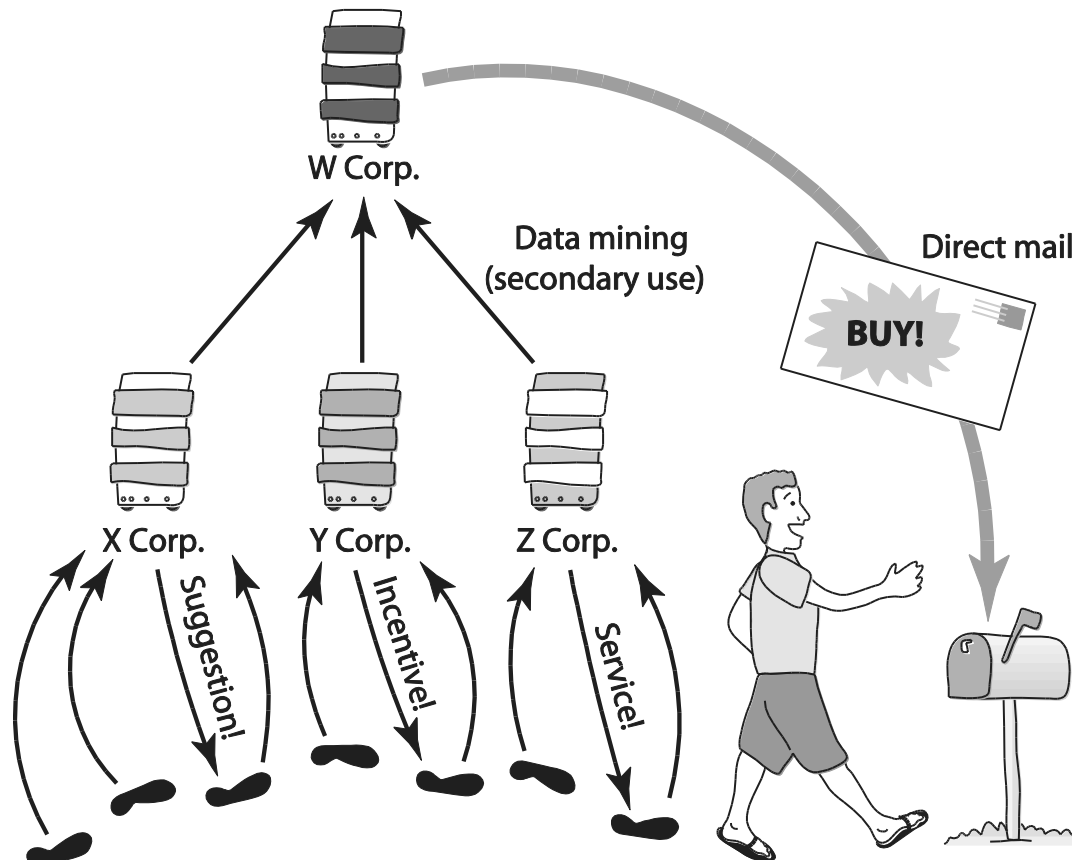
Data Mining

- Searching records in one or more databases, looking for patterns or relationships
- Can be used to profiles of individuals
- Allows companies to build more personal relationships with customers

Google's Personalized Search

- Secondary use: Information collected for one purpose use for another purpose
- Google keeps track of your search queries and Web pages you have visited
 - It uses this information to infer your interests and determine which pages to return
 - Example: “bass” could refer to fishing or music
- Also used by retailers for direct marketing

Secondary Uses of Information



Collaborative Filtering

- Form of data mining
- Analyze information about preferences of large number of people to predict what one person may prefer
 - Explicit method: people rank preferences
 - Implicit method: keep track of purchases
- Used by online retailers and movie sites

Ownership of Transaction Information

- Who controls transaction information?
 - Buyer?
 - Seller?
 - Both?
- Opt-in: Consumer must explicitly give permission before the organization can share info
- Opt-out: Organization can share info until consumer explicitly forbid it
- Opt-in is a barrier for new businesses, so direct marketing organizations prefer opt-out

Credit Reports

- Example of how information about customers can itself become a commodity
- Credit bureaus
 - Keep track of an individual's assets, debts, and history of paying bills and repaying loans
 - Sell credit reports to banks, credit card companies, and other potential lenders
- System gives you more choices in where to borrow money
- Poor credit can hurt employment prospects

Microtargeting

- Political campaigns determine voters most likely to support particular candidates
 - Voter registration
 - Voting frequency
 - Consumer data
 - GIS (Geographical Information System) data
- Target direct mailings, emails, text messages, home visits to most likely supporters

Marketplace: Households

- Lotus Development Corporation developed CD with information on 120 million Americans
- Planned to sell CD to small businesses that wanted to create mailing lists based on various criteria, such as household income
- More than 30,000 consumers complained to Lotus about invasion of privacy
- Lotus dropped plans to sell CD

Facebook Beacon

- Fandango, eBay, and 42 other online businesses paid Facebook to do “word of mouth” advertising
- Facebook users surprised to learn information about their purchases was shared with friends
- Beacon was based on an opt-out policy
- Beacon strongly criticized by various groups
- Facebook switched to an opt-in policy regarding Beacon

Netflix Prize

- Netflix offered \$1 million prize to any group that could come up with a significantly better algorithm for predicting user ratings
- Released more than 100 million movie ratings from a half million customers
 - Stripped ratings of private information
- Researchers demonstrated that ratings not truly anonymous if a little more information from individuals was available
- U.S. Federal Trade Commission complaint and lawsuit
- [Netflix canceled sequel to Netflix Prize](#)