MUST-DO ALGORITHMS for CODING ROUNDS

(Only to be done 3-6 months before placements)

(** Will be enough for Amazon, Microsoft and similar companies coding rounds)

(** Won't be enough for Codenation, Directi level companies)

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Channel 1: https://www.youtube.com/channel/UCJskGeByzRRSvmOyZOz61ig Channel 2: https://www.youtube.com/channel/UCvEKHATIVq84hm1jduTYm8g

Why trust this sheet?

Ans: Candidate Master, 6*, Currently working with Media.net (Directi), ex Intern at Amazon India. Major success with the previous sheets, and more importantly trusted by his "TAKEUFORWARD FAM"

Have 3-6 months left for placements? (Must have basic knowledge of DSA)

- No worries, complete the SDE-sheet which has 1000+ success stories (All on Instagram(striver_79) story highlights) and is a curated set of problems.. (https://bit.ly/takeUforward_SDE) (Playlist: https://bit.ly/placementSeries)
- 2. Worried about coding rounds of Amazon, Microsoft and others or have an interview scheduled nearby, just check out the below 10 algorithms, make sure to at-least do the easy and medium tag ones..
- 3. Can probably purchase this SDE-theory course from GFG and do all the core subjects super quick, use the coupon code "TAKEUFORWARD" while doing to get some extra disc. (https://practice.geeksforgeeks.org/courses/SDE-theory) (Not a promotion, I have used it hence suggesting genuinely)

Have more than 8-10 months left for placements?

- 1. Do basic DSA at first, you can find the topics to do from sde sheet and do basic questions from gfg on those topics, and then move to sde sheet.
- 2. Do the SDE sheet and CP sheet (https://bit.ly/tuf_CPList)

1.Binary Search

- a. https://codeforces.com/problemset/problem/1354/B (Easy)
- b. https://www.interviewbit.com/problems/allocate-books/ (Medium)
- c. https://codeforces.com/problemset/problem/1359/C (Hard -> no need to do if very less time is left)

2. Prefix Sum

- a. https://cses.fi/problemset/task/1646 (easy)
- b. https://www.hackerrank.com/contests/ab-yeh-kar-ke-dikhao/challenges/kj-and-street-lights/problem (Medium -> Scanline Algo)
- c. https://www.codechef.com/CENS2020/problems/CENS20A (Hard)

3. Primes/Divisors

a. https://www.codechef.com/problems/CNTPRIME (Easy)(Sieve)

- b. https://www.spoj.com/problems/PRIME1/ (Medium) (Segmented Sieve)
- c. https://cses.fi/problemset/task/2182 (hard -> can be left)

4. Divide and Conquer

- a. https://www.spoj.com/problems/INVCNT/ (Easy)
- b. https://cses.fi/problemset/task/1628 (Medium)
- c. https://lightoj.com/problem/funny-knapsack (Hard -> can be left)

5. String Algorithms

- a. https://cses.fi/problemset/task/1753 (Easy) (KMP, Z, Rabin-Karp) (Solve using all 3 algos)
- b. https://cses.fi/problemset/task/1111 (Medium)
- c. https://codeforces.com/problemset/problem/271/D (Medium/Hard)

6. Tree Algorithms

- a. https://cses.fi/problemset/task/1674 (Easy)
- b. https://cses.fi/problemset/task/1131 (Medium)
- c. https://cses.fi/problemset/task/1135 (Hard, covers LCA using Binary Lifting)

7. Graph Algorithms

- a. BFS Questions super duper important (https://cses.fi/problemset/task/1192) (Also do problems like https://cses.fi/problemset/task/1193))
- b. https://cses.fi/problemset/task/1671 (Dijsktra)
- c. https://www.spoj.com/problems/EC_P/ (Bridges)
- d. https://www.spoj.com/problems/SUBMERGE/ (Articulation Point)
- e. Rest do all Graph problems from Striver's Graph series (https://www.youtube.com/watch?v=YTtpfjGlH2M&list=PLgUwDviBIf0rGEWe64KWas-0Nryn7SCRWw)

8. Disjoint Set

- a. <a href="https://www.hackerearth.com/practice/data-structures/disjoint-data-structures/basics-of-disjoint-data-structures/practice-problems/algorithm/disjoint-set-union/https://www.youtube.com/watch?v=3gbO7FDYNFQ&t=11s
- b. https://codeforces.com/contest/25/problem/D (Medium)
- c. https://www.spoj.com/problems/CLFLARR/ (Hard -> offline solution)

9. Segment Trees

- a. https://cses.fi/problemset/task/1647 (Simple range query) (https://cses.fi/problemset/task/1647 (Simple range query)
- a. https://cses.fi/problemset/task/1649 (Range query with point update)

 (https://www.youtube.com/watch?v=-dUiRtJ8ot0)
- b. https://cses.fi/problemset/task/1735 (hard-> can be left ..)

 (https://www.youtube.com/watch?v=rwXVCELcrqU)

10. Dynamic Programming

- a. Generally the problems are variations of standard DP problems in geeksforgeeks. Do the problems named as "DP-3" to DP-28" on GFG, will automatically be covered if you doing SDE sheet)
- b. Digit DP (hard -> might appear if you are giving rounds in Hackerearth, else will not..) https://cses.fi/problemset/task/2220