Basic

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1: Pattern printing problems

2: Analysis of time complexity

3: Linear Search problems

4: Circular array using simple array

5: Palidrom, Perfect number

6: Simple Hashing problems

7: Prefix Sum Problems 1D/2D

8: Sliding window technich (1/5)

Intermewdiate

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1: Binary Search problesm (2/5)

2: Find GCD of 2 numbers in LogN (Euclined and Extended euclined algo)

3: Prime in Sqrt(n) complexity

4: Seive of Eratosthenes

5: Segmented Seive

6: Finding the prime factorization of a number in logn per query

7: Euler Totient function

8: Fermet Little theorem

Number Theory

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1: Finding x^n in LogN

2: Modular Arithmetic

3: Module Inverse of a number

4: Chines remainder theorem

5: Factorial Modulo Mod

6: Finding nCr & nPr in queries

7: Inclusion Exclusion principle

Some Advanced

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1: Learn about basic sorting Algorithms (Bubbel, Selectiom, Insertion)

2: Constructive and having swap terms in it

3: Bit Manupulation problems(Left shift,Right shift, Set bit, MSB LSB etc) (Hackerearth as good tuts)

4: Power set of a given array or string using BIT

5: Number of subarray with XOR as ZERO (Not alogirithm, but a nust do problem)

6: Greedy Algoriths Tag

7: Kadan's Algorithms and problem related to them

8: Job sequesnce and activity selection problem

Recursion

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1: Recurssion probelms like finding factorial

2: Implement Binary search using recursion

3: Implement modular exponent

4: Solve recursion problem like finding subset with given sum and other problesm

Advanced

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1: Learn Merge Sort & Quick sort algorithms

2: Do backtracking problems like Sudoku and N-Queen problem (Help in DP path problems)

3: Meet in the middle algo and probs

4: Devide & Conquer problesm on Codeforces

5: Find next greater / Next samller element using stack

6: problesm related to paranthesis

7: Largest ractangular area in Histogram

8: Probleam related to Heap (Priority Queue)

Practice Hard on above problesm

More Advanced Don't GiveUP (1-4 hr in a problem)

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1: Hashing on strings, know wh ncollision happens (cpalgorithm site)

2: Rabin karp algo

3: Prefix function

4: KMP Algo

5: Z-Function

6: Manacher's Algo (Solve bunch of problem in above topic)

Trees

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1: Tree / Graph representation

2: DFS/BFS traversel in tree /graph

3: Diameter of a tree/Height/

4: Euler TOur fo tree

5: Finding LCA using Euler Tour / Binary Lifting

6: DIstance b/w two nodes

7: Subtree Problems (Solve prob on abos tree prob)

Graph

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1: Connected Components

2: Topilogical sort

3: Cyclic detection in graph

4: Bipartite check in graph

5: SCC using Kosaraju's alog

6: Dijkarta's Algo

7: Belmenford Algo

8: Floyd warshall algo (Solver more problems on above topic - Hackerearht/Codeforce)

9: Bridge in Grapgh

10: Articulation point in graph

11: Minimum spanning tree & kruskal algo

12: Prim's Alog

13: 0/1 BFS in linear time (cpalgo)

14: Finding bridgesin graph (Solve prob)

Dynamic Programming

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1: Start with Recusion & Memoization with strong knowledge

2: Knapsack prob solve

3: Solve AtCoder Educational contest on DP 26/26 solve

4: Solve problem from SPOJ then Codeforces

5: Understand how we write recurrence for Digit DP(CF blog)

6: Read DP with bitmasks and solve on hackerearth

7: DP in trees (Rajit jain video)

8: SOS DP

9: Practice More

More

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1: Disjoint Set(Using all optimizations)

2: Offline Quesries using Disjoint Set

3: Kruskal's Alog

4: Sparse Table (Not Imp)

5: Fenwick Tree (Read Update Trick also)

6: Binary Lifting on fenwick tree (More Solve prob)

And More

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1: Matrix Exponentiation

2: Sqrt Decomposition

3: Update and query operations

4: Mo's Algo (Codeforce blog)

5: Mo's Algo on Trees

6: Segment Tree (Most Imp topic - Range queries and point updates)

7: Lazy propogation in segment tress

This help you tille E- level on Codeforces as least

At Last

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1: Sprague-Grundy Theorem

2: Flows and related prob

3: Heavy light decomposition

4: Convex Hull Alog

5: FFT/NTT