1 Introduction

- 1.1 Recreational Programming
- 1.2 Programming Contests
- 1.3 Programming Sites
- 1.4 Purpose of This Book
- 1.5 Tips
- 1.6 Example Problems

2 Programming Environment

- 2.1 C++
- 2.1.1 Setup
- 2.1.2 Strengths and Weaknesses
- **2.2** Java
- 2.2.1 Setup
- 2.2.2 Strengths and Weaknesses
- 2.3 Python
- 2.3.1 Setup
- 2.3.2 Strengths and Weaknesses
- 2.4 Other
- 2.4.1 C
- 2.4.2 Pascal
- 2.4.3 Kotlin
- 2.5 Text Editors

- 3 Algorithm Analysis
- 3.1 Big-O Notation
- 3.2 Runtime Complexity
- 3.3 Space Complexity
- 3.4 Precision
- 3.4.1 Integer Types
- 3.4.2 Floating Point Types

4 Problem Analysis

- 4.1 IO Formats
- 4.1.1 Interactive IO
- 4.2 Problem Solving
- 4.3 Reading Comprehension
- 4.4 Debugging

5 Foundational Data Structures

- 5.1 Arrays
- 5.1.1 Dynamic Arrays
- **5.2** Sets
- 5.3 Maps
- 5.4 Sequential Structures
- 5.4.1 Stack
- **5.4.2** Queue
- **5.4.3** Deque
- 5.4.4 Priority Queue

6 Foundational Algorithms

- 6.1 Sorting
- 6.2 Searching

7 Iterative Problems

- 7.1 Brute-Force
- 7.2 Simulation
- 7.3 Two-Pointers
- 7.4 Sliding Window
- 7.5 Constructive
- 8 Greedy Problems
- 9 Dynamic Programming Problems
- 10 Advanced Data Structures
- 10.1 Range-based Structures
- 10.1.1 Fenwick Tree / BIT
- 10.1.2 Segment Tree

11 String Problems

- 11.1 String Concepts
- 11.1.1 Anagrams
- 11.1.2 Palindromes
- 11.1.3 Prefixes
- 11.1.4 Suffixes
- 11.2 Pattern Matching
- 11.2.1 Regex
- 11.2.2 Z-Algorithm
- 11.2.3 Knuth-Morris-Pratt
- 11.2.4 Boyer Moore
- 11.2.5 Aho Corasick
- 11.3 Subsequence Matching
- 11.4 Hashing
- 11.5 Distance
- 11.5.1 Diff
- 11.5.2 Levenshtein

12 Graph Problems

- 13 Number Theory Problems
- 14 Combinatorics Problems
- 15 Geometry Problems
- 16 Statistics Problems
- 17 Game Theory Problems

Hello World!

Print out Hello World!

Input

There is no Input

Output

Output is a single string, Hello World!

Constraints

Time Limit: 1 second Memory Limit: 1024 mb

Samples

Input: Output:

No Input Hello World!

The solution in various languages look like this:

```
#include <iostream>
using namespace std;
int main() {
   cout « "Hello World!";
}
```

```
class Driver {
    public static void main(String[] args) {
        System.out.println("Hello World!");
    }
}
```

```
print('Hello World!')
```