**Chapter 2: *Basic Elements of C++***

Introduction: Computer Program / Programming / Programming language

A C++ Program

Processing a C++ Program: Editor / Preprocessor / Compiler / Linker / Loader / Execute

The Problem Analysis–Coding–Execution Cycle

The Basics of a C++ Program: Function / Syntax / Semantic rule

Comments: Single line / Multiple line

Whitespaces

Tokens

Special Symbols and Reversed Words

Identifiers

Data Types: Integral / Floating-point / Enumeration type

Arithmetic Operations

Order of Precedence

Expressions: Integral expression / Floating-point expression / Mixed expression

Type Conversions (Casting): Promotion / Typecasting / Implicit type coercion (promotion) / Cast operator (typecasting)

String Type

Input

Allocating Memory with Constants and Variables

Named constant

Variable

Putting Data into Variables

Assignment statement: Syntax/Assignment operator/Increment operator (++)/Decrement operator (--)/ Compound assignments/Pre-increment (++variable)/Post-increment(variable++)

Relational Operators

Logical Operations

Order of Precedence of Common Operators

Input (Read) statement: stream extraction operator

Output: stream insertion operator/manipulator/escape sequences

Preprocessor Directives: header file

Creating a C++ Program

A Quick Look at a C++ Program

Prevent the Console from Closing

Program Style and Form

Use of Whitespaces

Form and Style

Documentation

Prompt Lines

Naming Identifiers: self-documenting/run-together words

Use of Semicolons, Brackets, and Commas

Debugging - Understanding and Fixing Syntax

Errors

Syntax

Semantics

Example: Convert Length

Example: Make Change

Exercises with Numbers

Exercises with Strings