

Introduction to Programming with C++

Chieh-Sen (Jason) Huang

Department of Applied Mathematics

National Sun Yat-sen University

INTRODUCTION TO
PROGRAMMING
WITH

The logo for C++ programming language, featuring a large blue 'C' followed by two blue '+' signs.

Third Edition

Contents are based on book by Y. Daniel Liang

Chapter 1

- Programming Languages
- Machine Language
- Assembly Language
- High-Level Language
- Interpreter
- Compiler
- The object-oriented programming language
- Preprocessor directive
- The header file
- Pound sign
- Angle bracket

- Parenthese
- Slash
- Brace
- Asterisk

Chapter 2

- Algorithm
- Pseudocode
- Prompt
- The integer data type
- The floating-point data type
- Assignment statements
- Assignment expressions
- Numeric literals
- Numeric operators
- Exponent operations

- Augmented assignment operators
- Increment and Decrement Operators
- Prefix and postfix
- Numeric Type Conversions

Chapter 3

- The bool Data Type
- logical negation
- logical conjunction
- logical disjunction
- The switch statement
- The conditional expressions
- Operator Precedence
- & ampersand
- ! exclamation mark
- | vertical bar, pipe

Chapter 4

- The character data type
- The character literal
- The string literal
- ASCII Code
- Stream manipulator

Chapter 5

- Loop
- For-loop
- Nested loops
- While loops
- Sentinel-controlled loop.
- goto

Chapter 6

- Preprocessor
- Function
- Void function
- Invoke or call a function
- Activation record
- Call stack
- Execution stack
- Runtime stack
- Machine stack
- Function Prototypes (Declaration)

- Inline function
- Modularizing Code
- Overloading Functions
- Local variable
- Global variable
- Static local variable
- Pass by value
- Pass by reference

Chapter 9

- instance
- constructor
- Binary scope resolution operator
- Data Field Encapsulation
- class encapsulation

Chapter 10

- defensive programming