

Review

What we have covered

- Recursion
- DFS
- BFS
- Dynamic Programming
- Tree, Trie
- Stack, Queue
- Heap
- HashMap
- Sort
- Bit Manipulation
- Graph & Topology Sort
- OO & System Design

Recursion & DFS

Find Sub-problems

Is it || or &&?

Watch out for the edge case and exit

Is Recursion the best way?

BFS

When to push items into queue?

Avoid null into queue

DFS for helping backtracking results

Tree & Trie

How to traverse

Remember the structure properties

Go with BFS/DFS

BST -> Balanced BST

Dynamic Programming

What is the sub-optimal structure?

Deduction equation

Space complexity

Stack & Queue

Increasing & Decreasing Stack
Sometimes you need to push index

Heap

When you do not care about the inside details
top K results -> Heap
Comparator and Comparable

HashMap

Hash Function & Collision

HashSet? TreeSet?

HashMap + DFS/ArrayList?

Sort

Remember the similarity and difference

Bucket Sort

In-place Sort

`Collections.sort` and `Arrays.sort`

Bit Manipulation

Small tricks

XOR

Single Number

Graph & Topology Sort

DAG

BFS/DFS

OO & System Design

- Clarify the question
- Start with main objects
- Try link them up
- Action with examples
- Accuracy
- Performance
- Robustness
- Scalability