

C++ Tutorial

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Development Cycle

(Makefile)

1. Compiling and linking
2. Applications
3. Dynamic Shared Objects

1. Program Structure

1. basic structure (01_structure.cc)
2. namespaces
3. using DSOs (02_app.cc)

2. Types

(03_types.cc)

1. int, float, double, short, long, char, bool
2. enum, struct
3. strings
4. vectors
5. pointer
6. reference (&) and deference operator (*)

3. Operators

(04_operators.cc)

1. arithmetic: +, -, *, /, %, -=, +=, /=, ++, --
2. relational: ==, !=, >, <, >=, <=
3. logical: !, &&, ||
4. bitwise: &, |, ^, ~, <<, >>
5. conditional (condition) ? a : b

4. Controls

(05_controls.cc)

1. if
2. while
3. for
4. do .. while
5. switch

(06_argc_argv.cc)

5. Basic I/O

(07_io.cc)

1. cout, cin
2. fstream, getline, stringstream, sprintf

6. Functions

(08_functions.cc)

1. declaration vs. implementation
2. global and local scope
3. by reference, by value, by pointer
4. default values
5. overloaded functions
6. inline

7. Dynamic Memory

(09_memory.cc)

1. new type

2. new type [#elements]
3. delete pointer
8. **Object Oriented Programming** (10_classes.cc)
 1. class, object, this pointer (11_classes.cc)
 2. constructor, destructor (12_classes.cc)
 3. methods (13_classes.cc)
 4. overloaded methods (14_classes.cc)
 5. static methods
 6. private, protected, public
 7. inheritance, initialization list
 8. polymorphism (virtual methods, virtual destructor)
 9. abstract base class (pure virtual method)

9. Templates (15_templates1.cc)
 1. function templates (16_templates2.cc)
 2. template classes
 3. template specialization
10. Standard Template Library (STL) (17_stl.cc)
 1. vector
 2. list
 3. pair
 4. map
 5. algorithm (copy, random_shuffle)
11. Exceptions (18_exception.cc)