

# Software Development

Intellectual Property Issues

# admin

- Questions?
- Project issues?
- Assignment: as a supplement to this class discussion listen to
- <https://changelog.com/gotime/263>
- Gotime E263
- The hosts interview's an intellectual property lawyer. The focus is on AI and intellectual property.

# Intellectual property protection

- There are 4 types of intellectual property protection in the US
  - Copyright
  - trademark
  - patents
    - the 11 herbs and spices recipe
    - the formula for coke
    - etc
  - trade secrets

# Foundations

- The foundations of most intellectual property law in the US:
  - Article I Section 8 detailing the powers of congress
  - paragraph 8 allows congress to:
    - To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries;

# Copyright

- Copyright is:
  - form of protection granted by law for original works of authorship fixed in a *tangible medium*
  - both published and unpublished
- copyright protects
  - literary, dramatic, musical, and artistic works, such as poetry, novels, movies, songs, computer software, and architecture

# Copyright II

- Copyright allows holder control over
  - copying, distribution
  - derivative works
    - sequels, movie/book versions, use of characters from the work (merchandising)
    - plane crazy/steamboat Willie 1928
- Copyright does not protect
  - facts, ideas, systems, or methods of operation
  - possibly covers the way above are

# Copyright effective immediately

- Under today's copyright law
  - copyright is effective under US law
    - “the moment it is created and fixed in a tangible form that it is perceptible either directly or with the aid of a machine or device”
  - used to have to insert
  - © <name><year> into your written work
  - most still do, but not needed any more.
- But!!!! big change following

# copyright registration

- copyright registration with government
  - needed to bring infringement lawsuit
  - registration w/in 5 years Prima facie evidence
  - March 2019 Supreme court ruling requires registration to sue for infringement
    - Filing for registration is not enough
    - Once registered, can sue for retroactive infringement

# Copyright ownership

- Initial ownership
  - of work is with author(s)
- Copyright in each separate contribution to a collective work is distinct from copyright in the collective work as a whole
  - each author keeps copyright over his/her own part
  - unless transfer of ownership

# Transfer of ownership (Copyright)

- Transfer can occur any way that property can
  - wills, selling, legal giving away etc.
  - forms any the like
- ‘First Sale Doctrine’
  - And software industries end run through software as a service.

# Work for hire

- Work for hire
  - in work for hire, employer (or other person for whom work prepared) considered author and entitled to copyright
  - when you hire artists for your game
    - best to hire them on work for hire contracts.

# Duration of copyright

- Duration of copyright in US has changed over years
  - originally <30 years.
  - currently
    - works created after January 1, 1978, copyright protection lasts for the life of the author plus an additional 70 years
    - anonymous work, pseudonymous work, or work made for hire:
      - copyright term of 95 years from the year of its first publication
      - or a term of 120 years from the year of its creation, whichever expires first

# Copyright and the Courts

- before 1999 (US)
  - all copyright claims were handled as civil cases
    - civil cases have no presumption of innocence
    - no beyond a reasonable doubt
    - not a felony – no jail time possible.
- after 1999 (DMCA)
  - some copyright claims now criminal
    - more than 10 copies and value over \$2500

# Copyright and the Courts: Oracle

## 2

- March 2019 Supreme Court decision:
  - When winning a copyright decision, you can't get the loser to pay your legal fees
  - Rimini Steet v. Oracle
    - Rimini Steet stole Oracle's code
    - Lost a copyright case, but appealed the \$12.5 million legal fees and won

# Public Domain

- Public Domain

- works which belong to everyone (the public)
  - are part of our shared cultural heritage.
- Works that have expired copyright enter the public domain
- Can be reproduced, extended, characters reused etc as desired.
- Works created by US government with government money automatically in public domain.
- On Jan 1, 2019 first new public domain works in

# Fair Use

- In US fair use exemption
  - commentary, parody, news reporting, research and education about copyrighted works without the permission of the author.
  - requirements
    - short excerpt, should be attributed (referenced).
    - It should not harm the commercial value of the work
- Fair use globally
  - many countries have something like fair use (e.g. fair dealing in Canada)

# Copyright and the Courts: Oracle

- Introduce AT&T Unix background
- Google/Android and Sun/Oracle Java lawsuit
  - After several rounds in court March 2018 US court of Appeals handed big victory to Oracle
- In early 2020 oral arguments were heard before the supreme court:
  - <https://www.zdnet.com/article/the-supreme-court-will-decide-software-developments-future-in-google-v-oracle/>
- The result later this year will have large effect

# Copyright and the Courts: Oracle

- Introduce AT&T Unix background
- Google/Android and Sun/Oracle Java lawsuit
  - After Several rounds in court March 2018 US court of Appeals handed big victory to Oracle
  - APIs now copyright-able
  - In Feb 2019, Amicus brief by Mozilla, Microsoft, the Python Software Foundation, Red Hat, the Electronic Frontier Foundation and 65+ widely published CS professors and professionals to US Supreme court

# Fair Use in Software

- Google-Oracle ten year legal saga (2011-2021)
  - Google won early rounds, then damaging internal Google emails came to light.
  - Oracle then won a 1 Billion dollar verdict.
    - Billions <https://www.youtube.com/watch?v=LFRxiX0pQl4> 0:16-1:15
  - Case went to supreme court
    - a whose who of tech companies support Google
- On April 5<sup>th</sup> 2021 the US Supreme ruled that APIs constitute fair use:
  - <https://www.zdnet.com/article/google-beats-or>

# Relatively New Copyright law

2018

- Music Modernization Act (MMA)
  - Passed and signed into law October 2019
  - Digital music usage
    - Establishes music licensing collective (MLC)
      - Rather than trying to track down who owns a recording
      - Can pay the collective, which will pay the fee to owners
  - Pre-1972 recordings
    - Used to be covered by state laws. No digital recording laws for them
    - Now changed.

# Copyright and internationalization

- US copyright law originally based on English common law
  - Statute of Anne (1710)
  - copyright originally financial in nature
  - more recently influenced by French law and notions about rights of author/creator.
  - internationalization see next.

# Bern Convention/Treaty

- Bern Convention/Treaty
  - originally met in 1886
  - multi lateral treaty for propagation to copyright
    - copyright in one country yielded copyright in all
  - many attendees didn't ratify/join till much later.
  - updates several times in last century+

# Bern Treaty Signatories

- Bern treaty applicable to pretty much every one here.
  - signatory countries of interest:
    - United States March 1, 1989
    - Russia March 13, 1995
    - Jordan July 28, 1999
    - India April 1, 1928
    - China, People's Republic of October 15, 1992
    - Cape Verde July 7, 1997
    - Turkey January 1, 1952
    - Brazil Feb 9, 1922

# International Copyright issues

- Bern Treaty stipulates copyright granted in one country will be granted automatically in second.
  - second country's copyright laws rule there
  - including copyright expiration
  - nation by nation public domain issues.
    - e.g. Mickey Mouse park in China.

# European Copyright

- Europe is considering Article 13 of their copyright law
  - Discuss US ‘safe harbor’ provision of Millennium Copyright act.
  - EU wants to do away with that.
    - Limit links to copyright protected content
    - Limit re-uploads of copyright protected material without consent of owner
    - What is copyright protected?

# European Copyright

- Europe is considering Changes to their copyright
  - Passed in EU parliament
    - Now goes to member states for ‘implementation’
    - They have till 2021 to do so
  - Discuss US ‘safe harbor’ provision of Millennium Copyright act.
  - EU wants to do away with that.
    - Limit links to copyright protected content (article 11)
    - Limit re-uploads of copyright protected material without consent of owner (article 13 - became 17)
    - What is copyright protected? - Everything!!!

# Idea vs Expression

- Copyright covers/protects the expression of an idea
- Patent covers/protects the idea itself.
  - In games this leads to genres
    - 'shooter games'
    - 'diablo clones'
    - 'Battle royal games'
    - And even some gameplay similarities
- Court cases may change that
  - Eg: DaVINCI EDITRICE S.R.L., Plaintiff, v.ZIKO GAMES, LLC, et al.,
  - <http://www.bgdlegal.com/blog/copyright-law-does-not-protect-idea/>

# Trademarks

- Trademark:
  - word, symbol, or phrase,
  - used to identify a particular manufacturer or seller's products
  - distinguish them from the products of another.
- service marks
  - relationship
  - in this lecture consider two as same.

# Non word /symbol trademarks

- Occasionally able to trademark non words/symbols.
  - style trademark-able only when no competitive advantage provided.
  - Owens-Corning fiber glass
  - Coke Bottle shape
  - new bottle that allows more in with less material **not** trademarkable

# Trademark intended for convenience

- Trademark
  - allow customers to skip reading fine print
  - allow customers to easily identify products from particular supplier
  - example

# Trademark law in US

- Originally state by state laws in US
  - federal trademark law in 1880s
  - expanded since last in 1996
  - mostly federal now
    - though state trademarks available

# Requirement for Trademark

- In order to be a trademark must
  - be distinctive
- four classes of distinctiveness
  - (1) arbitrary or fanciful,
  - (2) suggestive,
  - (3) descriptive,
  - (4) generic

# Arbitrary or Fanciful

- In Arbitrary/Fanciful marks
  - bears no logical relationship to the underlying product.
    - examples?

# Suggestive

- Suggestive Marks
  - evoke or suggest characteristics of product
  - but not description
    - examples?

# Descriptive marks

- Descriptive mark
  - directly describes, rather than suggests, a characteristic or quality of the underlying product
  - acquires secondary meaning when the consuming public primarily associates mark with producer, rather than product.
  - eg. Holiday Inn
  - others?

# Generic marks

- Generic marks describe a general category that the product/service is in
  - not eligible for trademarking
  - eg
    - growlights brand lightbulbs
    - cola brand carbonated brown sugar water
    -

# Getting a Trademark

- How does one get a trademark in US
  - (1) by being the first to use the mark in commerce;
    - only applies where you are selling something
    - market by market issues
  - (2)(or) by being the first to register the mark with the U.S. Patent and Trademark Office ("PTO")
    - can't use 2 for descriptive mark have to establish secondary meaning (and show that first

# Duration of Trademarks

- Trademarks do not expire
  - they are a way of identifying a company/supplier
  - last as long as the company wants them
    - with small exception – see next
  - Western Union still has name trademarked after 100+ years.

# Losing a Trademark

- Trademarks can be lost through:
  - abandonment,
    - non-use for three consecutive years is prima facie evidence of abandonment
    - dodgers
  - improper licensing or assignment
    - licensed w/out proper quality control/oversight
  - genericity
    - former trademark now used for class or products

# Trademarks important for Software

- In Games
  - trademarks for companies
  - for software franchises
  - for symbols on them

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# Trademarks in Modern Software

- And in modern 3D games.
  - Trademarks from other companies might show up in games.
  - Electronic Arts v. Textron
    - 2011 case
    - EA's Battlefield 3 : used trademarked look of Textron's military hardware.
    - Supreme court ruled it was protected 'expressive speech'

# Others Trademarks

- From INTA website
- Court cases proved out right to use others trademarks in your apps in limited ways:
  - Nominative use
    - In *Tiffany Inc. v. eBay, Inc.*, 576 F. Supp. 2d 463 (S.D.N.Y. 2008), eBay's use of Tiffany's mark in an online advertisement: protected nominative fair use when new and used Tiffany products were in fact for sale on eBay's site.
    - *Designer Skin, LLC v. S & L Vitamins, Inc.*, 560 F. Supp. 2d 811 (D. Ariz. 2008) Trademark law: one who trades in a branded good can accurately describe it by the branded name so long as

# Licenses

- Works protected by copyright are often made available under certain licenses
  - allow permissive use under limited circumstances
  - BSD license
  - GPL
  - LGPL
  - Mozilla Public License

# Patents

- Patent:
  - exclusive rights granted by government to inventor or assignee for a limited period of time in exchange for a public disclosure of an invention.
  - government given.
  - much shorter than copyright

# Types of Patents

- In US three types of patents
  - A *utility patent* protects new and useful inventions.
    - methods, processes, chemical compounds etc
  - A *design patent* protects the appearance of a good, not its functionality.
  - A *plant patent* products new varieties of man-made asexually reproduced plants.

# Patent Duration

- In US:
  - utility and plant patents last 20 years
  - design patents last 15 years
- WTO issues
  - all WTO signatories must provide minimum 20 year utility patents

# Patent Prerequisites

- In order to obtain a patent, must apply to patent office.
- three prerequisites
  - must be patentable subject matter, a new and useful, process, machine, manufacture, or any improvement thereof.
  - must be useful, generally any useful result qualifies.
  - must be novel. It cannot be patented anywhere else or a similar process, machine, manufacture cannot be described in an

# Prior Art

- Novel requirement often a stumbling block
  - if patent application initially granted, can still be revoked by showing prior art.
  - prior art: an existing example of patented subject material not produced by patent filer.

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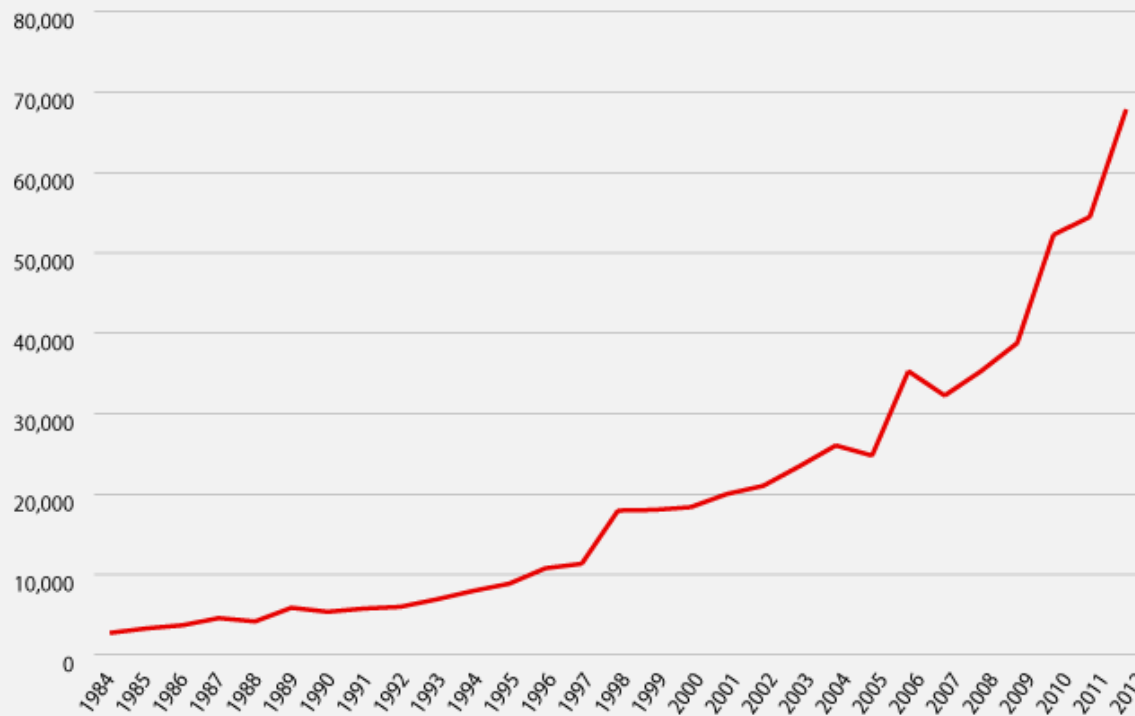
# Patents in Software/Games

- Software patents hotly debated topic
  - but patents on “new ways of storing compressed music data” or images and the like
  - when making game:
    - make sure you use file formats that you license or free formats.
- design patents need to be considered as well.

# Patents increasing

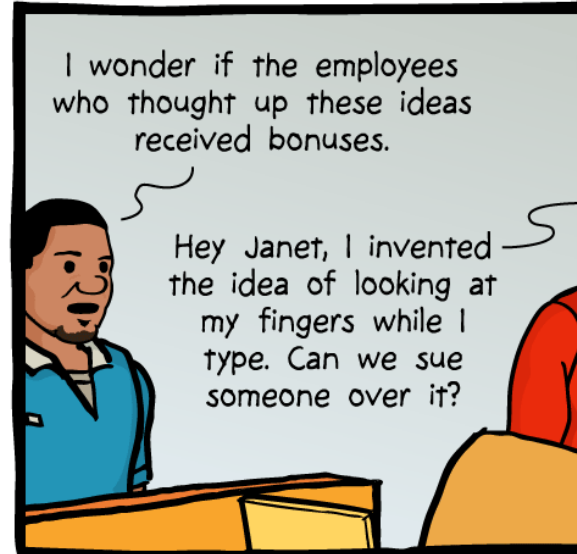
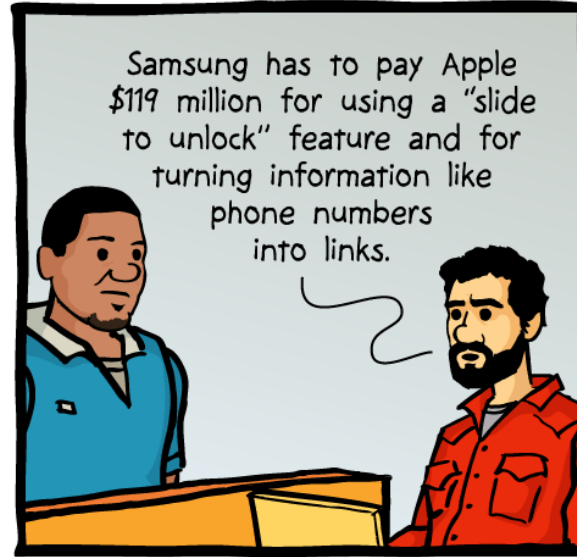
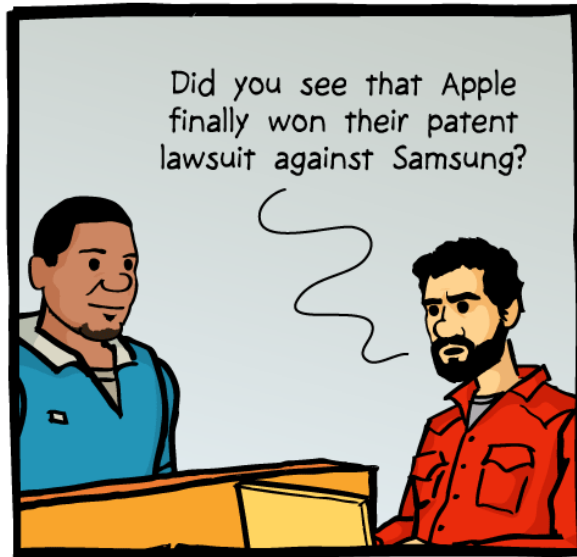
- Software patent applications increasing

Software patent grants



Source: U.S. Patent and Trademark Office.

# And a humorous take on it



# Terms of Service

- Contract between developer and customer
  - Must be available before non-refundable purchase is made
  - One important feature: use them to govern jurisdiction
  - Else developer can be sued anywhere they are selling lots of copies of their game
    - Candy crush lawsuits in all 50 states!?!

# GDPR

- Not an issue in US or Asia,
- But given the international scope of computing today needs to be considered
- EU General Data Protection Regulation (GDPR)
  - Effective May 2018
  - Makes people's personal data their (intellectual) property.
  - Greatly limits what tech companies can do with it.

# Rubber Duck Debugging

- Discuss Rubber Ducky Debugging
  - <https://rubberduckdebugging.com/>

# End

- End of intellectual property for now
- Reminder:
- April 15<sup>th</sup>: President's day: Night section won't meet
- Assignment: as a supplement to this class discussion listen to
- <https://www.pythonpodcast.com/software-licenses-for-developers-episode-196/>
- Note on group work for this project
  - This is a group project. You can work as closely as