C++ Basic course

群杜工作室

課程目的

- Learn the whole world of modern C++ including its object-oriented and non object-oriented features.

Modern C++

- The low-level language, largely inherited from C
- More advanced language features (class, template) that allow us to define our own data types and to organize large-scale programs and systems.
- The standard library (STL), which uses these advanced features to provide a set of useful data structures and algorithms
- **C++11/14** (2011/2014 C++ Standard)

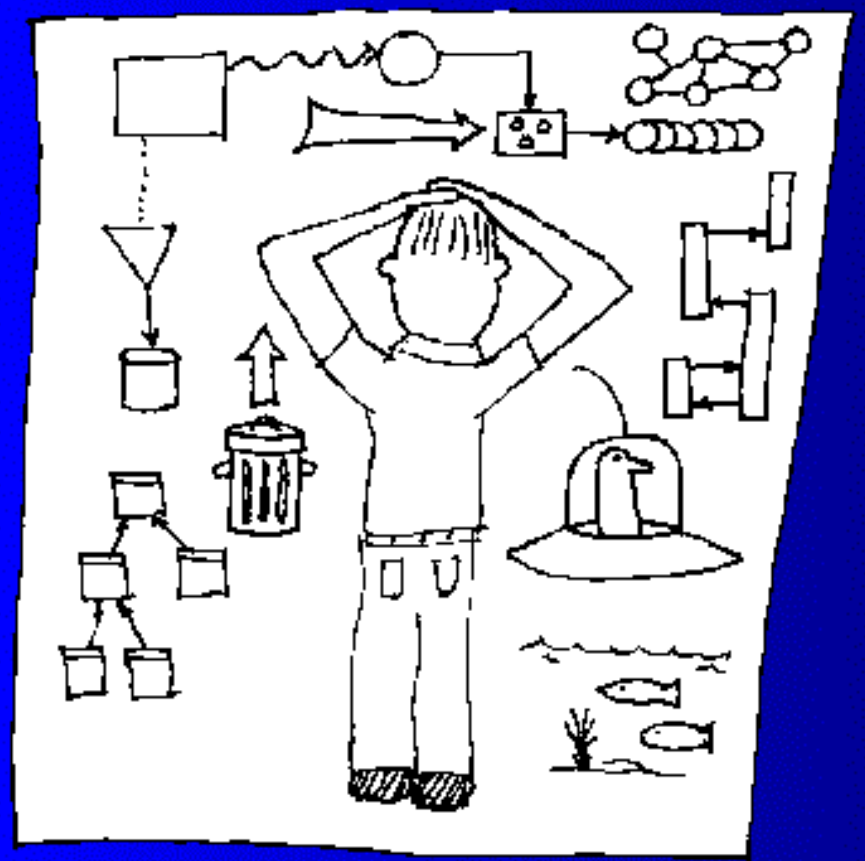
Why learning programming language?

- You learn it because it is fun!
- You learn programming language so you can **express your ideas** to **accomplish tasks with computers**.
- Our engineer runs on software and **programming is a way to reach out and change the world**.

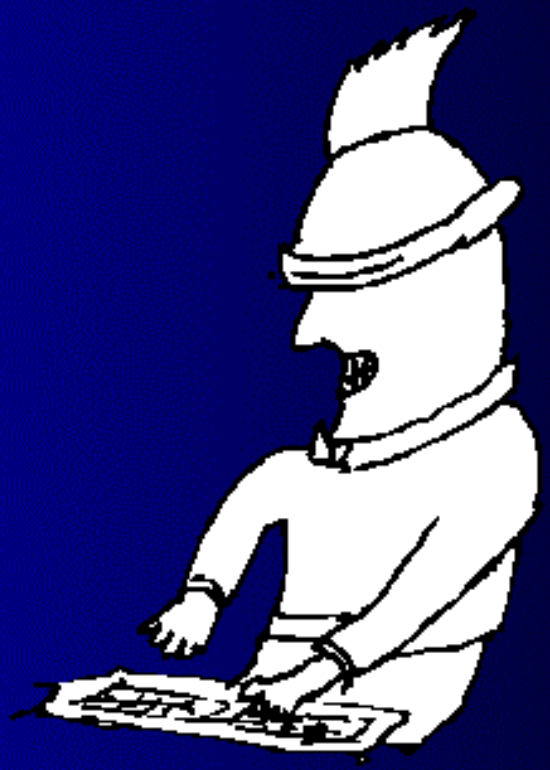
Why Learning C++?

- C++ supports key concepts and techniques used in real world applications.
- C++ poses the balance between elegancy and efficiency.
- C++ programming concepts can be used directly in other languages (C, C#, Fortran and Java).

Modern C++ 教學原則與方法



Class Creator



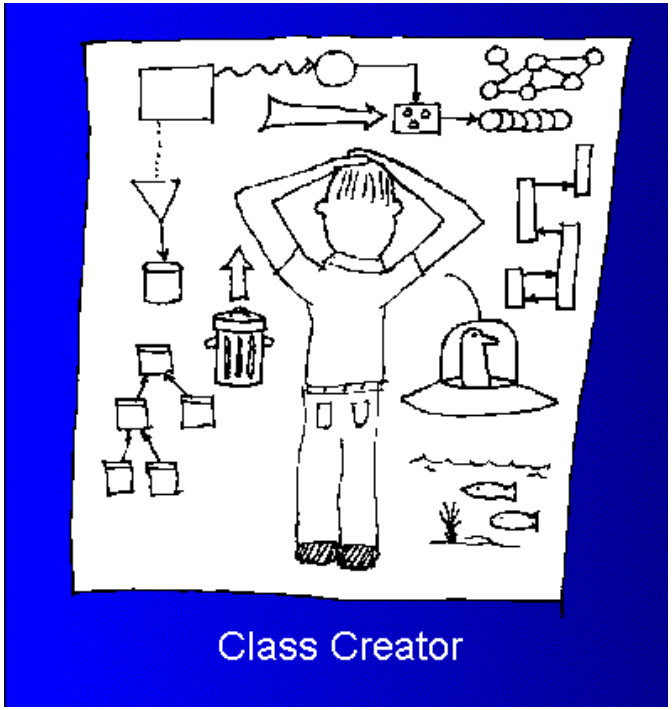
Class User
(Client Programmer)

Learning Objective

- Learn how to write C++ programs
- Learn how to use the abstractions from the library
- Imitate STL and understand how to build your own types

- Basics
- C++ Library (IO, Containers, Algorithms, Dynamic Memory)

Learning Objectives



- Learn how to write your own **types** in C++.

- Tools for Class Authors (Class, Operator Overloading, Object-Oriented, Template and Generic Programming)

Philosophical Note on Learning C++

- You need to understand the principles.
- You need to have your hands dirty to fully appreciate it.
- Skills come with practice!

本課程理想的進行方式

- Lecture (2hr/week)
- Lab (1hr/week)
- HW (/week)