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)

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)

1. **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)

b. https://www.spoj.com/problems/PRIME1/ (Medium)
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=PLgUwDviBIf0rGEWe64KWas0Nryn7SCRWw)

8. Disjoint Set
   a. https://www.hackerearth.com/practice/data-structures/disjoint-data-strutures/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://www.youtube.com/watch?v=-dUiRtJ8ot0)

   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