



北京师范大学
BEIJING NORMAL UNIVERSITY

信息科学与技术学院

《汇编语言程序设计》 课程介绍

余乐军

2019.9.5



课程介绍

- 课程性质：选修课
- 学分：3学分
- 课时：4课时（2理论+2实验）/每周



课程信息

- 上课方式：理论（32课时）+实验（30课时）
- 理论课
 - 时间：
 - 第1-17周，每周四1-2节
 - 地点：电子楼103
- 实验课
 - 时间：第2-17周，每周四9-10节
 - 地点：电子楼306



课程介绍

■ 教师信息：

姓 名：余乐军

办公室：电子楼411

Email : yulejun@bnu.edu.cn



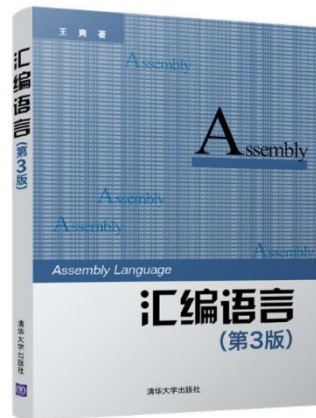
教材和参考书

■ 教材信息:

书 名: 汇编语言 (第3版)

作 者: 王爽

出版社: 清华大学出版社

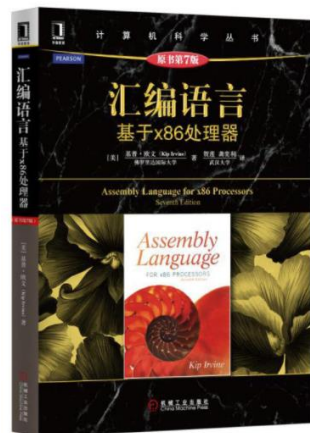


■ 参考资料:

书 名: 汇编语言基于x86处理器

作 者: 基普·欧文 (Kip Irvine)

出版社: 机械工业出版社





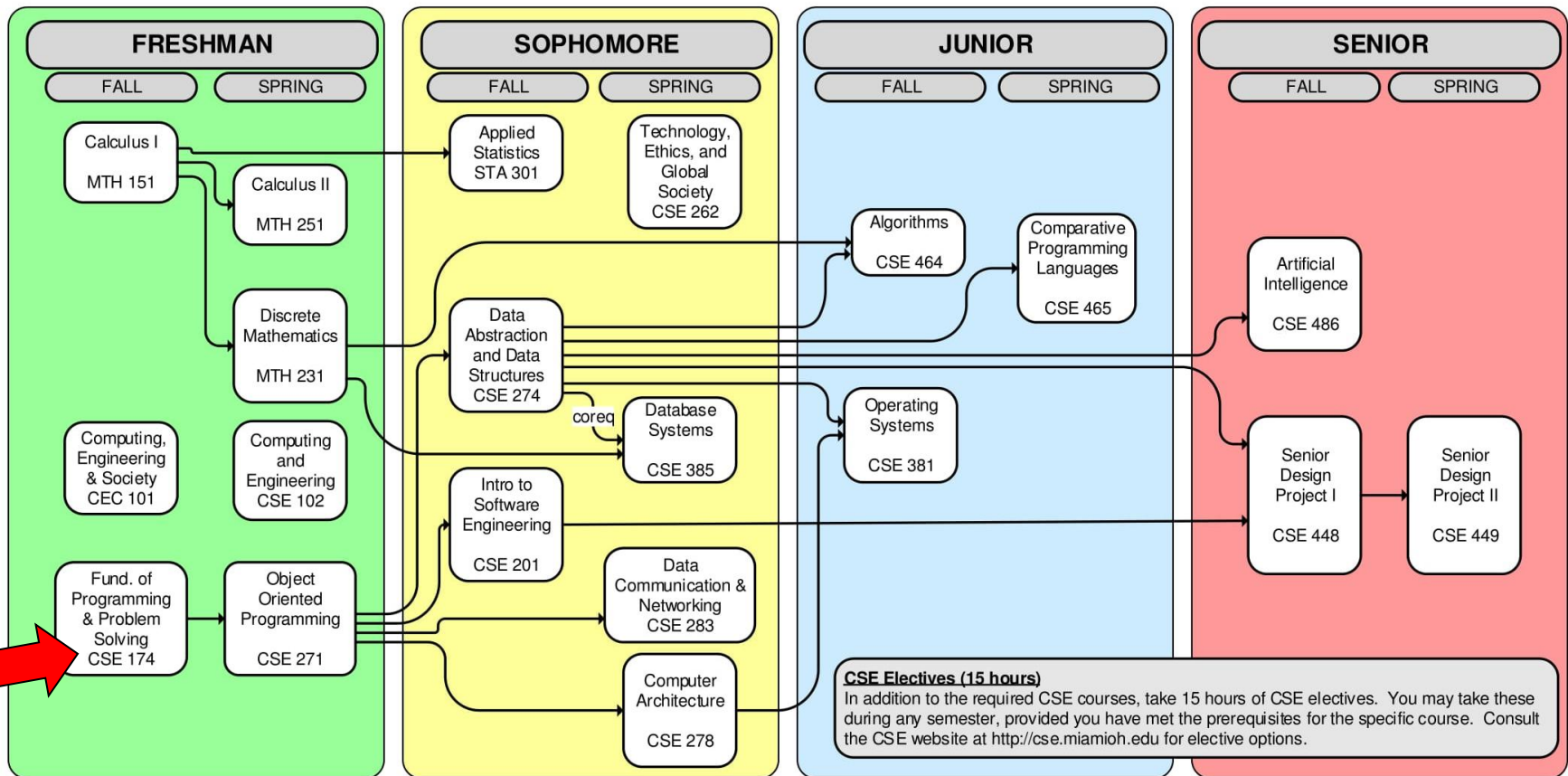
考核方式

无期末考试，按平时以下内容考核（100分制）：

- 考 勤（5%）
 - 上课不迟到早退
- 随 堂 测 试（15%）
 - 随堂小测验和讨论
- 平时小实验（50%）
 - 实验过程交互、实验报告
- 期末大实验（30%）
 - 撰写选题报告和论文，并完成讨论



汇编语言在CS课程中的位置

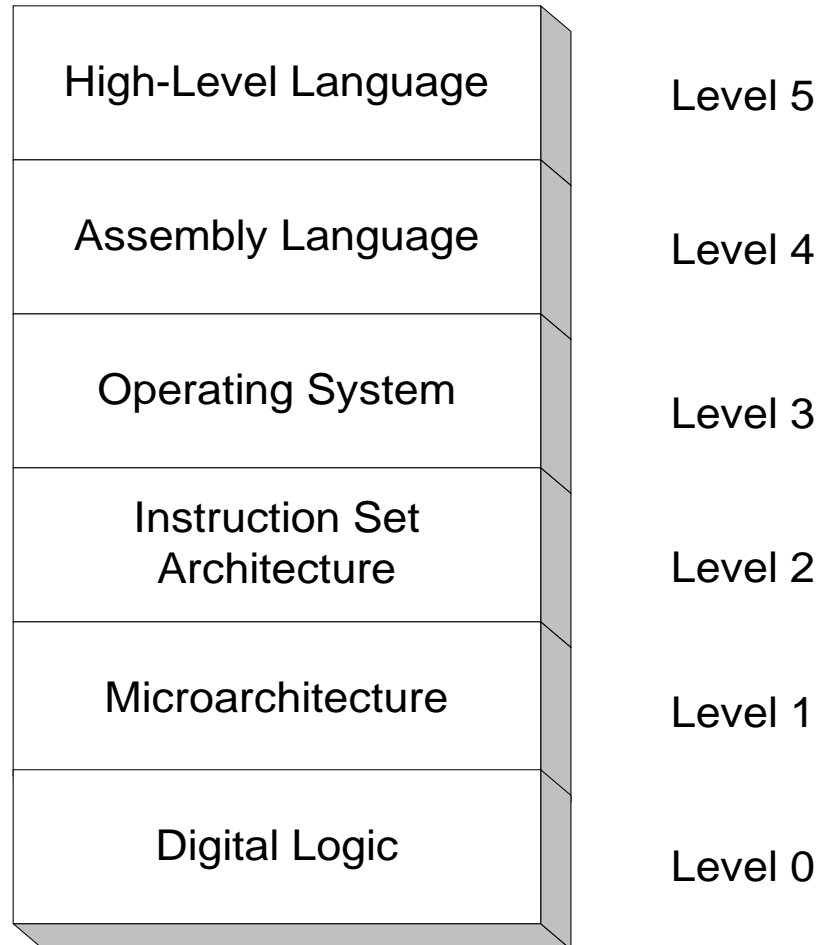




高级语言 vs 低级语言

- C++, python, java

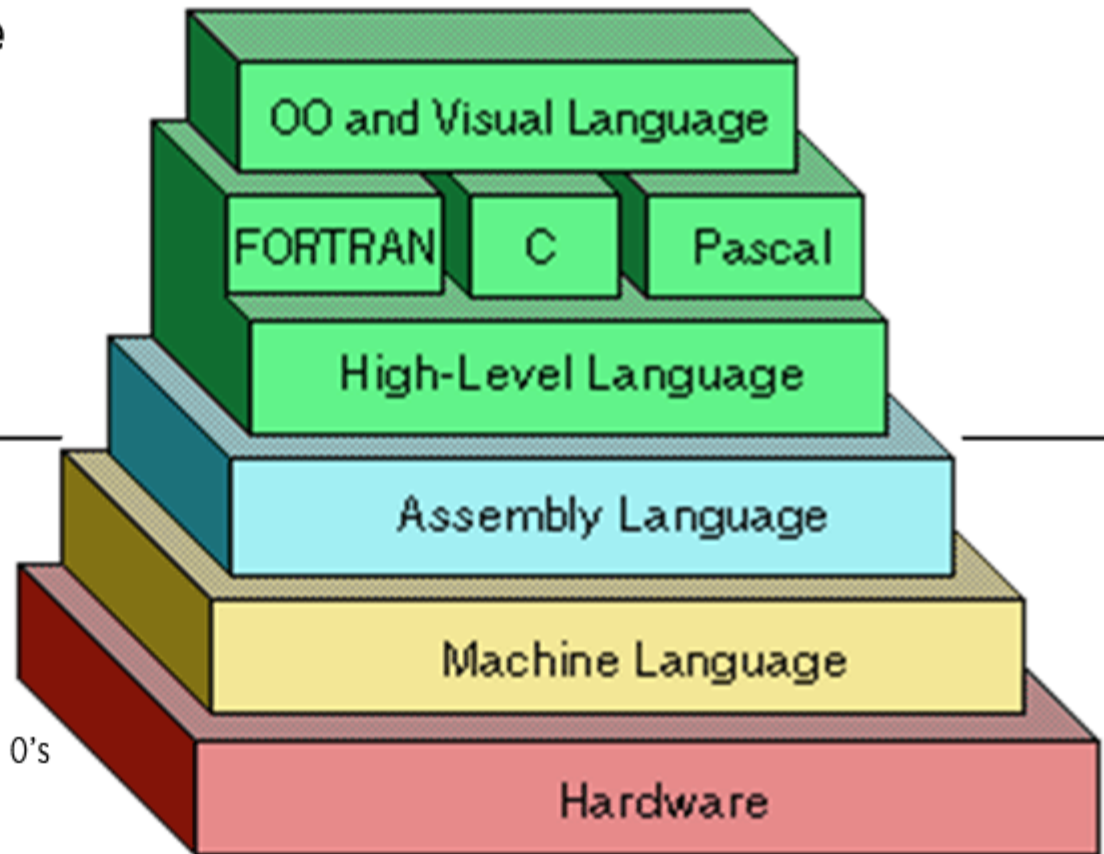






High Level Language

- Easy for Programmers to understand
- Contains English Words



Low Level Languages

- The computer's own Language
- Binary numbers, in 1's and 0's

justcode.me



高级语言 vs 低级语言

- **high-level programming language** is a programming language with strong abstraction from the details of the computer.
- **high-level programming language** deals with abstract computer science concepts
 - variables , arrays, objects
 - complex arithmetic or boolean expressions
 - subroutines and functions, loops, threads, locks, and other,



高级语言 vs 低级语言

- **low-level programming language** is a programming language that provides little or no abstraction from a computer's instruction set architecture—commands or functions in the language map closely to processor instructions.
- **low-level programming language** deals with
 - registers
 - memory addresses
 - call stacks,

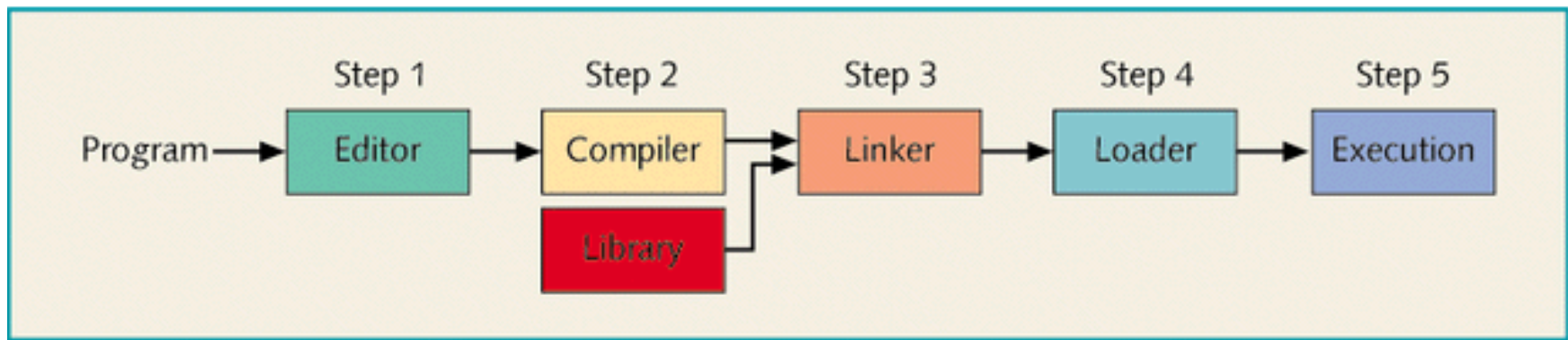


高级语言 vs 低级语言

- *Abstraction penalty* of High-level programming
 - far more operations than necessary,
 - higher memory consumption,
 - larger binary program size.
- For this reason, code which needs to run particularly quickly and efficiently may require the use of a lower-level language
 - critical portions of a program mostly in a high-level language can be hand-coded in assembly language,



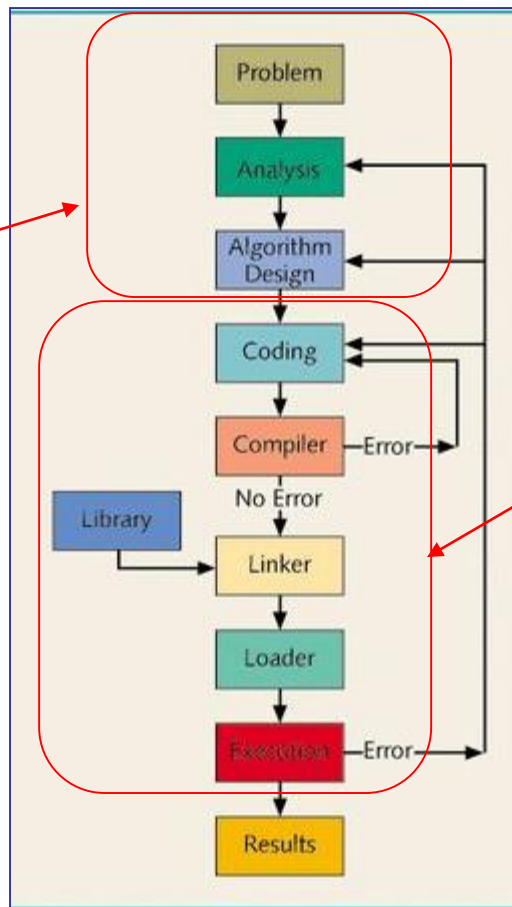
高级语言编程





设计-编码-执行

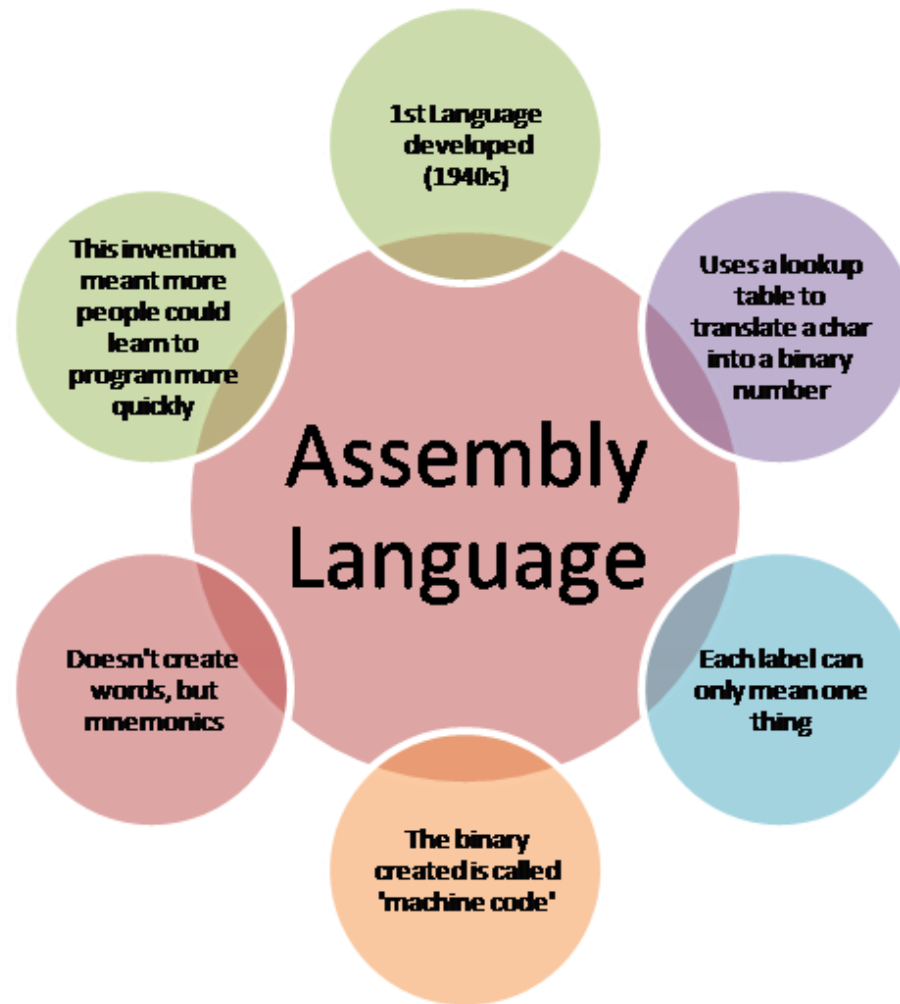
Analysis and algorithm design done apart from any specific programming language



Processing of the high-level language programming language

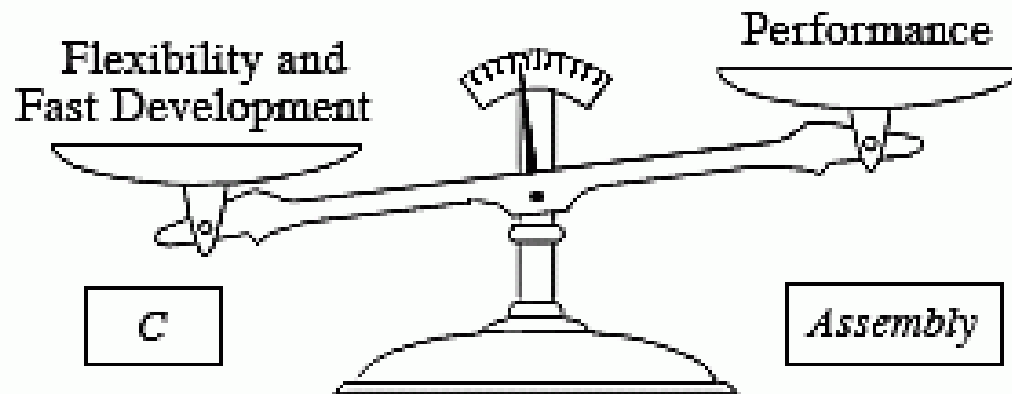


汇编语言的历史地位





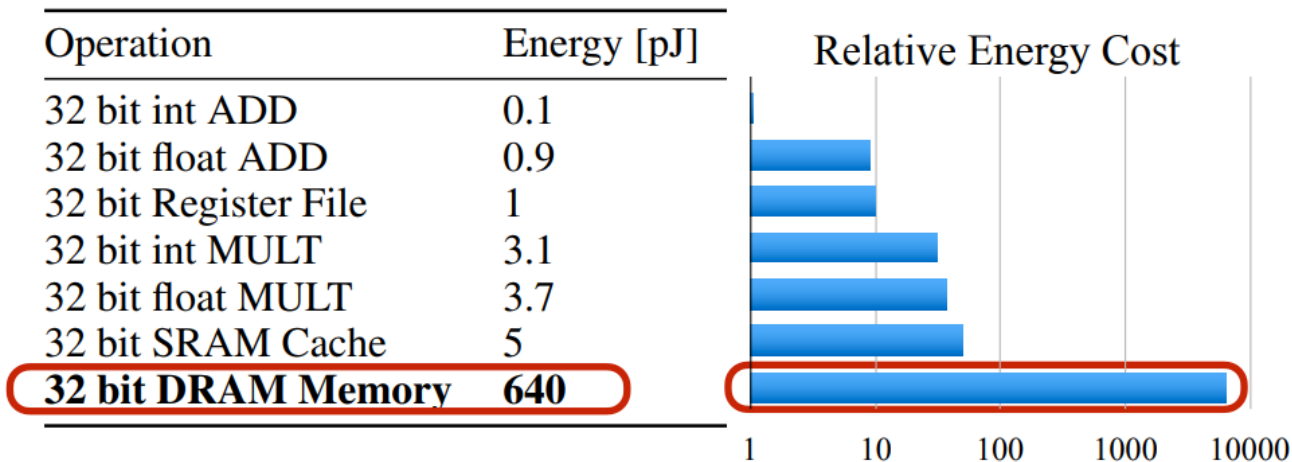
为什么还需要汇编语言？



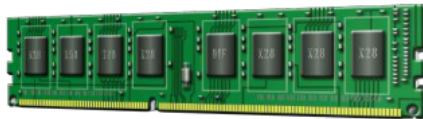


性能仅仅是指运行速度吗？

Where is the Energy Consumed?



1



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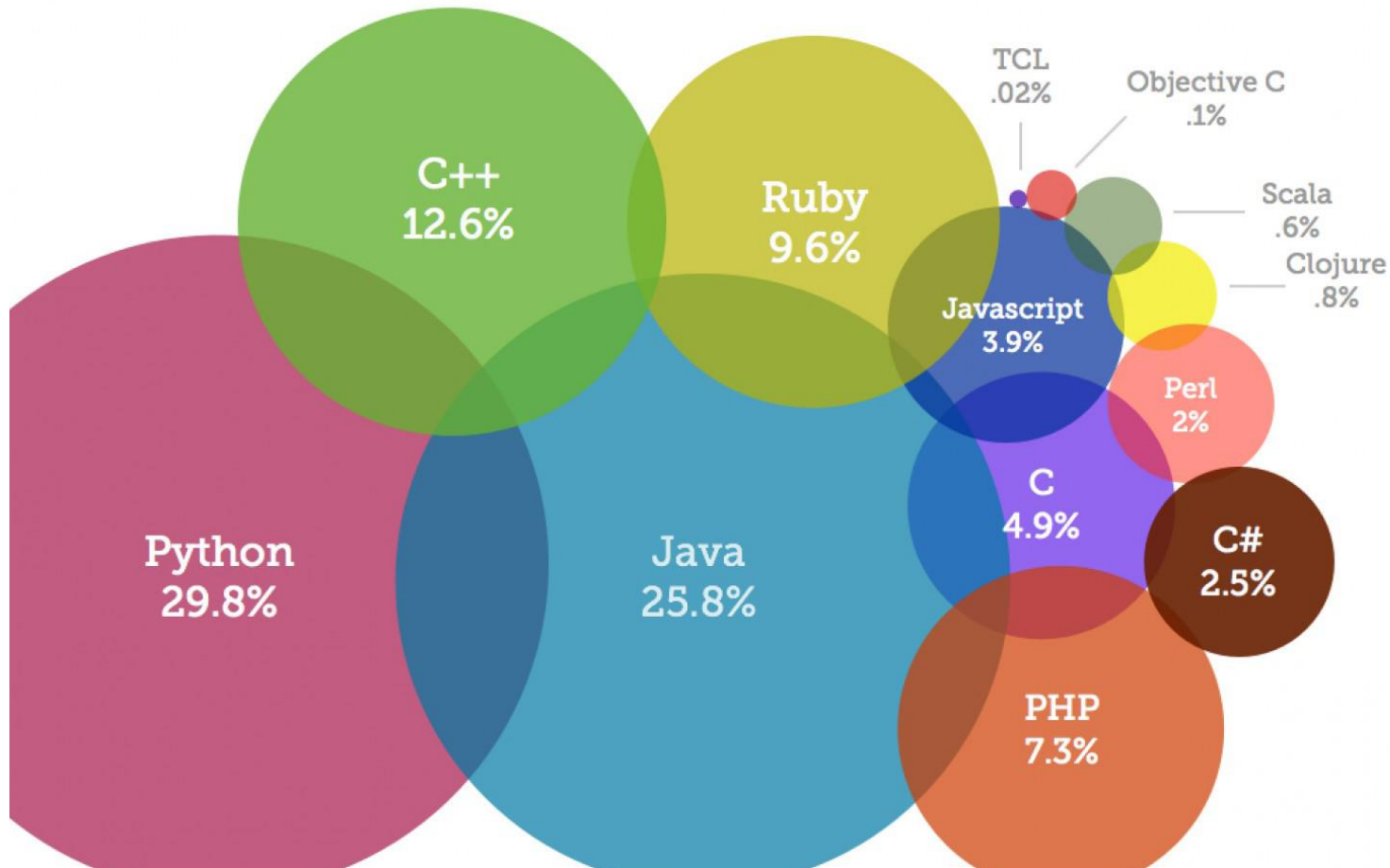
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编程语言流行排行榜

Most Popular Coding Languages of 2018

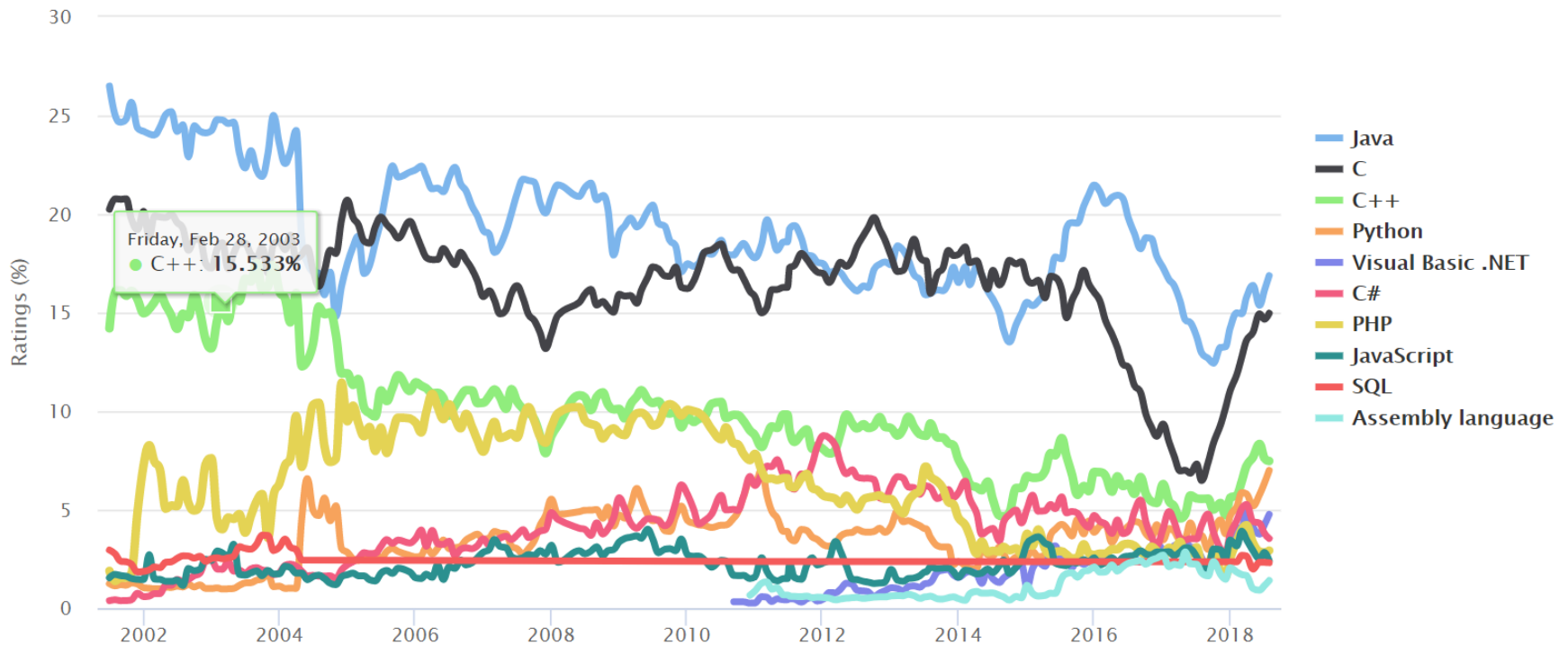




编程语言流行排行榜

TIOBE Programming Community Index

Source: www.tiobe.com





课程介绍

- 为什么选修本课程?
- 加入课程QQ群

