

# Recommended Practice Programming Problems from Gaddis

## Basic C++:

- Chapter 2, Introduction to C++, Programming Challenges:
  - 1 Sum of Two Numbers
  - 2 Sales Prediction
  - 3 Sales Tax
  - 4 Restaurant Bill
  - 5 Average of Values
- Chapter 3, Expressions and I/O, Programming Challenges:
  - 1 Miles per Gallon
  - 2 Stadium Seating
  - 3 Test Average
  - 4 Average Rainfall
  - 5 Male and Female Percentages
  - 6 Ingredient Adjuster
  - 7 Box Office
  - 12 Celsius to Fahrenheit.
- Chapter 4, Making Decisions, Programming Challenges:
  - 1 Minimum/Maximum
  - 2 Roman Numeral Converter
  - 3 Magic Dates
  - 4 Areas of Rectangles
  - 5 Body Mass Index
  - 12 Software Sales, Format the output to two decimal points of precision.
- Chapter 5, Loops and Files, Programming Challenges:
  - 1 Sum of Numbers
  - 3 Ocean Levels
  - 4 Calories Burned
  - 5 Membership Fees Increase
  - 6 Distance Traveled
  - 12 Celsius to Fahrenheit Table
  - 13 The Greatest and Least of These
  - 16 Savings Account Balance

## **Functions, Arrays & Structs:**

- Chapter 6, Functions, Programming Challenges:
  - 1 Markup
  - 3 Winning Division
  - 5 Falling Distance
  - 7 Celsius Temperature Table
  - 11 Lowest Score Drop
- Chapter 7, Arrays, Programming Challenges:
  - 1 Largest/Smallest Array Values
  - 2 Rainfall Statistics
  - 3 Chips and Salsa
  - 4 Larger Than n
  - 10 Drivers License Exam
- Chapter 11, Structs, Programming Challenges:
  - 1 Movie Data
  - 2 Movie Profit
  - 3 Corporate Sales Data
  - 4 Weather Statistics
  - 6 Soccer Scores

## **Searching & Sorting:**

- Chapter 8, Searching and Sorting Arrays, Programming Challenges:
  - 2 Lottery Winners
  - 3 Lottery Winners Modification
  - 8 Search Benchmarks
  - 9 Sorting Benchmarks
  - 10 Sorting Orders

## **Pointers:**

- Chapter 9, Pointers, Programming Challenges:
  - 1 Array Allocator
  - 2 Test Scores #1
  - 3 Drop Lowest Score.
  - 5 Pointer Rewrite
  - 8 Mode Function
  - 10 Reverse Array
  - 11 Array Expander

## Classes:

- Chapter 13, Introduction to Classes, Programming challenges:
  - 1 Date
  - 2 Employee Class
  - 3 Car Class
  - 4 Personal Information Class
  - 7 TestScores Class
  - 8 Circle Class
  - 10 Number Array Class
    - add a **copy constructor** that allocates a NEW array and copies the values from the copy constructor's argument.
  - 11 Payroll

## Linked Lists:

- Chapter 18, Linked Lists, Programming Challenges:
  - 1 Your own linked list (or use NumberList for this)
  - 2 List Print (or use NumberList)
  - 3 List Copy Constructor
  - 5 List Search
  - 6 Member Insertion by Position
  - 7 Member Removal by Position
  - 15 pop and push member functions

## Stacks & Queues:

- Chapter 19, Stacks and Queues, Programming Challenges:
  - 6 Dynamic String Stack
  - 9 File Reverser
  - 12 Inventory Bin Stack
  - 14 Balanced Parentheses ()