

Lecture 12
Intellectual Property
(mostly software-related)

Intellectual property

- **protection mechanisms**
 - trade secrets
 - trademarks
 - patents
 - copyrights
 - licenses
- **standards and standardization**
- **open source / free software**
- **Warning: IANAL**

Trade secrets

- information is a secret held by its owner
- disclosed only under some kind of agreement
 - e.g., "non-disclosure agreement" or NDA
- no recourse if secrecy is lost
- often used to argue that information should not be made public
 - voting machine technology
 - breathalyzer technology
 - ...



Trade secrets

TECHNOLOGY

Amid new job-cutting, Zoox settles trade secrets lawsuit with Tesla

By [Cromwell Schubarth](#)
TechFlash Editor, Silicon Valley Business Journal
Apr 15, 2020, 6:13am PDT

Autonomous vehicle unicorn Zoox Inc. on Tuesday afternoon said it has settled a trade secret theft lawsuit by Tesla Inc.

The announcement came amid [news of a second round of job cuts](#) in two weeks at the Foster City-based company.

Tesla [claimed in the lawsuit it filed last year](#) that some of its former employees who joined Zoox took proprietary information with them.

Zoox said it will pay Tesla an undisclosed amount of monetary damages and undergo an audit to assure that none of its employees have retained or are using confidential Tesla information.

Trademarks

U.S. LEGAL NEWS JUNE 30, 2020 / 2:17 PM / UPDATED 3 MONTHS AGO

'Not a generic name': Booking.com wins trademark fight at U.S. Supreme Court

WASHINGTON (Reuters) - The travel reservation company Booking.com, a unit of Booking Holdings Inc, deserves to be able to trademark its name, the U.S. Supreme Court decided on Tuesday, overruling a federal agency that found it too generic to merit protection. The court decided 8-1 that the U.S. Patent and Trademark Office was incorrect when it denied the company's application to trademark the name Booking.com, with the justices finding it distinctive enough that the agency should have approved it.

Trademarks

SUPREME COURT OF THE UNITED STATES

No. 18–302

ANDREI IANCU, UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR,
PATENT AND TRADEMARK OFFICE,
PETITIONER *v.* ERIK BRUNETTI

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF
APPEALS FOR THE FEDERAL CIRCUIT

[June 24, 2019]

JUSTICE KAGAN delivered the opinion of the Court.

Respondent Erik Brunetti is an artist and entrepreneur who founded a clothing line that uses the trademark FUCT. According to Brunetti, the mark (which functions as the clothing's brand name) is pronounced as four letters, one after the other: F-U-C-T. See Brief for Respondent 1. But you might read it differently and, if so, you would hardly be alone. See Tr. of Oral Arg. 5 (describing the brand name as “the equivalent of [the] past participle form of a well-known word of profanity”). That common perception caused difficulties for Brunetti when he tried to register his mark with the U. S. Patent and Trademark Office (PTO).

But in any event, the “immoral or scandalous” bar is substantially overbroad. There are a great many immoral and scandalous ideas in the world (even more than there are swearwords), and the Lanham Act covers them all. It therefore violates the First Amendment.

We accordingly affirm the judgment of the Court of Appeals.

It is so ordered.

Patents & copyrights

- US Constitution, Article 1, Section 8:
- "The Congress shall have Power ...
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;
- "Writings": copyright protects expression but not idea
 - you can't copy my program
 - but you can implement the same idea in some different form
- "Discoveries": patent protects an idea
 - you can't use my patented idea
 - but you can achieve the same effect in a different way
- the meaning of "different" is NOT usually clear

Patents

- exclusive right to make, use or sell an invention in US
- valid for 20 years after filing
- requirements:
 - statutory subject matter:
process, machine, article of manufacture, composition of matter
 - novel
 - useful
 - unobvious to person having ordinary skill in the art
at the time of filing
- contents:
 - abstract
 - drawings/diagrams
 - specifications (narrative description, preferred embodiment)
 - **claims**

Some notable software patents

- 1-click shopping (now expired)
- RSA public key encryption (now expired)
- Lempel Ziv compression (now expired)
- MP3 encoding (now expired)
- FAT file system
- JPEG (claimed)

Patent wars

Google speakers are "vacuuming up" users' personal data, Sonos suit says

BY STEPHEN GANDEL

JANUARY 7, 2020 / 6:12 PM / MONEYWATCH

Speaker company Sonos filed a lawsuit against Google on Tuesday claiming that the search giant stole its technology. Google is also using the misappropriated tech to "vacuum up invaluable consumer data from users" to fuel its continued dominance in the internet search and ad market, Sonos also alleges.

If the Sonos suit succeeds in court, Google could be forced to pull more than a dozen products off the market. Sonos says Google is currently using its technology, infringing on the company's patents, in Google Home Mini speakers and Pixel phones, tablets and laptops.

Sonos also wants Google to pay monetary damages for its alleged patent infringement. Sonos did not specify a dollar amount of damages in the suit, but said the infringement is ongoing. The complaint was filed in federal court in California, as well with the U.S. International Trade Commission.



US005960411A

United States Patent [19]

Hartman et al.

[11] **Patent Number:** **5,960,411**

[45] **Date of Patent:** **Sep. 28, 1999**

[54] **METHOD AND SYSTEM FOR PLACING A PURCHASE ORDER VIA A COMMUNICATIONS NETWORK**

[75] Inventors: **Peri Hartman; Jeffrey P. Bezos; Shel Kaplan; Joel Spiegel**, all of Seattle, Wash.

[73] Assignee: **Amazon.com, Inc.**, Seattle, Wash.

[21] Appl. No.: **08/928,951**

[22] Filed: **Sep. 12, 1997**

[51] **Int. Cl.⁵** **G06F 17/60**

[52] **U.S. Cl.** **705/26; 705/27; 345/962**

[58] **Field of Search** **705/26, 27; 380/24, 380/25; 235/2, 375, 378, 381; 395/188.01; 345/962**

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(List continued on next page.)

Primary Examiner—James P. Trammell

Assistant Examiner—Demetra R. Smith

Attorney, Agent, or Firm—Perkins Coie LLP

[57] **ABSTRACT**

A method and system for placing an order to purchase an item via the Internet. The order is placed by a purchaser at a client system and received by a server system. The server system receives purchaser information including identification of the purchaser, payment information, and shipment information from the client system. The server system then assigns a client identifier to the client system and associates the assigned client identifier with the received purchaser information. The server system sends to the client system the assigned client identifier and an HTML document identifying the item and including an order button. The client system receives and stores the assigned client identifier and receives and displays the HTML document. In response to the selection of the order button, the client system sends to the server system a request to purchase the identified item. The server system receives the request and combines the purchaser information associated with the client identifier of the client system to generate an order to purchase the item in accordance with the billing and shipment information whereby the purchaser effects the ordering of the product by selection of the order button.

Amazon's 1-click patent

United States Patent 5,960,411 Hartman, et al. September 28, 1999

Method and system for placing a purchase order via a communications network

Abstract: **A method and system for placing an order to purchase an item via the Internet.** The order is placed by a purchaser at a client system and received by a server system. The server system receives purchaser information including identification of the purchaser, payment information, and shipment information from the client system. The server system then assigns a client identifier to the client system and associates the assigned client identifier with the received purchaser information. The server system sends to the client system the assigned client identifier and an HTML document identifying the item and including an order button. The client system receives and stores the assigned client identifier and receives and displays the HTML document. In response to the selection of the order button, the client system sends to the server system a request to purchase the identified item. The server system receives the request and combines the purchaser information associated with the client identifier of the client system to generate an order to purchase the item in accordance with the billing and shipment information whereby the purchaser effects the ordering of the product by selection of the order button.

Inventors: Hartman; Peri (Seattle, WA), **Bezos; Jeffrey P.** (Seattle, WA), Kaphan; Shel (Seattle, WA), Spiegel; Joel (Seattle, WA)

Assignee: Amazon.com, Inc. (Seattle, WA)

Appl. No.: 08/928,951 Filed: September 12, 1997

We claim:

1. A method of placing an order for an item comprising:
under control of a client system, displaying information identifying the item; and **in response to only a single action being performed**, sending a request to order the item along with an identifier of a purchaser of the item to a server system;
under control of a single-action ordering component of the server system, receiving the request; retrieving additional information previously stored for the purchaser identified by the identifier in the received request; and generating an order to purchase the requested item for the purchaser identified by the identifier in the received request using the retrieved additional information; and fulfilling the generated order to complete purchase of the item whereby the item is ordered without using a shopping cart ordering model.
2. The method of claim 1 wherein the displaying of information includes displaying information indicating the single action.
3. The method of claim 1 wherein the single action is clicking a button.
4. The method of claim 1 wherein the single action is speaking of a sound.
5. The method of claim 1 wherein a user of the client system does not need to explicitly identify themselves when placing an order.

A non-notable patent

United States Patent

9,514,417

Kumar , et al.

December 6, 2016

Cloud-based plagiarism detection system performing predicting based on classified feature vectors

Abstract

Plagiarism may be detected, as disclosed herein, utilizing a database that stores documents for one or more courses. The database may restrict sharing of content between documents. A feature extraction module may receive edits and timestamp the edits to the document. A writing pattern for a particular user or group of users may be discerned from the temporal data and the documents for the particular user or group of users. A feature vector may be generated that represents the writing pattern. A machine learning technique may be applied to the feature vector to determine whether or not a document is plagiarized.

Inventors: *Kumar; Sanjiv* (White Plains, NY), *Kernighan; Brian* (Princeton, NJ)

Applicant: **Name** **City** **State** **Country** **Type**

Google Inc. Mountain View CA US

Assignee: **Google Inc.** (Mountain View, CA)

Family ID: 53482184

Appl. No.: 14/143,710

Filed: **December 30, 2013**

Dilbert on patents



Copyright

- protects expression, not idea
- duration used to be 17 years + one renewal
- now life + 70 years, or 95 years for commercial works
 - (the "Mickey Mouse Protection Act", 1998)
- **"fair use" permits limited copying under some circumstances**
 - criticism, comment, scholarship, research, news reporting, teaching
- **uncertain what fair use really is -- case by case decisions**
- **considerations:**
 - purpose and character of the use
 - nature of the copyrighted work
 - amount and substantiality of the portion used
 - effect of the use on potential market or value of the copyrighted work
- **recent copyright laws may prevent some fair uses**
 - can't decrypt to make excerpt for teaching or criticism
 - can't reverse engineer to make copies in different media

DMCA: Digital Millennium Copyright Act (1998)

- US copyright law: www.copyright.gov/title17, Chapter 12
- anticircumvention: illegal to circumvent a technological measure protecting access to or copying of a copyrighted work
 - limited exceptions for reverse engineering for interoperability, encryption research, security testing
- illegal to remove or alter copyright notices and management information
- "safe harbor": protects ISPs from copyright infringement claims if they follow notice and takedown procedures

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Brian W Kernighan
35 Olden St
Princeton, NJ 08540, United States
bwk@princeton.edu

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Jun 21, 9:27 AM PDT

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The growing popularity of C, the changes in the language over the years, and the ... This Second Edition of The C Programming Language describes C as ...

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This Second Edition of The C Programming Language describes C as defined by the ANSI ... C is not a big language, and it is not well served by a big book. We.

Copyright issues in software

- **code**
 - theft in commercial setting
 - plagiarism in academic setting
- **visual appearance, "look and feel", etc., of a program**
- **interfaces vs implementations**
- **reverse engineering?**
 - clean room implementation
- **copyright or patent?**
 - which is appropriate to protect specific piece of software?

Copyright status of API definitions?

- Two versions of a program: are they the same?
- "Eric Schmidt, the former CEO of Google, is now explaining to the jury a JavaScript function that finds the bigger of two numbers as a way of describing APIs."
 - (tweet from Oracle v Google trial, 4/24/12)

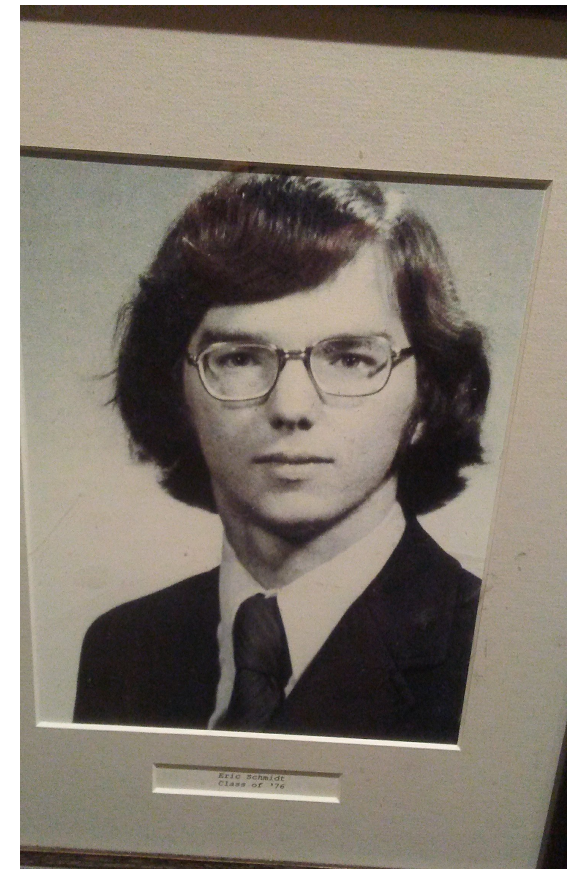


Android Math.abs

```
public static int abs(int i) {  
    return i >= 0 ? i : -i;  
}
```

Oracle JDK 1.5 Math.abs

```
public static int abs(int a) {  
    return (a < 0) ? -a : a;  
}
```



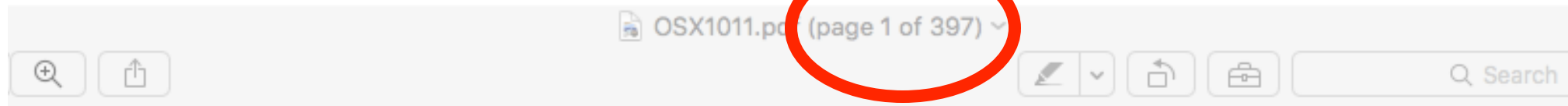
From Oracle v. Google

- *Judge Alsup: "I have done, and still do, a significant amount of programming in other languages. I've written blocks of code like rangeCheck a hundred times before. I could do it, you could do it. The idea that someone would copy that when they could do it themselves just as fast, it was an accident. There's no way you could say that was speeding them along to the marketplace. You're one of the best lawyers in America, how could you even make that kind of argument?"*
- *David Boies (counsel for Oracle): "I want to come back to rangeCheck."*
- *Alsup: "rangeCheck! All it does is make sure the numbers you're inputting are within a range, and gives them some sort of exceptional treatment. That witness, when he said a high school student could do it —"*
- *Boies: "I'm not an expert on Java—this is my second case on Java, but I'm not an expert, and I probably couldn't program that in six months."*

Licenses

- an agreement (e.g., contract) that allows a particular use of some software
 - that might otherwise be a violation of copyright, patent, etc.
- are shrinkwrap and clickwrap licenses valid and enforceable?
- is licensing replacing purchase?
- are warranty and liability disclaimers for software valid?

EULAs we never read...



ENGLISH

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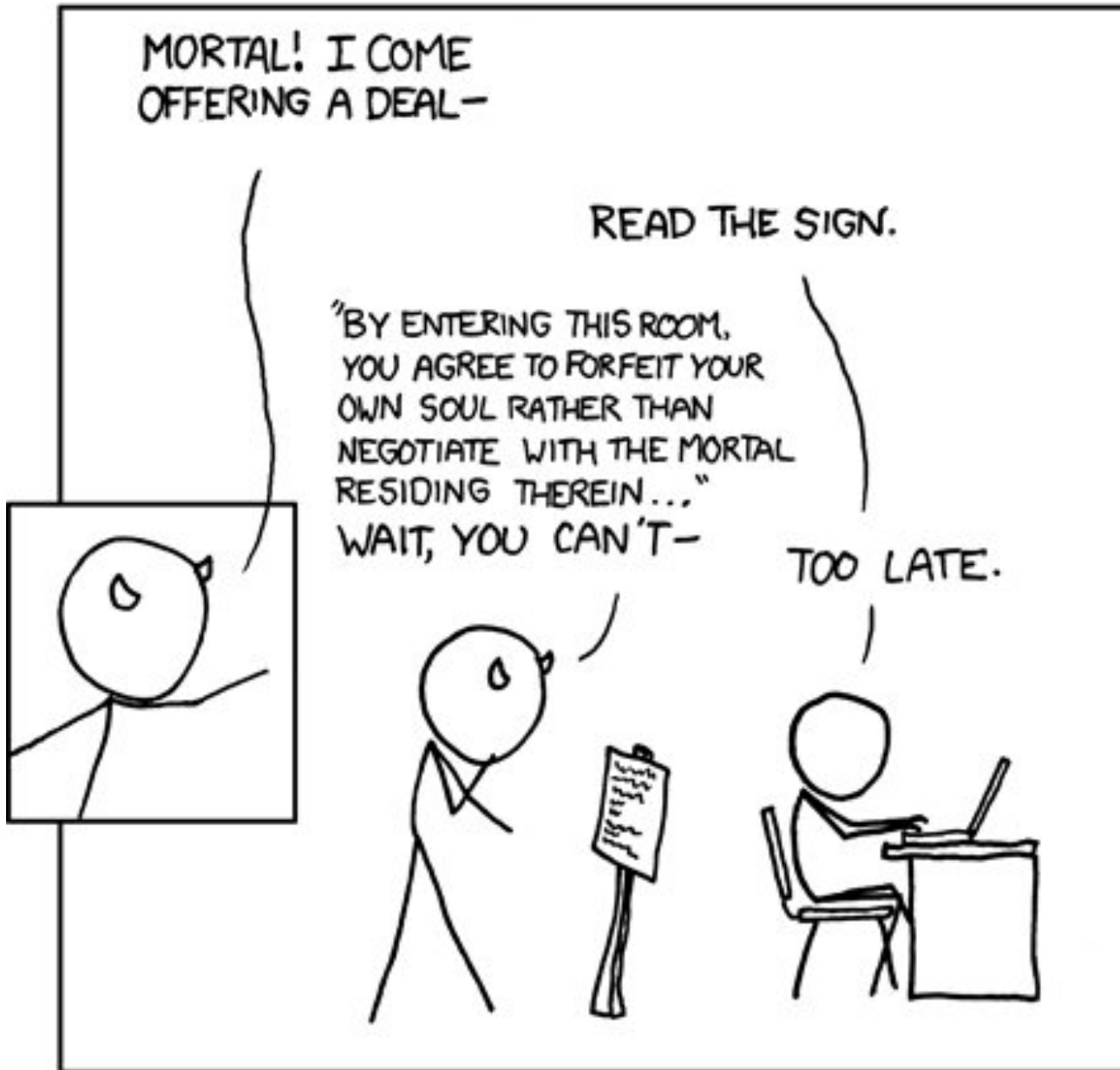
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ENGLISH

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MEPHISTOPHELES ENCOUNTERS THE E.U.L.A.

Open source / free software

- **source code: instructions in a readable programming language**
 - usually has significant commercial value
e.g., Windows, Office, TurboTax, Photoshop, ...
 - usually proprietary, secret, not revealed
even if compiled version is given away (e.g., iTunes, Internet Explorer)
- **"open source": source code is available, can be use, copied and modified**
 - a reaction to restrictions on proprietary code
 - promoted by Free Software Foundation, other open source projects & groups
- **various kinds of licenses determine what can be done with it**
 - mainly concerned with keeping source code open enough that others can continue to build on it and improve it
 - prevents anyone from taking it private / proprietary
- **a viable threat to proprietary software in important areas**

Free Software Foundation (Richard Stallman, MIT, ~1985)

- **plan to build an operating system and all supporting software**
 - "GNU" -- "GNU's not Unix"
- **started non-profit organization called the Free Software Foundation**
- **wanted source code to be released so that it could not be made proprietary, would remain free forever**
 - "free" as in "free speech", not "free beer"
 - ok to charge for distribution, support, etc.
- **source released under copyright agreement that requires that any subsequent distribution be covered by the same agreement**
- **GNU GPL (General Public License): "copyleft"**
 - full permission to use, copy, modify, distribute modifications
 - copies, derivative works, etc., must have the same terms if distributed
 - copies, etc., must have the same license attached to them
 - NO permission to add further restrictions; explicitly forbidden
- **source code has to be freely available**
 - can't "take it private"



Open source examples

- **Linux, other Unix variants**
 - FreeBSD (Mac OS X uses this), NetBSD, OpenBSD
- **Apache web server**
- **Mozilla web browser (Firefox), Chrome web browser**
- **OpenOffice**
 - work-alike for Microsoft Office
- **GIMP**
 - Photoshop alternative
- **GCC (GNU compiler collection)**
 - compilers for C, C++, Fortran, etc.
- **Perl, Python, PHP, Ruby, Javascript, Go, ...**
 - compilers for major programming languages
- **MySQL, SQLite and other database systems**
- **lots of smaller systems**
 - standard Unix tools, languages, etc.

Open source questions

- why do programmers contribute?
- why do companies use it?
- is it better than commercial software?
- is it a serious threat to commercial software companies?
- what economic model explains it?
- will its legal protections hold up?
- should it be required for crucial systems like electronic voting?

Why software instead of hardware?

- **general-purpose software instead of special-purpose hardware:**
- **software is**
 - more flexible
 - easier to change in the field
 - cheaper to manufacture (though often costly to create originally)
- **hardware is**
 - faster, more efficient
 - more reliable, more robust
 - more secure against intrusion, theft, reverse engineering
- **dividing line is not always clear**
 - flash memory, etc.
 - plug-in cards, game cartridges

Fundamental Software Ideas

- **algorithm: sequence of precise, unambiguous steps**
 - performs some task and terminates
 - based on defined basic / primitive operations
 - describes a computation independent of implementation details
- **programming language:**
 - grammar, syntax, and semantics for expressing computation
notation is important
- **program: algorithms implemented in a programming language**
- **compilers, interpreters: programs that convert from the high level language used by people to a lower level**
 - a compiler is a program that writes a program
 - an interpreter also acts as a computer so the program can be run
- **libraries and components: programs written by others**
 - packaged in a form that can be used in a new program
- **abstraction, layers, interfaces, virtualization**
 - hiding details, pretending to be something else
- **bugs: the need for absolute precision**
 - cover all cases, cope with failures and misuse