Unwired Learning

Complete Data Structures and Algorithms

(Learning Path Curriculum)

Doubt in mind?
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(Check Page 24 For Certificate information)

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Level - 1

Data Structures and Algorithms Concepts: The Complete Bootcamp 🔗

Course Introduction

- Course Introduction
- Welcome - Let's Get Started!
- Curriculum Walkthrough
- Code Source - Github

Big O Notation

- Section Introduction
- Complexity Analysis
- Why We Need Big O Notation?
- Big O(n) Complexity
- Big O(1) Complexity
- Counting Operations
- Simplifying Big O - Part 1
- Big $O(n^2)$ Complexity
- Simplifying Big O - Part 2
- Big O(n!) Complexity
- Space Complexity
- Space Complexity - II
- Section Summary

Essential Concepts - I

- Memory
- Logarithm

Data Structure - Introduction

- Introduction to Data Structures

Data Structures - Array

- Array Introduction
- Array - Common Operations I

Data Structures - Linked List

Data Structures - Stack and Queue

Data Structures - Hash Tables

Data Structures - Trees

Data Structures - Heaps

Data Structures - Trie

Data Structures - Graph

Essential Concepts - II

- What is Recursion?
- Recursion: Control of a Function
- Recursion: Tracing Tree
- Recursion: Understanding Call Stack
- Recursion: Tree Recursion
- Recursion Example - Factorial of a Number

Algorithm: Searching

- Linear Search
- Binary Search
- Binary Search Complexity
- Binary Search Implementation
- Binary Search Implementation - Recursion

Algorithm: Sorting Elementary

- Sorting Algorithm Introduction
- Bubble Sort
- Bubble Sort Visualization
- Bubble Sort Implementation
- Bubble Sort Complexity
- Selection Sort
- Selection Sort Visualization
- Selection Sort - Implementation
- Selection Sort - Complexity
- Insertion Sort
- Insertion Sort Implementation
- Insertion Sort Complexity
- Performance Analysis

Algorithm: Sorting Advanced

- Divide and Conquer Algorithms
- Quick Sort
- Quick Sort Complexity
- Quick Sort Implementation
- Merge Sort

Algorithms: Tree Traversal

Algorithms: Graph Traversal

Implementations and Interview Questions

Question 1: Two Sum

Question 2: Min Stack

Question 3: Max Stack

- Solution: Max Stack

Question 4: Design a Linked List

- Design a Linked List - I
- Design a Linked List - II
- Design a Linked List - III
- Design a Linked List - IV
- Solution: Design Linked List

Question 5: Reverse Linked List

- Reverse Linked List - I
- Reverse Linked List - II
- Solution: Reverse Linked List

Question 6: Construct Binary Tree

- Traversal (Preorder-Inorder-Postorder)
- Construct BT: From Preorder and Inorder Traversal - I
- Construct BT: From Preorder and Inorder Traversal - II
- Solution: Construct Binary Tree PI

Question 7: Invert Binary Tree

- Invert Binary Tree - I
- Invert Binary Tree - II
- Solution: Invert Binary Tree

Question 8: Construct Binary Search Tree

- Construct BST: From Preorder Traversal
- Construct BST: From Preorder Traversal - II
- Solution: Construct Binary Search Tree

Question 9: Detect Capital

- Detect Capital
- Solution: Detect Capital

Question 10: Reverse String

- Reverse String
- Solution: Reverse String

Question 11: Longest Palindromic Substring

- Longest Palindromic Substring - I
- Longest Palindromic Substring - II
- Solution: Longest Palindromic Substring

Course Completion Certificate 🎓

- Data Structures and Algorithms: The Complete Bootcamp 🏆

Level - 2

Data Structures and Algorithms: Ace Interviews With Leetcode & Blind 75+ 🔗

Introduction

- Introduction
- Welcome to the Course
- Resources / Speed / Recommendations
- Resources

Arrays, String: Manipulation & Hashing

- Two Sum
- Contains Duplicate
- Valid Anagram
- Group Anagrams
- Top K Frequent Elements
- Is Subsequence
- Longest Consecutive Sequence
- Product of Array Except Self

Arrays, String: Two Pointers

- Valid Palindrome
- Two Sum II - Input Array is Sorted
- 3Sum
- Container With Most Water

Arrays, String: Sliding Window

- Maximum Average Subarray
- Best Time to Buy and Sell Stock
- Longest Repeating Character Replacement
- Longest Substring Without Repeating Characters
- Minimum Window Substring

Linked List: Fast & Slow Pointers

- Middle of the Linked List

- Linked List Cycle
- Linked List Cycle II
- Reverse Linked List
- Reorder List
- Remove Nth Node From End of List
- Merge Two Sorted Lists
- Merge k Sorted Lists

Stack

- Valid Parentheses
- Daily Temperatures

Binary Search

- Binary Search
- Find Minimum in Rotated Sorted Array
- Search in Rotated Sorted Array

Trees: DFS / BFS

- Invert Binary Tree
- Maximum Depth of Binary Tree
- Same Tree
- Subtree of Another Tree
- Lowest Common Ancestor of a Binary Search Tree
- Binary Tree Level Order Traversal
- Validate Binary Search Tree
- Kth Smallest Element in a BST
- Construct Binary Tree from Preorder and Inorder Traversal
- Binary Tree Maximum Path Sum
- Serialize and Deserialize Binary Tree

Backtracking

- Combination Sum
- Word Search

Tries

- Implement Trie (Prefix Tree)

- Design Add and Search Words Data Structure
- Word Search II

Heap: Priority Queue

- Find Median from Data Stream

Graph: DFS / BFS / Union Find

- Number of Islands
- Clone Graph
- Pacific Atlantic Water Flow
- Graph Valid Tree
- Number of Connected Components in an Undirected Graph
- Course Schedule
- Alien Dictionary

Dynamic Programming: Memoization / Tabulation

- Fibonacci Number
- Coin Change
- Climbing Stairs
- House Robber
- House Robber II
- Palindromic Substrings
- Longest Palindromic Substring
- Maximum Product Subarray
- Decode Ways
- Word Break
- Longest Increasing Subsequence
- Longest Common Subsequence
- Unique Paths

Greedy

- Boats to Save People
- Maximum Subarray
- Jump Game

Merge Intervals

- Merge Intervals
- Insert Interval
- Non-overlapping Intervals
- Meeting Rooms
- Meeting Rooms II

Matrix

- Rotate Image
- Spiral Matrix
- Set Matrix Zeroes

Binary: Bit Manipulation

- Counting Bits
- Missing Number
- Number of 1 Bits
- Reverse Bits
- Sum of Two Integers

Course Completion Certificate 🎓

- Data Structures and Algorithms: Ace Interviews With Leetcode & Blind 75+ 🏆

Certificate Information

1. The complete roadmap is divided into 2 different levels according to concepts and projects.

2. Each level is independent,

Level 1 - Data Structures and Algorithms Concepts: The Complete Bootcamp 🏆

Level 2 - Data Structures and Algorithms: Ace Interviews With Leetcode & Blind 75+ 🏆

Here ‘*trophy emoji* ’ represents a certificate.

3. You will get access to certificates instantly after completing the course lectures.

4. For more information about topics, projects and course flow, check the individual course page.