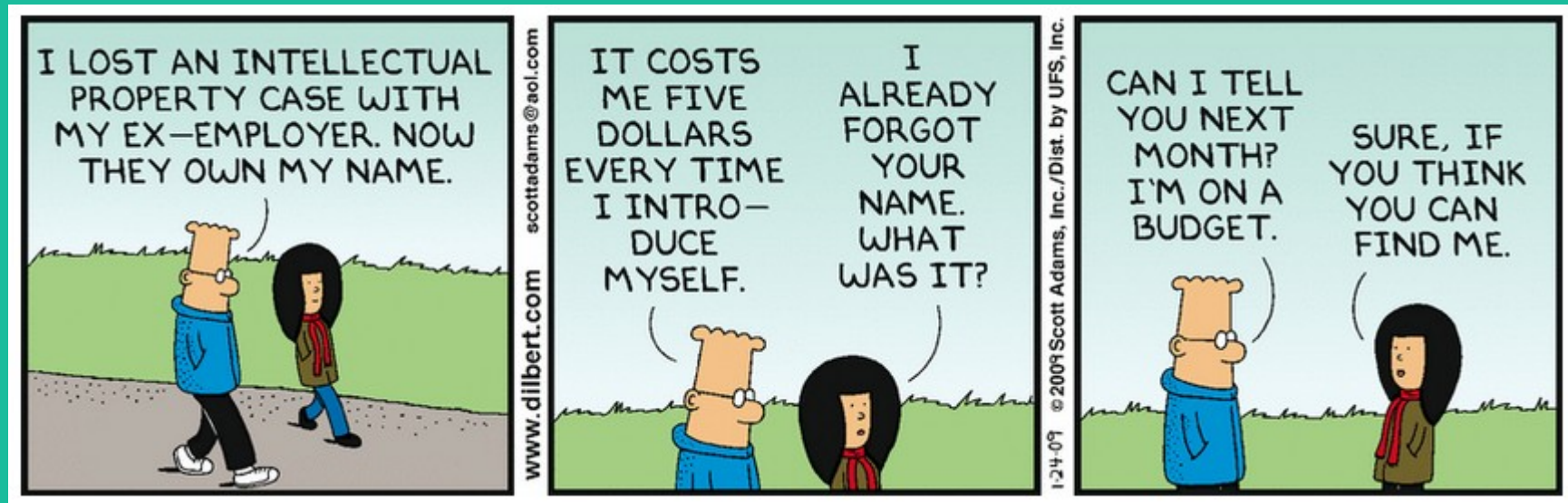# Lecture 6.2 - Intellectual Property
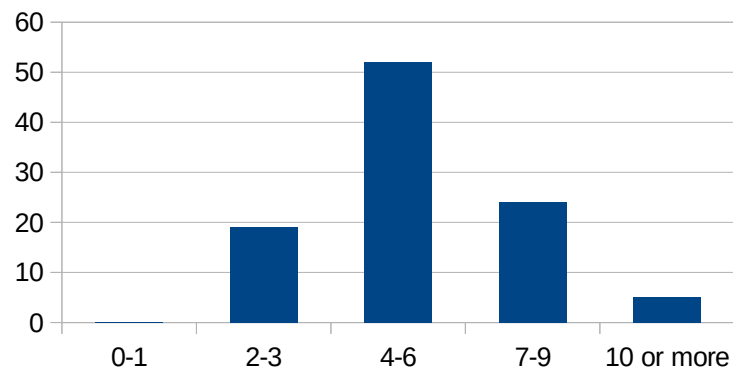## Digital Rights Management

CS 230: Ethical Issues in Computing
Fall 2020
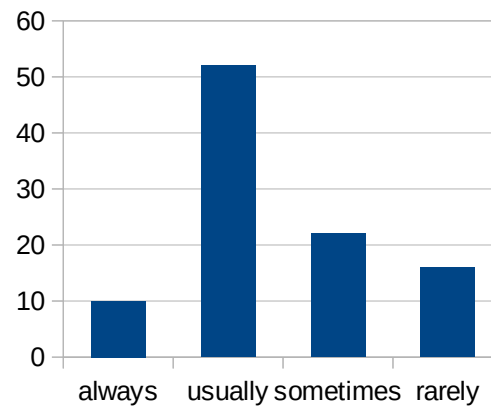Dr. Henderson
BSU

Announcements

- LA-4 due tonight at midnight
  - Don't forget Video post submission on Blackboard
- LA-5 due Oct 8 at midnight
  - Quiz only (24 multiple choice)
- LA-5 Challenges posted
- Presentation Team Sign-ups open
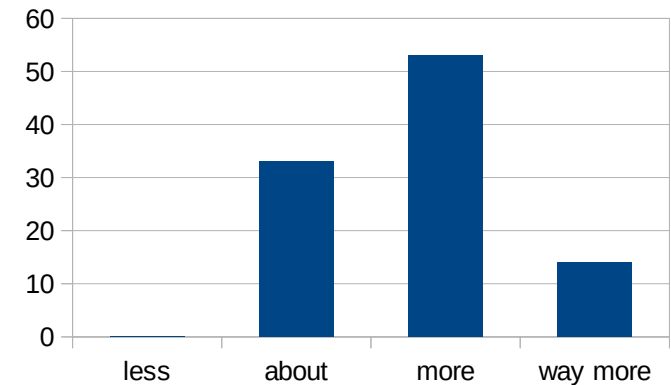
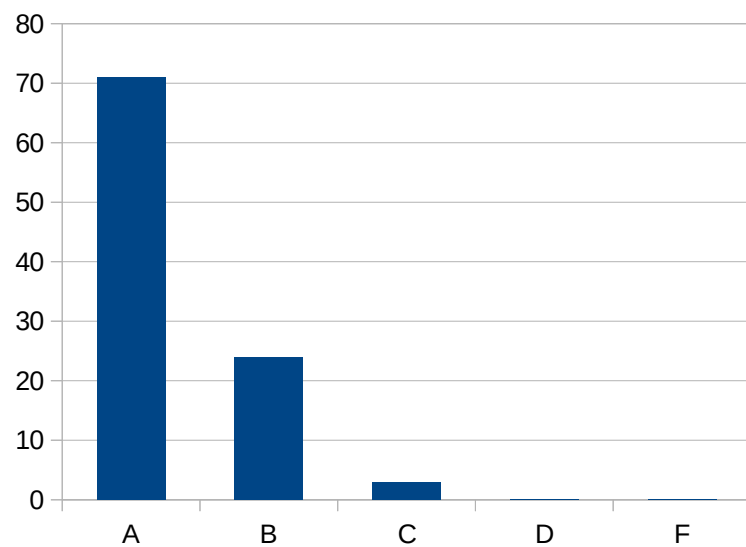# Survey Results (85% participation)

Average hours per week

Complete assigned reading

Workload vs. expected

Expected Grade

Class lectures
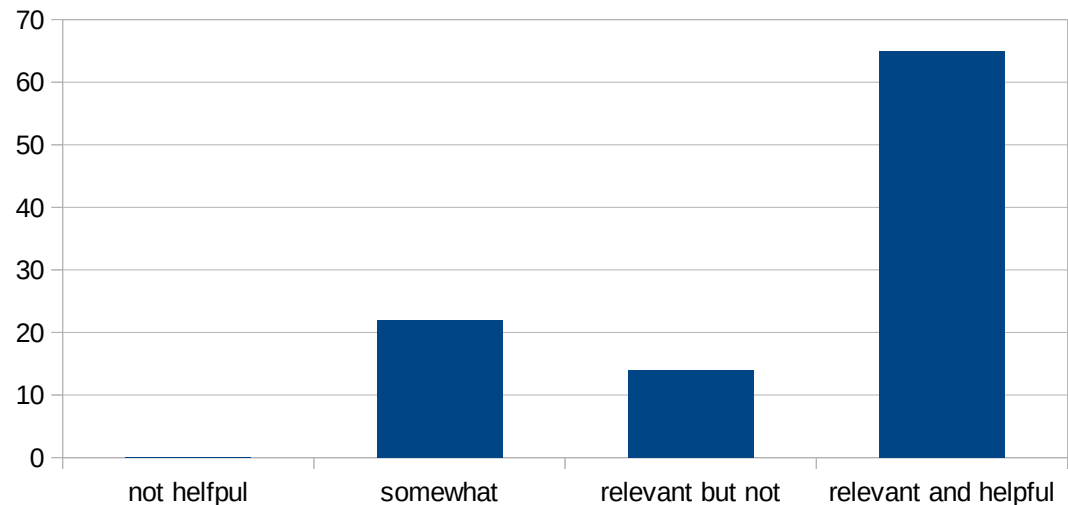
Survey Results

Presentation Methods

film clips, breakout rooms, games, current events, polls, FlipGrid, programming, calling students

Online class

ok but prefer in-person, ok no preference, not ok, none of above

Feedback

timely and helpful, timely not nellpful, not timely but helpful, not timely not helpful

Positive overall

strongly agree, agree, neither, disagree, strongly disagree

Eval surveys

annoying, necessary evil, no big deal, legit tool

4
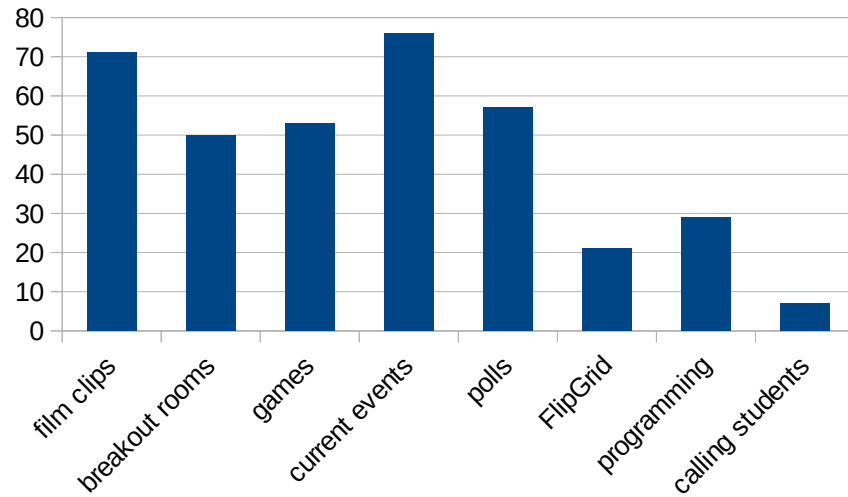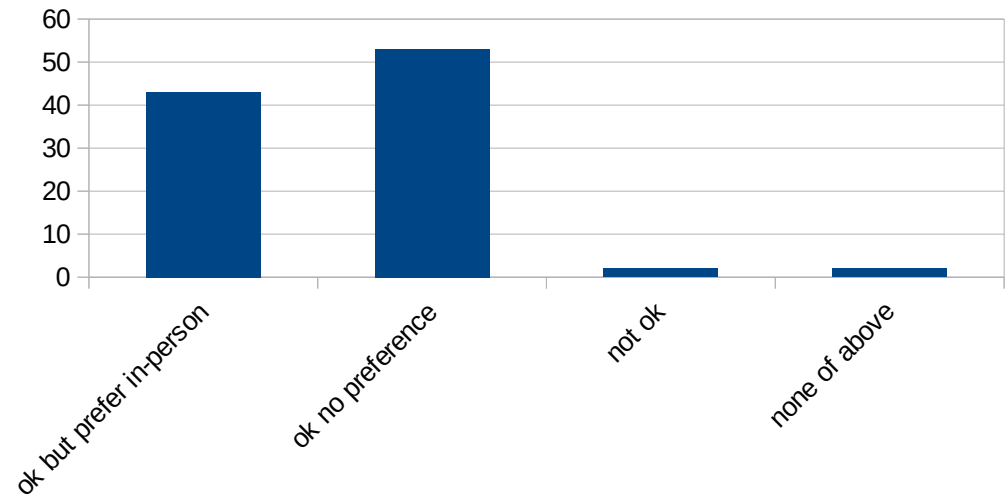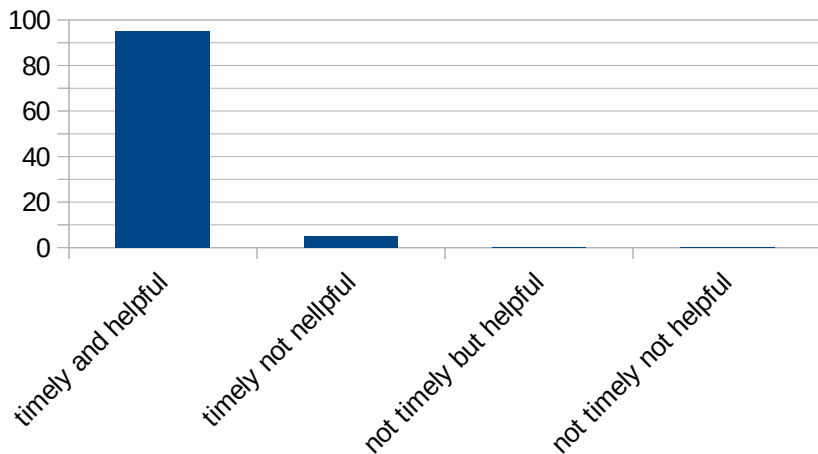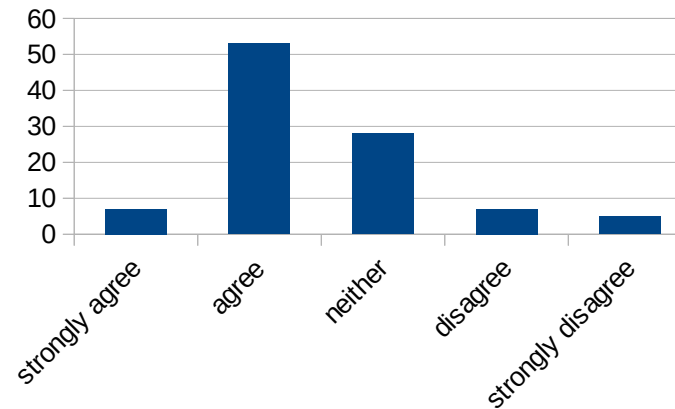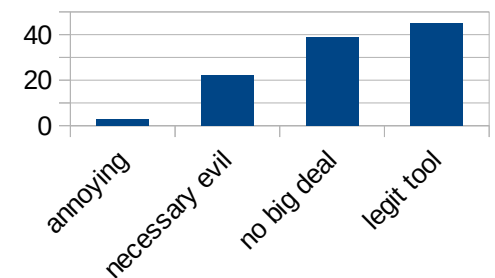
Last Time

- Intellectual Property Rights
  - Philosophy of Property Rights
  - Intellectual Property
    - Digital Challenges
  - IP Legal Protections Today
    - Trade Secrets
    - Trademarks
    - Copyright
    - Patent

Today

- Digital Rights Management
  - Rise and Fall
- File Sharing
  - Peer-to-peer
  - Cloud
- Plagiarism

Digital Rights Management

- Actions owners of intellectual property in digital form take to protect their rights

- Approaches
  - Encrypt digital content
  - Mark digital content so devices can recognize content as copy-protected

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Digital Millennium Copyright Act

- First big revision of copyright law since 1976

- Brought U.S. into compliance with Europe

- Extended length of copyright

- Extended copyright protection to music broadcast over Internet

- Made it illegal for anyone to

  – Circumvent encryption schemes placed on digital media

  – Circumvent copy controls, *even for fair use purposes*

Secure Digital Music Initiative

- Goals
  - Create copy-protected CDs
  - Secure digital music downloads
- Consortium of 200 companies developed "digital watermarking" scheme
- Failed
  - Internet copying became huge before SDMI ready
  - Some SDMI sponsors were electronics companies
  - Digital watermarking encryption cracked

Rootkit

- Millions of audio CDs shipped with Extended Copy Protection, a DRM system

- Prevented users from
  - Ripping audio tracks into MP3 format
  - Making more than 3 backup copies

- Relied upon Windows "rootkit" that hid files and processes; usually only hackers use rootkits

- Huge public outcry once secret uncovered

- Sony BMG stopped production and compensated consumers

Criticisms of Digital Rights Management

- Any technological "fix" is bound to fail
- DRM undermines fair use
- DRM could reduce competition
- Some schemes make anonymous access impossible

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Online Music Stores Drop Digital Rights Management

- When iTunes Music Store opened in 2003, all music protected with a DRM scheme called FairPlay

- FairPlay blocked users from freely exchanging purchased music

- Songs couldn't be played on more than 5 different computers

- Songs couldn't be copied onto CDs more than 7 times

- Songs purchased from iTunes Store wouldn't play on non-Apple devices

- DRM-protected music purchased from other online retailers couldn't be played on iPod

Online Music Stores Drop Digital Rights Management

- Consumers complained about restrictions associated with DRM

- European governments put pressure on Apple to license FairPlay or stop using DRM

- In 2007 EMI began offering all its songs without DRM through the iTunes store

- In 2008 Amazon reached an agreement with all four major music labels to sell DRM-free music

- Apple followed suit in 2009

- Microsoft announced cloud-based gaming experience for Xbox One (June 2013)
  - User could play any game without disc in tray
  - Automatic software updates of every Xbox One
- Controversial features of licensing arrangement
  - Disc could be shared only once
  - Second-hand market restricted
  - Xbox consoles would have to check in every 24 hours
- Microsoft backtracked
  - No need to connect to Internet
  - Freedom to lend, rent, buy, sell discs
  - Disc must be in tray to play game

Peer-to-Peer Networks

- Peer-to-peer network
  - Transient network
  - Connects computers running same networking program
  - Computers can access files stored on each other's hard drives
- How P2P networks facilitate data exchange
  - Give each user access to data stored in many other computers
  - Support simultaneous file transfers among arbitrary pairs of computers
  - Allow users to identify systems with faster file exchange speeds

Cyberlockers

- Also called file-hosting services or cloud storage services

- Internet-based file-sharing services

- Allow users to upload and download password-protected files

- Support workgroup collaboration

- Make sharing of copyrighted material easy

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Napster

- Peer-to-peer music exchange network

- Began operation in 1999

- Sued by RIAA for copyright violations

- Courts ruled in favor of RIAA

- Went off-line in July 2001

- Re-emerged in 2003 as a subscription music service

FastTrack

- Second-generation peer-to-peer network technology

- Used by KaZaA and Grokster

- Distributes index among large number of "super nodes"

- Cannot be shut down as easily as Napster

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RIAA Sued Grokster, Kazaa

- April 2003: RIAA warned file swappers they could face legal penalties

- RIAA subpoenaed Verizon for identities of people suspected of running supernodes

- Judge ruled in favor of Verizon

- September 2003: RIAA sued 261 individuals

- December 2003: U.S. Court of Appeals ruled Verizon did not have to give customer names to RIAA

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Huge Jury Judgments Reduced

- Jammie Thomas-Rassert

  - Federal jury ordered her to pay $1.92 million

  - Damages reduced to $54,000

- Joel Tenenbaum

  - Jury ordered him to pay $675,000

  - Judge reduced award to $67,500

- Does RIAA have to prove someone actually copied the songs that people made available on Kazaa?

  - New York decision: No

  - Massachusetts, Arizona decisions: Yes

MGM v. Grokster

- Entertainment industry interests sued Grokster and Stream Cast for the copyright infringements of their users

- Lower courts
  - Ruled in favor of Grokster and StreamCast
  - Cited Sony v. Universal City Studios as a precedent

- U.S. Supreme Court
  - Reversed the lower court ruling in June 2005
  - Proper precedent Gershwin Publishing v. Columbia Artists

BitTorrent

- Broadband connections: download much faster than upload

- BitTorrent speeds downloading
  - Files broken into pieces
  - Different pieces downloaded from different computers

- Used for downloading large files
  - Computer programs
  - Television shows
  - Movies

Concept Behind BitTorrent
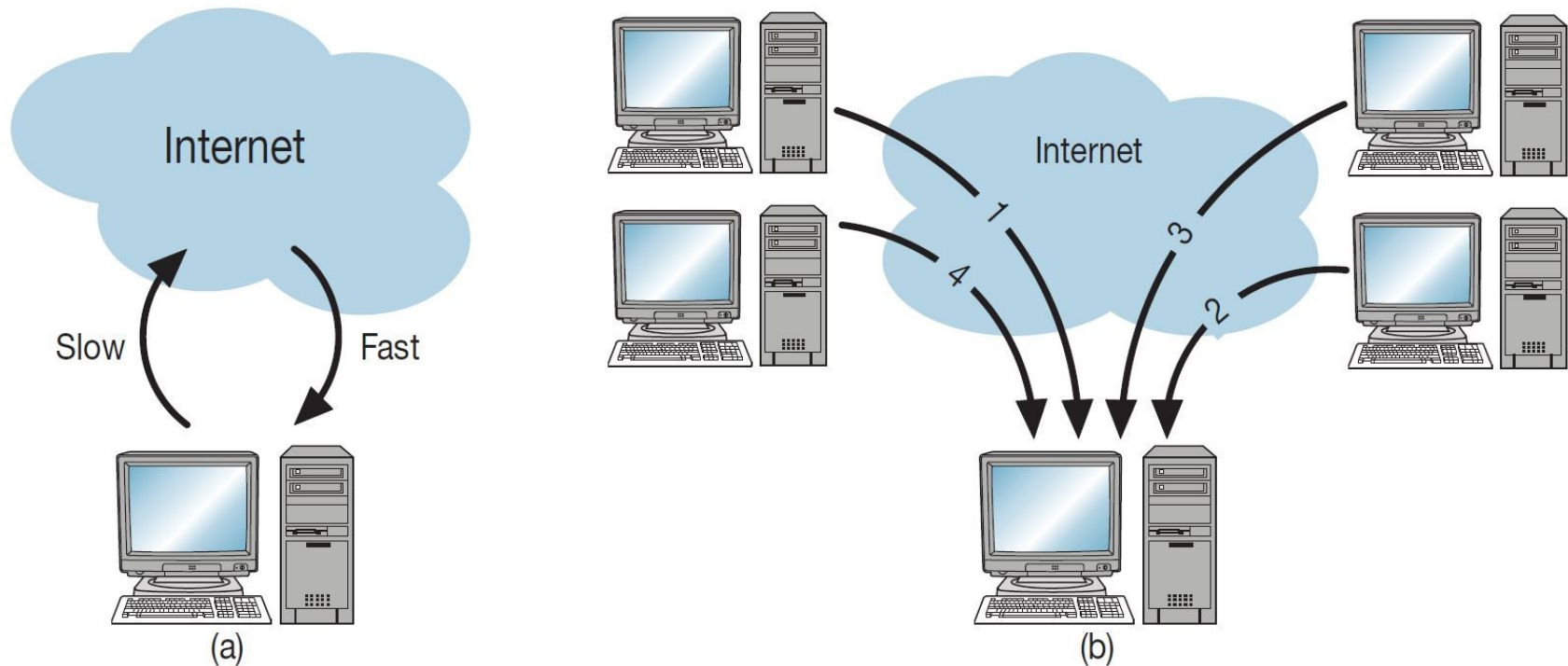
(a) Broadband Internet connections provide higher speeds for downloading than for uploading. (b) BitTorrent reduces downloading times by enabling a computer to download different pieces of a file simultaneously from many different peers.

Legal Action Against the Pirate Bay

- The Pirate Bay started in Stockholm, Sweden

- One of world's biggest BitTorrent file-sharing sites

- People download songs, movies, TV shows, etc.

- After 2006 raid by police, popularity increased

- In 2008 the International Federation of the Phonographic Industry sued four individuals connected with site

24

Legal Action Against the Pirate Bay

- Defendants said the Pirate Bay just a search engine

- Found guilty; sentenced to prison and fined $6.5 million

- Meanwhile, the Pirate Bay still operational

- More than 150 proxy servers all over the world

PRO-IP Act

- Gives federal law enforcement agencies right to seize domain names of sites facilitating copyright infringement

- Operation In Our Sites (2010)

  - Seized domain names of 10 Web sites making available full-run movies

  - Seized several hundred more domain names over next 1 ½ years

Megaupload Shutdown

- Megaupload a prominent cyberlocker
  - Based in Hong Kong
  - More than 180 million users
  - Once the world's 13th most popular Web site
  - Founder, Kim Dotcom, lived in Auckland, New Zealand
- 2012 – Cooperation between law enforcement agencies in US, New Zealand, and Hong Kong
  - Shut down Megaupload
  - Arrested Kim Dotcom for violating PRO-IP Act
- Other cyberlockers responded by disabling sharing functionality

Plagiarism

- Deliberately using others language, ideas, or material without acknowledgment

- Severe consequences

- Unethical

- Web makes plagiarism easy but also easy to detect

Types of Plagiarism

- Copy words (text or spoken) without:
  - Quotes
  - Citation
- Paraphrasing words without citation
- Using figures or drawings without citation
- Using little-known facts without citation
- Using ideas or theories without citation

Avoiding Plagiarism

- Always use quotes when copy/pasting and add citation

- When paraphrasing, study the material then put it away

  – Check your work against source material

Misuse of Sources

- Plagiarism is *deliberate*
- If no intention to deceive then Misuse of Sources
  - Hard to distinguish sometimes
  - Better to be on safe side and cite correctly