CS48 – CS Project

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Information Systems Ethics

- **Ethics**
  - Set of moral principles.
  - Principles of conduct that guide an individual or group.

- **New Technology**
  - Creates new uses in society & environments/situations that people haven’t seen before.
    - Technology kills jobs, creates jobs, alters jobs…
  - Opens the doors to crime, misuse, discrimination
    - Need informed policies, laws that evolve with technology

- **Ethics are needed for “gray areas”**
  - No laws, but must make a choice
Ethical Frameworks

• Framework of Individual Rights (or Respect for Persons)
  – can't put a price on life
  – people are entitled to certain rights: right to dignity, right to freedom, property rights
  – one's actions should not trample the rights of others

• Golden Rule
  • treat others as you want to be treated
  • Ex: documenting known bugs or important assumptions in your code
  • Ex: downloading .mp3's for free on BitTorrent because you don't want to pay 99¢ for it on iTunes
Technology & Ethics

• Henry Ford’s Assembly Line
  – Created advantage in that cars could be manufactured more quickly.
  – De-valued human work/skill in the production process.

• Technology kills jobs, creates jobs, alters jobs…

• Volkswagen Diesel Deception
  – Sensors in cars for testing and software programming allowed VW to cheat on emissions testing.
Code of Ethics

• Documented set of acceptable behaviors for professional or social groups.
• Defined by the group.
• Identifies specific actions as appropriate or inappropriate.
• Sample Codes
  – American Marketing Association
  – Academy of Management

• Association for Computing Machinery (ACM) Code of Ethics and Professional Conduct (https://www.acm.org/code-of-ethics)
  – Preamble
    • Computing professionals' actions change the world. To act responsibly, they should reflect upon the wider impacts of their work, consistently supporting the public good. The ACM Code of Ethics and Professional Conduct ("the Code") expresses the conscience of the profession.
ACM Code of Ethics

• 24 imperatives of personal responsibility.
  – Contains issues that professionals will have to deal with.
  – Section 1: General Moral Imperatives (ex. Avoid harm to others.)
  – Section 2: Professional Conduct (ex. Maintain professional competence.)
  – Section 3: Individuals with Leadership Roles (ex. Create opportunities for people.)
  – Section 4: Compliance with the Ethical Code (ex. Promote ethics.)

• Homework: look up and learn 2 each from sections 1-3
Examples of Specific Admonitions

• “No one should enter or use another’s computer system, software, or data files without permission.”

• “Designing or implementing systems that deliberately or inadvertently demean individuals or groups is ethically unacceptable.”

• “Organizational leaders are responsible for ensuring that computer systems enhance, not degrade, the quality of working life.”
Pros/Cons of Ethical Codes

• Pros
  – Adds clarity to the understanding of acceptable standards of behavior.
  – Communicates common guidelines for everyone to follow.

• What happens if you don’t follow the organizations ethical code?
  – ACM – voluntary
  – State Bar Association – revoke license

• Cons
  – May not reflect the ethical of every member of the group.
  – Many times it isn’t enforceable. It’s a code of conduct, not a legal document.
Acceptable Use Policies (AUP)

- Guidelines for behavior when using technology services.
- **UCSB UCSBNetID AUP**
- **UCSB Policies and Procedures**
  - Privacy and security, information sharing, compliance, etc…
- **UCSBNetID AUP**
  - Respect the rights of other users, respect the integrity of the systems and related physical resources, and observe all relevant laws, regulations, contractual obligations and policy.
  - Respect others' rights to the privacy of their programs and data.
  - Prevent others from learning your password, thus reducing the possibility of any use of your account by another person.
  - Report suspected unauthorized use of facility resources to ETS Security (SAASB 4101) or to «security@identity.ucsb.edu».
- **UC-wide AUP (UCOP)** – use for conducting university business
**Intellectual Property (IP)**

**Intellectual property** “is imagination made real. It is the ownership of dream, an idea, an improvement, an emotion that we can touch, see, hear, and feel. It is an asset just like your home, your car, or your bank account.“

- **Examples**
  - Songs (lyrics and music)
  - Computer Program
  - Painting
  - New Process to Manufacture Air Bags for cars...
• Problem: It is hard to protect an idea.
  – Laws protect the results of an idea.
  – Differ per country
• IP is important to engineers and their companies
  – IP is an "asset"
• Provides protection of investment (by charging license fees)
• Types: patents, copyrights, trademarks, trade secrets

• Patent/copyright infringement can be costly
  – recent example: Apple infringed on use of power efficiency method in A7/A8 processors in iPhone 5 and 6 models developed at University of Wisconsin, who was awarded $862M in damages
  – accidental - submarine patents, patent trolls
  – ignorance is no excuse
Patents

- Originally to protect physical artifacts and processes
  - Ideas not obvious to one “skilled in the art”
  - Gives owner exclusive rights for a certain amount of time (20 years in US)
- To get a patent, one must show it is:
  1. novel (including novel improvements)
  2. useful
  3. non-obvious (to someone "skilled in the art")
  4. first to file* (as opposed to: first to think of it and write it down)
- Engineers should keep a dated record of ideas and designs
- Patent office may reject claims if the claimed invention was patented, described in a publication, in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention
  * this is a recent change in the US (America Invents Act, 2013)
- Types: Utility, design, plant (new species), reissue (error correction)
  - Focus on methods to do or make something (utility patents), or look-and-feel (design patents)
Patents (contd.)

- Patent holder has the right to “exclude others from making, using, offering for sale or selling the invention…”
- US patent lasts 20 years
- Patents have value and can be "traded" between companies
  - IBM, Qualcomm, Motorola, Apple...

The Top Ten list of 2016 U.S. patent recipients includes:

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<td>1</td>
<td>IBM</td>
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<td>2</td>
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<td>5518</td>
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<td>6</td>
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<td>7</td>
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<td>2428</td>
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<tr>
<td>8</td>
<td>Microsoft</td>
<td>2398</td>
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<tr>
<td>9</td>
<td>Taiwan Semiconductor</td>
<td>2288</td>
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<tr>
<td>10</td>
<td>Sony</td>
<td>2181</td>
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Copyright

• Focus on expressions or implementations (books, songs, source code)
• Applies to songs, computer programs, books, art work…any work with an author.
• The author/owner of the copyright controls:
  – Who can make copies of the work.
  – Who can make derivative works from the original.
  – Who can perform the work publically.
  – Who can display the work publically.
  – Who can distribute the work.
Copyright (contd.)

- Copyright protection lasts for the life of the original author plus 70 years.
- If the work is owned by a publisher, the copyright can last for 95 years.
- Happy Birthday to You
  - This song is rarely in movies and not sung at restaurants because of copyright.
  - “Happy Birthday song copyright is not valid, judge rules.” LA Times, 9/22/2015
Obtaining Copyright Protection

- The acts of creation gives something a copyright.
- Even your doodles on notes are copyrighted.
- You don’t need © either.
- If the work is going to be sued commercially, register for a copyright with the US Copyright Office.
Fair Use

• Sometimes you can use a small piece of a copyrighted work without permission.

• Guidelines are not well defined. Depends upon:
  – Purpose of use
  – Nature of copyrighted work
  – Amount of work copied
  – Effect of the use on the potential market
Digital Millennium Copyright Act (DCMA)

• 1998 to extend copyright law to digital technologies.
• Illegal to circumvent technologies that enforce copyright. (ex. games requiring you to be connected to the Internet)
• “Safe Harbor” limits liability of online service providers. (ex. YouTube isn’t liable for someone posting a copyrighted movie.

• Some are unhappy with the DCMA
  – Electronic Frontier Foundation and others feel the DMCA limits free speech.
• DMCA Notices: Here’s Everything You Need To Know In 2019, Claire Brodely, 4/17/2019
Creative Commons

- Offers alternative copyright licensing that is less restrictive than traditional copyright.
Computer Software Ownership

• **One can own:** binary, source, algorithm, look & feel

• **Source code:** proprietary (aka closed source) vs open source
  – *Permits users to use, change, and improve the software, and to redistribute it in modified or unmodified form.*
    • Definition
    – Started in the late 70’s with open source OS
      • UNIX/Bell Labs → GNU, Linux, Netscape Mozilla

• **Open source licenses**
  – Restrictive: GNU
  – Permissive: Apache v2, BSD, MIT

• **Open source**
  – Use: lower costs, customizability, access/understanding, future (as-yet-unforeseen) use
  – Business model: support-based, product add ons
## Open Source vs. Proprietary

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<th>Open-source</th>
<th>Proprietary</th>
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<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td>Volunteer</td>
<td>Teams or Structured Groups</td>
</tr>
<tr>
<td><strong>License</strong></td>
<td>Free</td>
<td>Fees</td>
</tr>
<tr>
<td><strong>End user support</strong></td>
<td>Many eyes looking for bugs</td>
<td>One-Stop shop provided (someone to call!)</td>
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| **Security**          | Code can be seen and fixed by anyone  
                        | No one is responsible for open source  
                        | May not always release advisories for all bugs  
                        | No one knows what bugs exist  |
| **System Requirement**| Minimal                          | Higher                        |
| **Forces Upgrade on users** | No                              | Yes                           |

Trademarks

- A word, phrase, logo, shape or sound that identifies a source of goods or services.
Trademarks (contd.)

• Common Law Trademark - “TM”
  • Type of infringement protection for IP wherein the property is used in commerce before it's federally registered. Starts when you use the mark in commerce for the first time within a geographic area. Endures with continual, deliberate use and is shown by the superscript symbol "TM."
    – Business names, taglines, product names, logos, design elements, and sounds used to identify companies are all covered by a common law trademark. Differs from international trademark laws because it's based on common law, rather than first-to-file law.

• Registered Trademark - ®
  – CL Trademarks are governed by state law
  – Stronger rights, across states: Register trademark w/ United States Patent and Trademark Office (USPTO)
Privacy

• Privacy: The ability to control information about oneself.
• Information Systems have eroded personal privacy in the United States.
  – Balance between consumer protection and commerce
• In Europe, EU considers privacy a fundamental right that outweighs commerce.
  – EU General Data Protection Regulation (GDPR)
    • Gives control to individuals over their personal data and simplifies the regulatory environment for international business by unifying the regulation within the EU.
    • Full disclosure of all personal info tracking (including retention duration)
      – Including 3rd party sharing and export out of EU
    • Data breaches must be reported within 72 hours if they impact user privacy
    • Users must be able to request that their data be erased (and it must be when requested)
NORA: Non-obvious relationship awareness

- Process of collecting/mining large quantities of information and combining it to create profiles of individuals.
Privacy Legislation

- Children’s Online Privacy Protection Act (COPPA): Organizations must make an effort to detect someone’s age prior to accessing a Website.
- Family Educational Rights and Privacy Act (FERPA): Protects student’s records.
Can You…

- Describe what the term information systems ethics means?
- Explain what a code of ethics is and describe the advantages and disadvantages?
- Define the term intellectual property and explain the protections provided by copyright, patent, and trademark?
- Describe the challenge that information technology brings to individual privacy?