**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)

**Copyright: Take U Forward (Striver\_79)**

**Channel 1:** [**https://www.youtube.com/channel/UCJskGeByzRRSvmOyZOz61ig**](https://www.youtube.com/channel/UCJskGeByzRRSvmOyZOz61ig)

**Channel 2:** [**https://www.youtube.com/channel/UCvEKHATlVq84hm1jduTYm8g**](https://www.youtube.com/channel/UCvEKHATlVq84hm1jduTYm8g)

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**](https://bit.ly/takeUforward_SDE)**) (Playlist:** [**https://bit.ly/placementSeries**](https://bit.ly/placementSeries) **)**

1. **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..**
2. **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**](https://practice.geeksforgeeks.org/courses/SDE-theory?vC=1?loginMode=255)**)**

**(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**](https://bit.ly/tuf_CPList) **)**

1.Binary Search

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

2. Prefix Sum

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

3. Primes/Divisors

1. <https://www.codechef.com/problems/CNTPRIME> (Easy)(Sieve)
2. <https://www.spoj.com/problems/PRIME1/> (Medium) (Segmented Sieve)
3. <https://cses.fi/problemset/task/2182> (hard -> can be left)

4. Divide and Conquer

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

5. String Algorithms

1. <https://cses.fi/problemset/task/1753> (Easy) (KMP, Z, Rabin-Karp) (Solve using all 3 algos)
2. <https://cses.fi/problemset/task/1111> (Medium)
3. [https://codeforces.com/problemset/problem/271/D](https://codeforces.com/problemset/problem/271/D?locale=en) (Medium/Hard)

6. Tree Algorithms

1. <https://cses.fi/problemset/task/1674> (Easy)
2. <https://cses.fi/problemset/task/1131> (Medium)
3. <https://cses.fi/problemset/task/1135> (Hard, covers LCA using Binary Lifting)

7. Graph Algorithms

1. BFS Questions super duper important (<https://cses.fi/problemset/task/1192>)

(Also do problems like <https://cses.fi/problemset/task/1193> )

1. <https://cses.fi/problemset/task/1671> (Dijsktra)
2. <https://www.spoj.com/problems/EC_P/> (Bridges)
3. <https://www.spoj.com/problems/SUBMERGE/> (Articulation Point)
4. Rest do all Graph problems from Striver’s Graph series (<https://www.youtube.com/watch?v=YTtpfjGlH2M&list=PLgUwDviBIf0rGEWe64KWas0Nryn7SCRWw>)

8. Disjoint Set

1. <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>

1. <https://codeforces.com/contest/25/problem/D> (Medium)
2. <https://www.spoj.com/problems/CLFLARR/> (Hard -> offline solution)

9. Segment Trees

1. <https://cses.fi/problemset/task/1647> (Simple range query) (<https://www.youtube.com/watch?v=-dUiRtJ8ot0>)

1. <https://cses.fi/problemset/task/1649> (Range query with point update)

(<https://www.youtube.com/watch?v=-dUiRtJ8ot0>)

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

10. Dynamic Programming

1. 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)
2. Digit DP (hard -> might appear if you are giving rounds in Hackerearth, else will not..)

<https://cses.fi/problemset/task/2220>