

# TypeScript Algorithms

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# Chapter 1

## Introduction

In-progress book about algorithms and data structures in TypeScript.

## Chapter 2

# Algorithms and Data Structures

### 2.1 Algorithm Analysis

### 2.2 Bits

#### 2.2.1 Bit Parity

#### 2.2.2 Bit Shift Operator

### 2.3 Recursion

#### 2.3.1 Fibonacci Sequence

$$fib_n = fib_{n-2} + fib_{n-1}$$

# Chapter 3

## Domain Specific

### 3.1 Language

#### 3.1.1 This

#### 3.1.2 Event Loop

#### 3.1.3 Asynchronous Programming

##### 3.1.3.1 Promises

##### 3.1.3.2 Async/Await

#### 3.1.4 Runtime Environments

##### 3.1.4.1 Browser

##### 3.1.4.2 Server

# Chapter 4

# Appendix

## 4.1 Resources

- LeetCode
- Project Euler
- The Algorithm Design Manual
- Elements of Programming Interviews

## 4.2 Contributing

### 4.2.1 Getting Started

#### 4.2.1.1 Run Problem Tests

- Install Node Version Manager
- `yarn setup`
- `yarn test --all`

#### 4.2.1.2 Compile Book

- Install Pandoc (Homebrew)
- Install BasicTeX (Homebrew)

- `Install fswatch` (Homebrew)
- `make book`
- `open book/output/index.pdf`

### 4.2.2 Commands

| Command   | Description  |
|---|--|
| <code>yarn setup</code>                             | Setup local development environment                      |
| <code>yarn test</code>                              | Run tests  |
| <code>yarn</code><br><code>gen:leetcode</code>      | Generate new LeetCode problem                            |
| <code>yarn</code><br><code>gen:project-euler</code> | Generate new Project Euler problem                       |
| <code>make book</code>                              | Compile book to various formats                          |
| <code>make watch</code>                             | Recompile book automatically when<br>source files change |