

# Intellectual Property, Privacy, and Ethics

COMP 435  
Fall 2017  
Prof. Cynthia Sturton

## Intellectual Property

### Legal Protections in the U.S.

- Copyright
- Patent
- Trade Secret

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### Connecticut Act of 1783

Every author should be secured in receiving the profits that may arise from the sale of [their] works, and such security may encourage [people] of learning and genius to publish their writings; which may do honor to their country, and service to [humankind].

## Continental Congress

That it be recommended to the several States, to secure to the authors or publishers of any new books not hitherto printed, being citizens of the United States, and to their executors, administrators and assigns, the copyright of such books for a certain time not less than fourteen years from the first publication

## Copyright

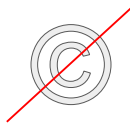
- Protect the expression of ideas
- Promote the exchange of ideas



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## No Copyright

- idea
- procedure
- process
- slogan
- principle
- discovery



## Statute

- U.S. Copyright Law of 1978
- World Intellectual Property Organization Treaty of 1996
- Digital Millennium Copyright Act, 1998

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## Copyright

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- Extends only to first sale

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## Public Domain

- Works with no originator
- Works owned by the public
- Old works

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## Originality of Work

Work being copyrighted must be original to the author

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## Copyrightable?

- Dictionary
- Recipe for grilled cheese sandwich
- Happy Birthday song

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- News reporting
- Teaching
- Scholarship, research
- Personal use

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## Piracy

Unfair use of a copyrighted item

## Copyright Protection

- Copyright is automatic
- Registering a copyright is not
  - Notice: ©
  - Filed with Copyright Office
- Infringement suits require registration

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## Patent

Protection for scientific inventions

- Tangible objects
- Processes
- Formulas

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## No Patent

Does not protect the design or idea

Does not protect laws of nature

- Math
- Algorithms

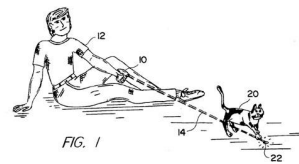
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## Patent Rights

- Must be registered
- Must be novel
- Must be non-obvious
- Must be actively protected

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## Method for Exercising your Cat



<https://www.google.com/patents/US5443036>

## Trade Secret

- Secret valuable to a business owner
- Reasonable steps must be taken to maintain secrecy

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## Protection of SW

### Copyright

- Protects the particular program, not the underlying ideas or algorithm

### Patent

- Underlying algorithm must be novel; "sort" is not novel

### Trade Secret

- Secret must be protected; distributing object code that can be reverse engineered reveals the secret

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## Privacy

## Privacy

- Controlled disclosure
- Sensitive data
- Affected subject

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## Controlled Disclosure

The right to control who knows what about you

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## Sensitive Data

- A personal decision
- No universal standard

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## Affected Subject

- Individuals
- Organizations
- Companies
- Governments

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## Privacy & Confidentiality

Confidentiality policies may protect private data

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## Privacy Costs

Limits benefits that could have come with disclosure

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## Privacy Protection

- Knowledge & consent
- Specific usage
- Limited retention
- Authorized disclosure
- Data protection
- Access control
- Logging accesses
- Compliant policy changes

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## Data Collection

### Facebook

- 2.4 billion items/day
- 750 TB of data/day
- 7 PB of photos/month

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## Data Collection

### Amazon

- 410 TB data/month
- 40 PB video/month

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### Fair Information Practice

Describe the privacy rights of individuals to sensitive data

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### Collection Limitation

Data should be obtained lawfully and fairly

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### Data Quality

Data should be relevant to its purpose, accurate, complete, and up to date

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### Purpose Specification

Purpose of data use should be identified  
Data is destroyed if no longer necessary for that purpose

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### Use Limitation

Use for non-specified purpose is authorized only by data subject or by law

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### Security Safeguards

Data should be guarded against loss, corruption, destruction, or misuse

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### Openness

Information about collection, storage, and use of data should be made available

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### Individual Participation

Subject has a right to access and challenge data relating to them

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## Accountability

A data controller should be designated and accountable for adhering to these principles

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## Data Protection

- Reduce exposure: limit data collected
- Reduce sensitivity by introducing errors
- Anonymize data by removing identifying information
- Encrypt the data

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## Anonymizing Data

(Zip, gender, DoB) uniquely IDs:  
87% of the population

(Place, gender, DoB):  
53%

(County, gender, DoB):  
18%

Based on 1990 U.S. Census Summary Data

Simple Demographics Often Identify People Uniquely, by Latanya Sweeney, Carnegie Mellon University.

## Ethics

## Ethic

Collectively defined standard of right and wrong

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## Laws and Ethics

Laws are informed by ethics

## Laws and Ethics

### Law

- Described by formal documents

### Ethics

- Described by unwritten principles

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## Laws and Ethics

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- Interpreted by courts

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- Interpreted by each individual

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## Laws and Ethics

### Law

- Described by formal documents
- Interpreted by courts
- Established by legislatures representing all people

### Ethics

- Described by unwritten principles
- Interpreted by each individual
- Presented by philosophers, religions, professional groups

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- Established by legislatures representing all people
- Applied to everyone
- Priority determined by courts in case of conflict

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- Priority determined by individual in case of conflict

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## Laws and Ethics

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- Interpreted by courts
- Established by legislatures representing all people
- Applied to everyone
- Priority determined by courts in case of conflict
- "Right" arbitrated by court

### Ethics

- Described by unwritten principles
- Interpreted by each individual
- Presented by philosophers, religions, professional groups
- Chosen personally
- Priority determined by individual in case of conflict
- Not arbitrated externally

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## Laws and Ethics

### Law

- Described by formal documents
- Interpreted by courts
- Established by legislatures representing all people
- Applied to everyone
- Priority determined by courts in case of conflict
- "Right" arbitrated by court
- Enforced by police and courts

### Ethics

- Described by unwritten principles
- Interpreted by each individual
- Presented by philosophers, religions, professional groups
- Chosen personally
- Priority determined by individual in case of conflict
- Not arbitrated externally
- Enforced by intangibles such as principles and beliefs

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## Case Study: Privacy Rights

Donald works for the county records department as a computer records clerk, where he has access to files of property tax records. For a scientific study, a researcher, Ethel, has been granted access to the numerical portion—but not the corresponding names—of some records.

Ethel finds some information that she would like to use, but she needs the names and addresses corresponding with certain properties. Ethel asks Donald to retrieve the names and addresses so she can contact these people for more information and for permission to do further study.

Should Donald release the names and addresses?

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