

# Computing IV Book

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**Part I**

**Data Structures**



# Chapter 1

## Iterators





## Chapter 2

### String



## Chapter 3

### **vector (Array List)**



## Chapter 4

### **list** (Linked List)



## Chapter 5

### stack





## Chapter 6

### queue



## Chapter 7

### deque



## Chapter 8

### set (Tree Set)



## Chapter 9

### map (Tree Map)





## Chapter 10

### `unordered_set` (Hash Set)



## Chapter 11

### `unordered_map` (Hash Map)



## Chapter 12

### `bitset`



# Part II

# Utilities





## Chapter 13

# Unit Testing



## Chapter 14

# Smart Pointers



## Chapter 15

# Function Pointers



## Chapter 16

# Lambda Expressions





## Chapter 17

`<algorithm>`



## Chapter 18

# Exceptions



## Chapter 19

**<chrono>**



## Chapter 20

<random>





## Chapter 21

`<regex>`



## Chapter 22

## Time



## Chapter 23

# Threads



**Part III**

**Design Patterns**





## Chapter 24

# Factory Method



## Chapter 25

# Observer



## Chapter 26

## Adapter



## Chapter 27

# Decorator





## Chapter 28

# Model-View-Controller



**Part IV**

**Miscellaneous**



## Chapter 29

# Makefiles



## Chapter 30

# Valgrind





## Chapter 31

# GDB



## Chapter 32

# Top-Down Design



## Chapter 33

# Operator Overloading



## Chapter 34

# Templates





## Chapter 35

# Dynamic Programming



## Chapter 36

# Defensive Programming