



Introduction to C++ (Season 1)

Unit 1: Overview of C++

第1单元：不识庐山真面目 - C++概览

Section 1 : About This Course

第1节：关于C++课程



"C++" and its father

❖ C++ == C Plus Plus == CPP

❖ Father of C++: Bjarne Stroustrup



The position of C/C++ in computer science



软件工程
设计模式
数据结构
C/C++

少林武学

葵花宝典

黑虎掏心

刀枪剑戟

武学体系

套路

招式

兵器

Background of this class

❖ Prerequisite courses (先修课)

■ 计算机专业导论

- 计算机基本结构
- 计算
- 布尔代数

■ C语言, C语言进阶

- 数据类型、运算符、表达式
- 分支、循环
- 函数
- 数组、结构体
- 指针

❖ Subsequent courses (后续课)

- 软件工程
- 面向对象开发实践













Which one is the best programming language?

❖ Father of C++: Bjarne Stroustrup

- There are only two kinds of programming languages: those people always bitch about and those nobody uses.
- 世上只有两种编程语言：一种是总是被人骂的，一种是从来没人用的。

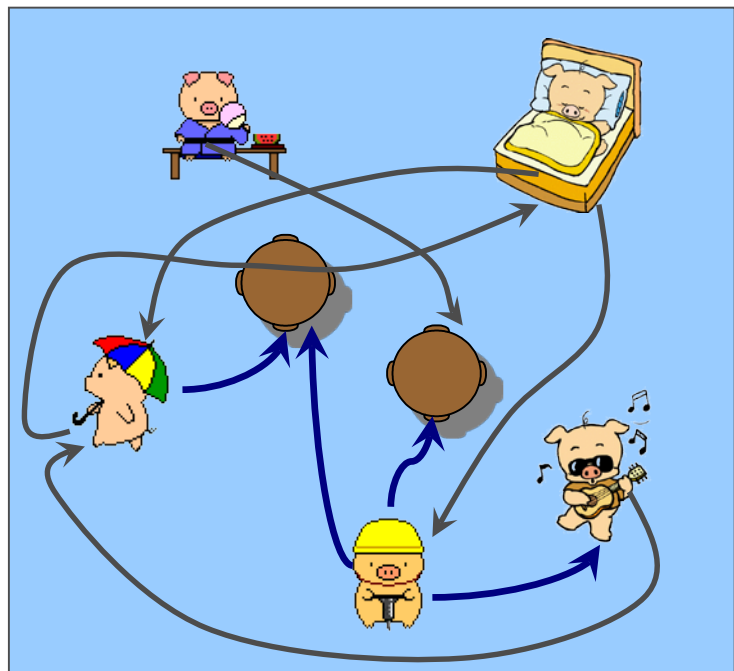
❖ 文无第一，武无第二

❖ 适用的就是最好的

 C++	 JavaScript
 Java/C#	 PHP(Without MySQL)
 Ruby	 Pascal
 Perl	 Lisp
 Visual Basic	 Haskell
 Python	 C

C vs C++: C Programming Language

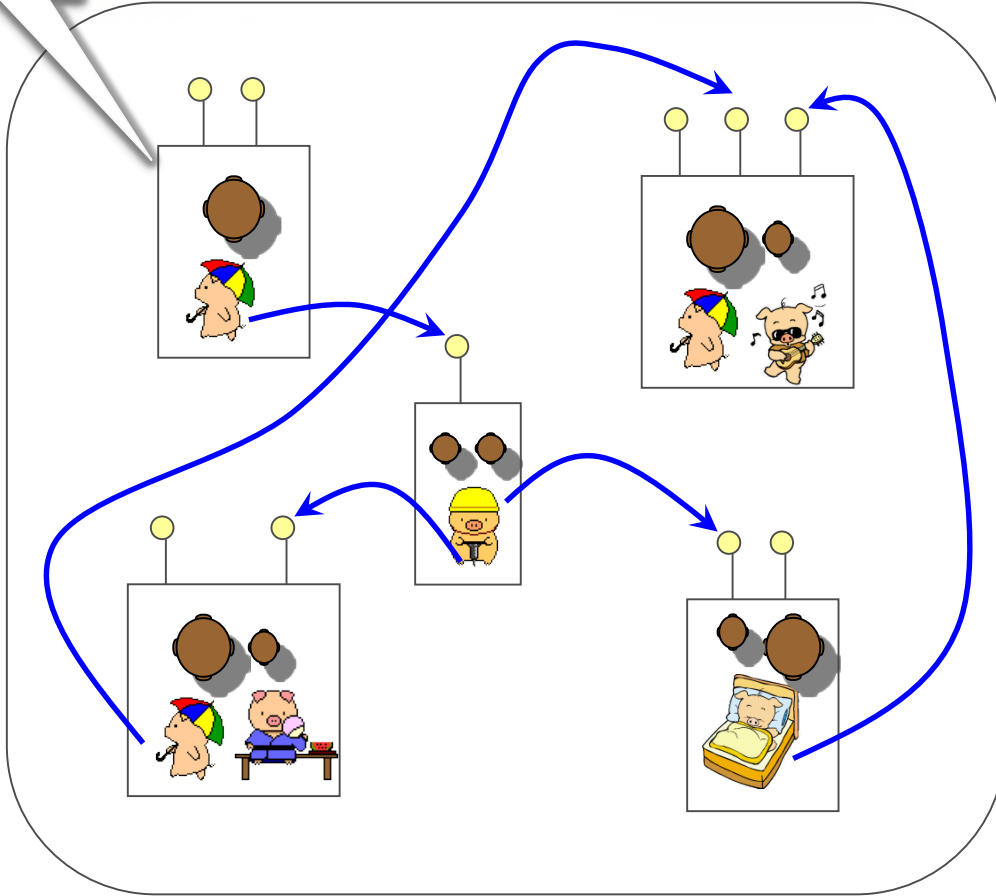
❖ Structured Programming (结构化编程)



C vs C++: C++ Programming Language

❖ Object-Oriented Programming (OOP, 面向对象编程)

Object



Advantages of OO

OOP can make programs easy to develop and easy to maintain.

面向对象编程使得开发和维护程序变得更加容易。

C vs C++: Some argues

❖ 2007年的八卦: Linus大骂C++

On Wed, 5 Sep 2007, Dmitry Kakurin wrote:

>

> When I first looked at Git source code two things struck me as odd:


> 1. Pure C as opposed to C++. No idea why. Please don't talk about portability,

> it's BS.

YOU are full of bullshit.

C++ is a horrible language. It's made more horrible by the fact that a lot of substandard programmers use it, to the point where it's much much easier to generate total and utter crap with it. Quite frankly, even if the choice of C were to do ***nothing*** but keep the C++ programmers out, that in itself would be a huge reason to use C.

❖ Bjarne对Linus的批评的评论

Bjarne: Linus Torvald is no C++ programmer, hasn't (to my knowledge) tried to use C++ for a decade, and then he used a truly crappy C++ compiler (which was so bad that I refused to use it for anything real). More importantly, he works in a highly specialized field: few programmers do kernel hacking  and some do that in C++.

C isn't simple: Please explain the rules for conversion from unsigned short to int. Note the need for workarounds for just about any modern or large-program technique.

关于C与C++孰优孰劣的争论很多，但与我们初学者关系不大。

因为这两门语言都在大规模使用。

再烂的语言也有牛人用，再牛的语言也有烂人用。

临渊羡鱼，莫如退而结网

部分高级语言的发展演化进程

C++ Standard (C++标准)

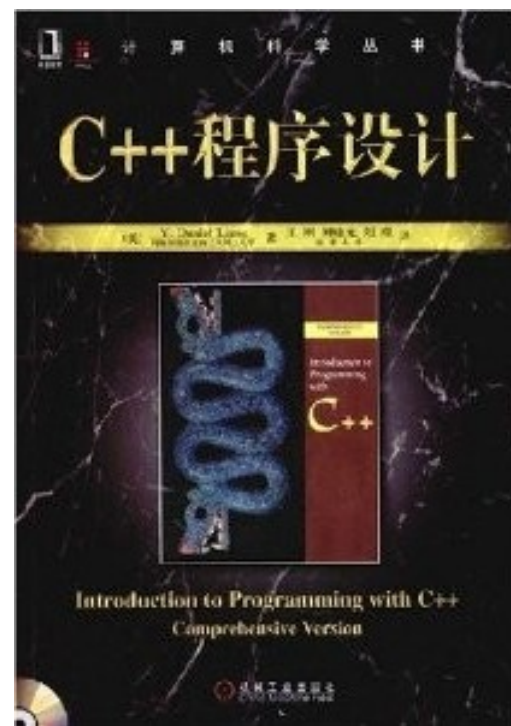
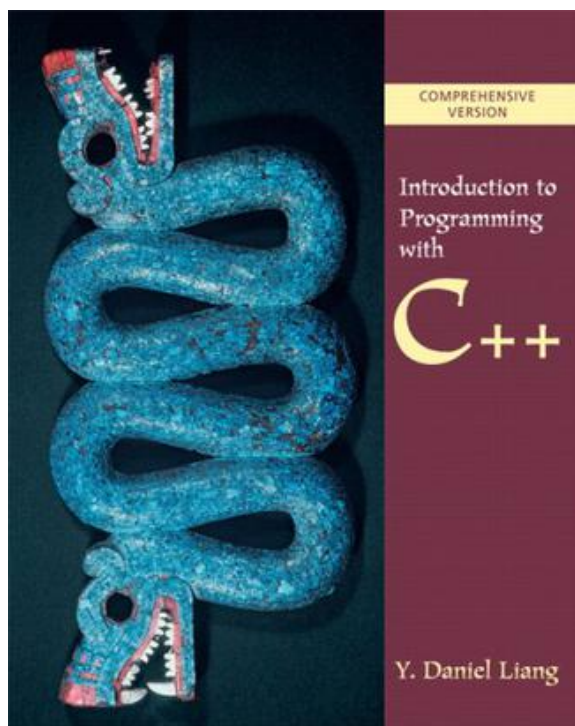
Year	C++ Standard	Informal name
2014	ISO/IEC 14882:2014	C++14
2011	ISO/IEC 14882:2011	C++11
2007	ISO/IEC TR 19768:2007	C++TR1
2003	ISO/IEC 14882:2003	C++03
1998	ISO/IEC 14882:1998	C++98

Textbook

1. 英文版: 《Introduction to Programming with C++》, 影印版, Y. Daniel Liang, 2008
2. 中文版: 《C++程序设计》, 梁勇, ISBN: 9787111240174, 2008

理念:
fundamentals-first

适于无任何基础的
初学者

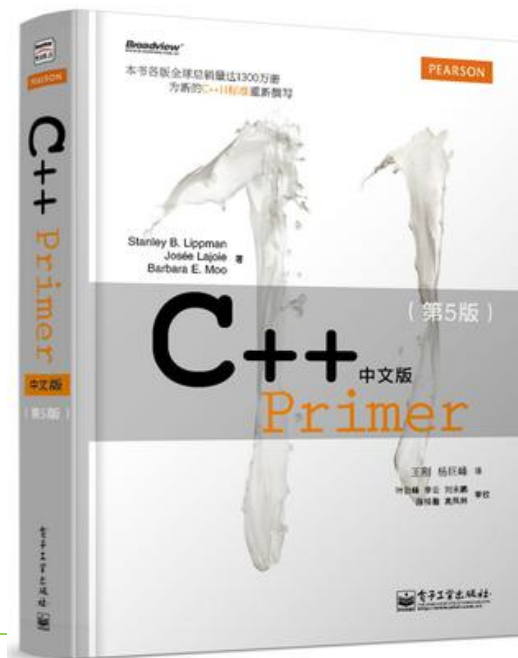
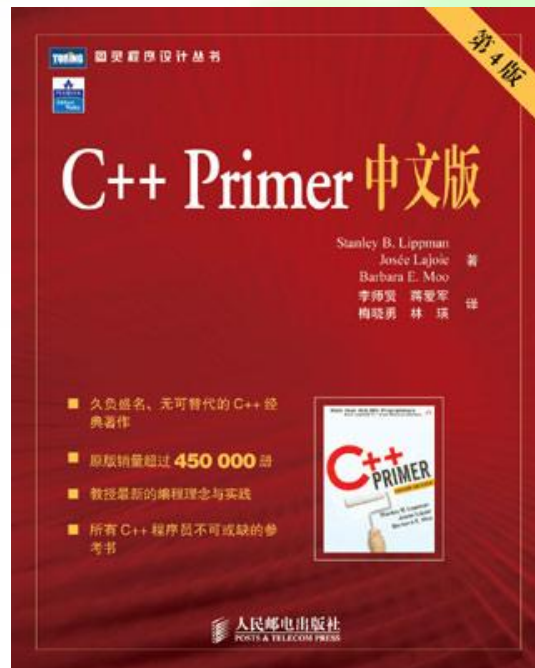


Reference books

❖ 另一种风格的入门书：《C++ Primer》

- 作者Stanley B. Lippman等
- C++大全，深度适当，适合自学
- 太厚(848)，很多读者半道出家去学java
- 第五版
 - 按C++11标准更新了内容
 - 示例均采用 C++11 标准改写

理念：
Object-Early



Other Books (新手入门后)

❖ *Thinking in C++* (中译: C++编程思想)

- 2nd edition, Volume 1, Bruce Eckel
- 免费电子版 (英文): <http://mindview.net/Books/TICPP/ThinkingInCPP2e.html>

❖ *Essential C++* (有中译本)

- 作者: Stanley B. Lippman
- 适于有编程基础的人

❖ *The C++ Programming Language*

- 作者: Bjarne Stroustrup
- 一本每个人都应该买但不一定要看的书
- 可以当字典用, 不适用于初学者

Other Books (学完本课程后)

❖ *The C++ Standard Library : A Tutorial and Reference*

- 作者：Nicolai M. Josuttis；译者：侯捷
- 工欲善其事，必先利其器：利用标准库，提高实作能力

❖ *Inside C++ Object Model*

- 作者：Lippman；译者：侯捷
- 从编译器的角度来探讨C++的实现方法和优缺点

Learning strategies (C++的学习策略)

- ❖ 主席说：要靠解决问题吃饭
 - ❖ Programing is NOT just syntax, classes. It's Problem Solving
-

- ❖ 主席说：要知道梨子的滋味，就要亲口尝一尝
 - ❖ Learn from examples, from practice, and from mistakes
 - 编程，测试，改bug
-

- ❖ 大大说：坚持实践、实践、再实践
- ❖ The trick of learning programing is practice, practice, and practice