Computer Programming
计算机程序设计

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Why should we learn programming?

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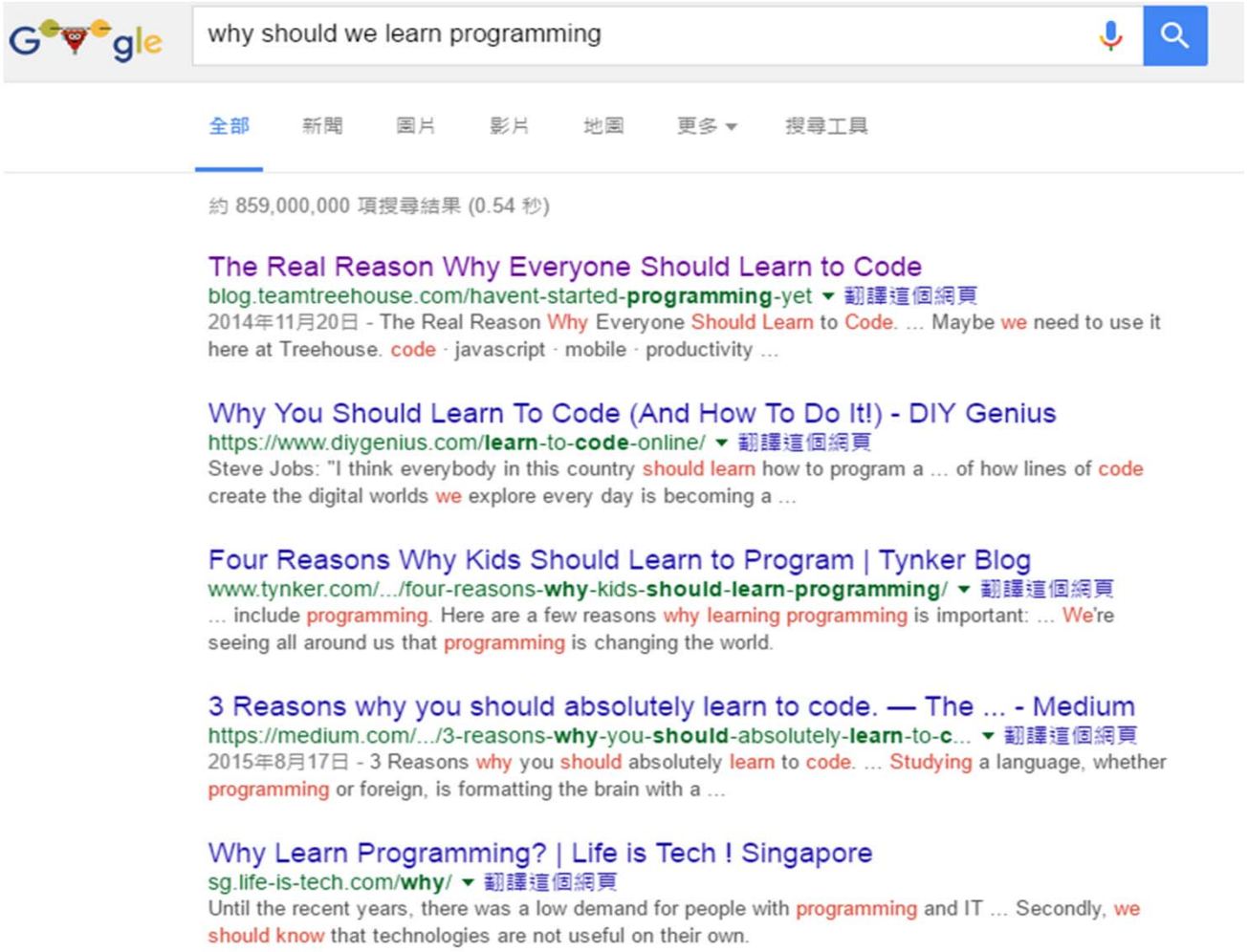
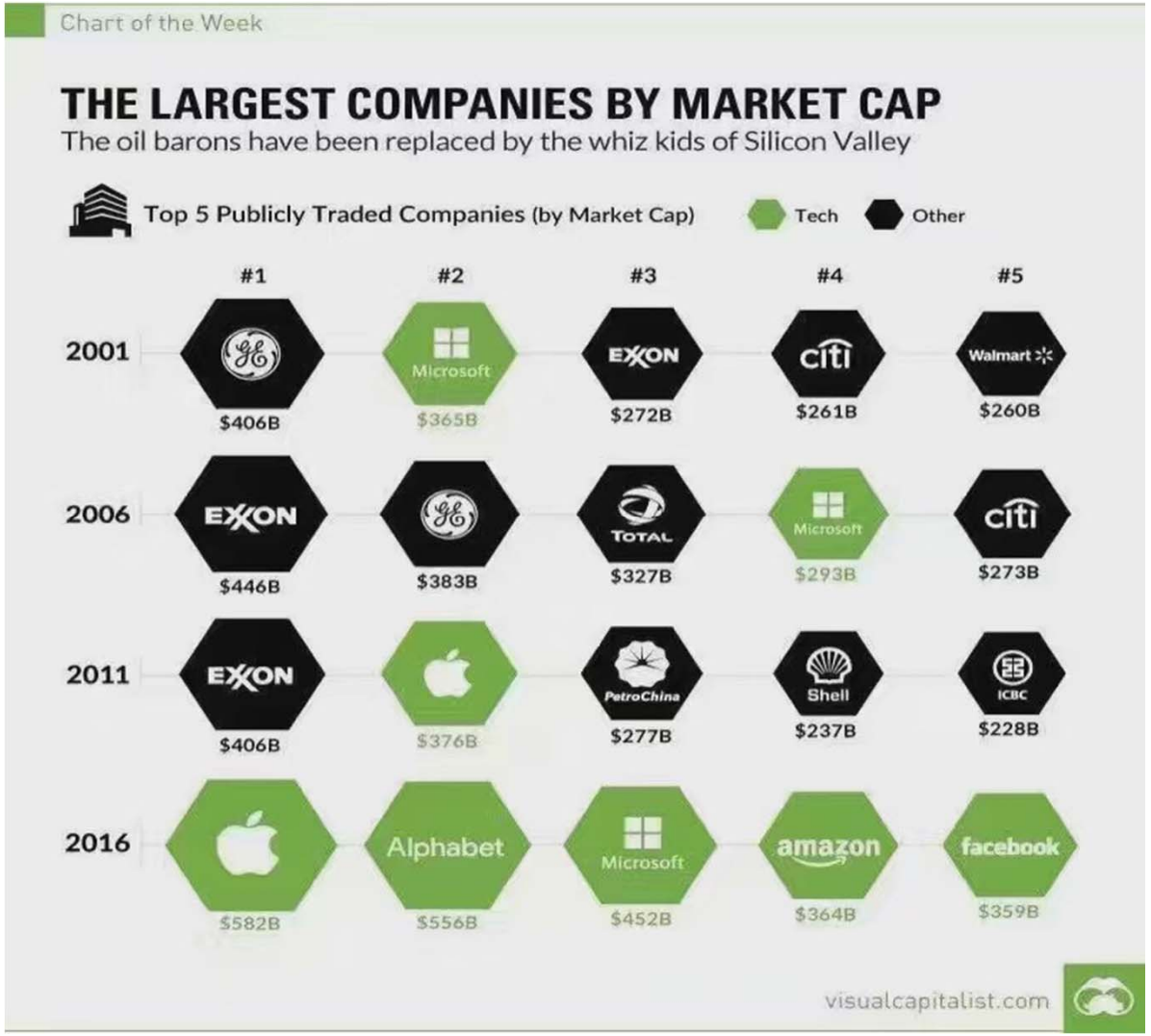
- Learning to program is going to improve your life!



[Googled on Aug 15, 2016]

Why should we learn programming?

- "Software is eating the world." --- Marc Andreessen



Course Prerequisites

- Prerequisites:
  - No prior programming experience required (Really!)
- Who should be taking this course:
  - students who want to switch to a computer science major
  - students who want a computer science minor or a computer applications minor
  - students who are just interested in programming
- Who should NOT be taking this course:
  - students trying to get out of taking a math requirement
  - students trying to avoid coding
  - students who don't understand anything in English
- Q: Any fundamentals?

Course Description

- A fully English teaching course
- Do not be afraid! Really!
- Consider the challenges you will meet in future!

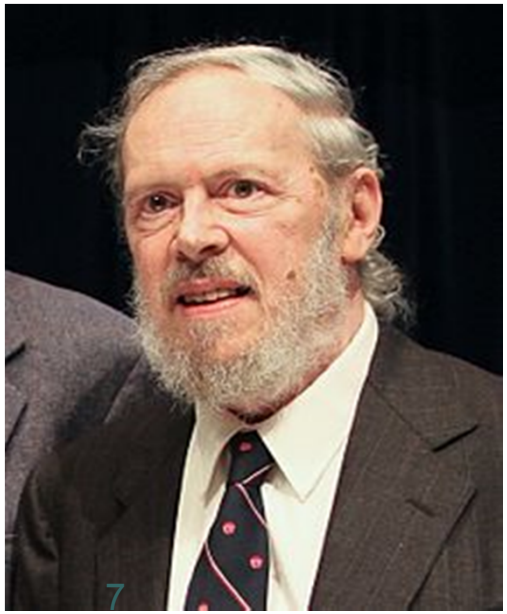
- Location: 信息楼 222 （at most 50 students）
- Try programming immediately on computers EVERY class!

- Elementary introduction to programming for freshmen
- Basic concepts, data types, and structures
- Basic skills in designing, coding, and debugging programs

- C programming language

Why C (programming language)?

- C was originally developed by **Dennis Ritchie** between 1969 and 1973 at Bell Labs
- C was used to re-implement the **Unix** operating system
- In 1983, Dennis Ritchie and Ken Thompson received the **Turing Award** for their development of generic operating systems theory and specifically for the implementation of the UNIX



UNIX®

Why C (programming language)?

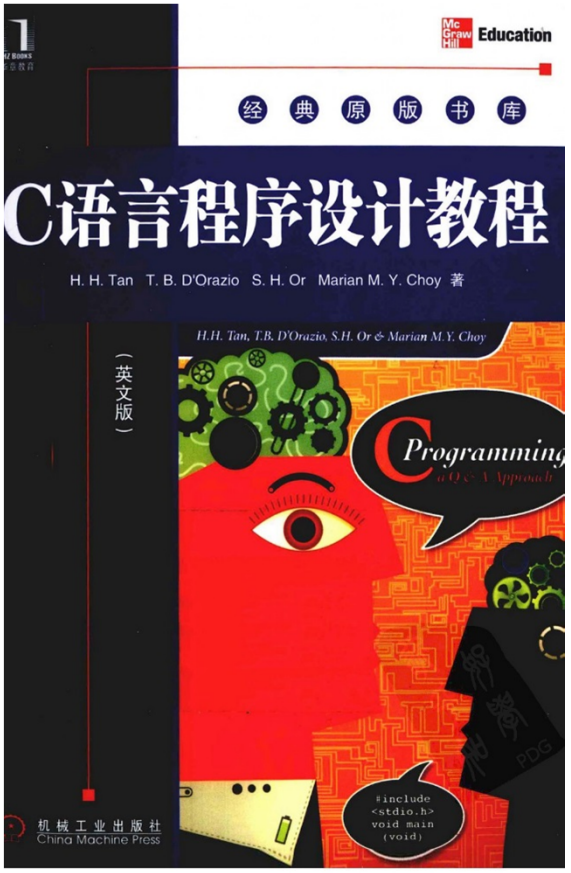
- C has been one of the **most widely used** programming languages of all time, particularly used for "**system programming**", with C compilers from various vendors available for the majority of existing computer architectures and operating systems

Programming Language	2016	2011	2006	2001	1996	1991	1986
Java	1	1	1	3	17	-	-
C	2	2	2	1	1	1	1
C++	3	3	3	2	2	2	5
C#	4	5	6	11	-	-	-
Python	5	6	7	25	23	-	-
PHP	6	4	4	8	-	-	-
JavaScript	7	9	8	7	21	-	-
Visual Basic .NET	8	29	-	-	-	-	-
Perl	9	8	5	4	3	-	-
Ruby	10	10	21	32	-	-	-
Ada	27	16	16	17	7	4	2
Lisp	28	12	12	14	6	7	3
Pascal	62	13	17	15	4	3	7

[from TIOBE Index]

Textbook

C Programming: a Q & A Approach



by H.H. Tan, T.B. D'Orazio, S.H. Or & Marian M.Y. Choy

机械工业出版社： 2013.1

￥49.00(*0.7=￥34.30)

Textbook Features

- The book uses a simple **Question and Answer** approach that students find more friendly and accessible than standard narrative.
- Each **Lesson** begins with a single simple program: the source code accompanied by guided observations.
- The **Application Programs** given in the second part of some chapters illustrate the usefulness of the C language for solving engineering and computer science problems.

- Lesson 1.5 About this textbook and How to get the most out of it (page 16)

Syllabus

Content	Lecture + Practice (hours)	Self-Study (hours)
Chapter 1 Programming Fundamentals	3 + 1	4
Chapter 2 Variable, Arithmetic Expressions and Input / Output	4 + 2	6
Chapter 3 The Basics of C - Math Functions and Character File Input / Output	4 + 4	8
In-Class Exam I	2	
Chapter 4 Beginning Decision Making and Looping	4 + 4	8
Chapter 5 Functions	4 + 4	8
Chapter 6 Numeric Arrays	4 + 4	8
In-Class Exam II	2	
Chapter 7 Strings and Pointers	4 + 4	10
Chapter 8 Structures and Large Program Design	4 + 2	10
In-Class Exam III	2	
Summary	1	
Q & A	1	
Final Exam		

Grading

- Final Exam: 70%
- 3 In-Class Exams: 20%
- In-Class Q&A / Exercises: 10%

Student Civility

- In an effort to make this class enjoyable for everybody…
  - Do not annoy others!
  - Please be on time to class!
  - Please do not talk to your friends and neighbors in class! It disturbs everyone, and makes it hard to concentrate. If you have a question, just ask me!
  - Please turn off / mute your cell-phones!

A Word About Cheating

- You must submit your own work!

- **If you are caught cheating, you will receive an immediate FAILURE for the course.**

Software

- Windows
  - Code::Blocks and MINGW (free and also available on Linux)
  - Borland
  - Microsoft Visual C++
- *nix
  - g++
  - gcc
- Mac OS X
  - Apple XCode