If you have any feedback, then you can use this anonymous form.

Some of the articles here are helpful.

Next Goals (22 July - …)

- Please go through this book: looking-for-a-challenge-2-en.pdf (An advanced resource)
- You must have left some of the reading material/questions from the previous weeks (because I believe the material was a bit more to be completed in the time provided). You can complete all of this and also the optional material provided. (You might find some repetition in the reading material content, but I am sure you will learn something new from every book.)
- You can solve these questions: Additional Questions for your practice.
- Make a habit to appear for Codeforces contests (Adjust your dinner time). Contests are a good platform to provide reality checks.
- At times you will observe that your rating is stuck in some range, and you are not able to improve much. This acts as a good time to switch to theory revision (or follow new books). Identify the domains where you are lacking the required knowledge and build on them. Also, if you are stuck at let's say 1400, then pick questions of rating range 1500-1600 and practice on them (Even if you are able to solve them, look at their editorials). Although this feature is already available on codeforces, you can use this site too.
- You can complete the first 9 sections from CSES (many of the problems are already completed). You can even select the relevant problems from the last two sections and solve them.
- For theory we have the following books: Competitive Programmer's Handbook, Guide to Competitive Programming, Steven (great book), Programming Challenges and The Algorithm Design Manual (more related to algorithm design). You can complete reading all the sections which are not yet done (first two books are almost completed). You can follow other resources too, if you find them interesting. CS213 (DSA) slides are available CS213. CS218 (DAA) lecture material is available CS218.

Week 8 (17 July - 21 July)

- Complete Chapters 27, 29, 30 from Competitive Programmer's Handbook. These topics are not much relevant to the core CP algorithms but are often asked in contests.
- Complete Chapters 13, 15 from Guide to Competitive Programming.
- (Optional but recommended, might take some extra time) Complete Chapters 7, 8, 9 from Steven.
- In this week, you are also supposed to complete all the previous problems (if you have anything remaining)
- Questions to be submitted:
    1. Point Location Test
    2. Line Segment Intersection
    3. Polygon Area
    4. Point in Polygon
- Questions for your practice:
    1. Polygon Lattice Points
    2. Minimum Euclidean Distance
    3. Convex Hull
    4. Find a Mine
- (Optional) Start solving the questions from here. These problems are miscellaneous. Make sure you start solving them only after you are thorough with the reading material from all the weeks.

Week 7 (9 July - 16 July)

- Complete Chapters 9, 26, 28 from Competitive Programmer's Handbook.
- Complete Chapters 9, 14 from Guide to Competitive Programming.
- (Optional) Chapter 6 from Steven.
- (Optional but recommended) Complete Week 6 from CS213. A detailed version can be found as Chapter 32 from Introduction to Algorithms.
- You can check the string library functions from Programming Challenges.
- Questions to be submitted:
    1. Static Range Sum Queries
    2. Static Range Minimum Queries
    3. Word Combinations
    4. Finding Periods
    5. Finding Borders
    6. Pattern Positions
    7. Hotel Queries
    8. Decreasing String
    9. Clear the string

- Questions for your practice:
    1. K-beautiful strings
    2. List Removals
    3. Peculiar Movie Preferences
    4. Gambling
    5. Dynamic Range Minimum Queries
    6. Forest Queries
    7. Work Group
    8. “A” String Problem
- As and when you get time, complete the “Range Queries” and “String Algorithms” sections from CSES.

Week 6 (2 July - 8 July)

- Read Chapters 15,16,17,18,19,20 from Competitive Programmer's Handbook. These topics are not much relevant to the basic CP questions, but will surely help in case you plan to pursue a Data Structures and Algorithms course in your future. (Core course for CSE, can also be taken under CS Minor)
- Complete Chapters 7 and 10 from Guide to Competitive Programming.
- (Optional) Read Week-13 and week-14 material from CS213. If you are too much interested in Graph Theory, then please read Chapters 21, 22, 23, 24, 25 from Introduction to Algorithms (Too much to be done in a week, you can maybe read the relevant sections, and as and when you get time, complete the others. Solutions to this book can be found at CLRS Solutions.)
- (Optional) Complete Chapter 7 from Algorithm Design (Not much relevant to CP, but has great practical applications).
- Questions to be submitted:
    1. Art Gallery on Graph (w6_q1.cpp)
    2. Round Trip (w6_q2.cpp)
    3. Game Routes (w6_q3.cpp)
    4. Round Dance (w6_q4.cpp)
    5. Longest Path (w6_q5.cpp)
    6. Giant Pizza (w6_q6.cpp)
    7. Tree Distances I (w6_q7.cpp)
    8. Walk (w6_q8.cpp)
- Questions for your practice:
    1. Friendly Spiders
    2. Fair
    3. Apple Tree
    4. Nearest Opposite Party
    5. Lenient Vertex Cover
    6. Ksyusha and Chinchilla
    7. Cyclic Operations

- As and when you get time, please complete the “Graph Algorithms” and “Tree Algorithms” sections from CSES.

Week 5 (27 June - 1 July)

- Complete all the reading material/questions from the previous weeks (if you have anything left).
- Read Chapters 11,12,13,14 from Competitive Programmer's Handbook.
- Read sections 7.1, 7.2 and 10.1 from Guide to Competitive Programming.
- (Optional) Read Chapter 20 from Introduction to Algorithms. Read Week-11 and Week-12 material from CS213.
- This week will be kept as a buffer for you to manage previous incomplete work. Remember that you should complete the practice questions also by yourself. Even if you were forced to see the solutions, solve them again by yourself.
- This week, there are only three problems to be submitted. If you have time, then before moving to Week6, please complete the Optional Questions also.
- Questions to be submitted:
    1. Longest Regular Bracket Sequence (w5_q1.cpp) (A popular question!)
    2. Magnitude - Hard (w5_q2.cpp)
    3. Large Addition (w5_q3.cpp)
- Optional Questions:
    1. Long Legs
    2. Exam in MAC
    3. Colored Rectangles
    4. Modulo Sum
    5. The least round way
    6. Odd-Even Subsequence
    7. Placing Jinas
    8. Fibonacci Strings
    9. Yet Another Yet Another Task
- (Optional, but if you have time, then please do so) Complete this contest.
- (Optional) Complete this contest.
- If you are already up to date, please move to week-6 after completing the above.

Week 4 (19 June - 26 June)

- Read Chapters 21,22,23,24,25 from Competitive Programmer's Handbook.
- Go through Chapter 11 from Guide to Competitive Programming.
- (Optional) Read Chapter 31 from Introduction to Algorithms.
- (Optional) Complete Chapter 5 from Steven.
- (Optional) Complete Chapters 6 and 7 from Programming Challenges.
- Just for the sake of interest, if you enjoy probability puzzles, then you can use this site. This playlist is also quite interesting.
- Questions to be submitted:
    1. Exponentiation II (w4_q1.cpp)
    2. Sum of Divisors (w4_q2.cpp)
    3. Binomial Coefficients (w4_q3.cpp)
    4. Distributing Apples (w4_q4.cpp)
    5. Inversion Probability (w4_q5.cpp)
    6. Nim Game I (w4_q6.cpp)
    7. Grundy's Game (w4_q7.cpp)
    8. Divisor Analysis (w4_q8.cpp)
    9. Climbing the Tree (w4_q9.cpp)
    10. Two Divisors (w4_q10.cpp)
- Questions for your practice:
    1. Bracket Sequences II
    2. Factorials and Powers of Two
    3. Controllers
    4. Counting Necklaces
    5. Nim Game II
    6. Candy Lottery
    7. Product 1 Modulo N
    8. Three Integers
    9. Add one
    10. Kuroni
    11. Jellyfish and Green Apple
    12. Buying Jewels
- As and when you get time, complete the "Mathematics" section from CSES.
- Now, you can start appearing for codeforces contests. They are typically divided into four divisions. Go through some of the problems from each division, to get an idea of their difficulty levels. If you can't appear for live contests (the timings are roughly 8-10 pm IST), then try to solve the problems in some other 2-hour seating (you can use "virtual contest" feature).

Week 3 (10 June - 18 June)

- Read Chapters 6, 7 and 10 from Competitive Programmer's Handbook.
- Read Chapter 6 from Guide to Competitive Programming.
- If you have time, then please read Chapters 4 and 6 from Algorithm Design. It is a great resource for greedy-dp. A shorter version can be found CS218. Another resource: Chapters 14-15. These techniques are widely used in a variety of questions. So, better to read and practice as much as you can!
- If you are unable to understand DP through the above resources, then you can watch these videos (maybe the starting 2-3 at 2X). You can also study Chapter 11 from Programming Challenges.
- Questions to be submitted:
    1. Tasks and Deadlines (w3_q1.cpp) — Solution
    2. Factory Machines (w3_q2.cpp) — Solution
    3. Dice Combinations (w3_q3.cpp) — Solution
    4. Edit Distance (w3_q4.cpp) — Solution
    5. Counting Towers (w3_q5.cpp) — Solution
    6. Knapsack (w3_q6.cpp) — Solution
    7. Stick Divisions (w3_q7.cpp) — Solution
    8. Sequence (w3_q8.cpp) — Solution — Code
- Questions for your practice:
    1. Making anti-palindromes — Solution
    2. Caesar's Legion (Check how to implement) — Solution — My Code
    3. Minimize Median — Solution
    4. Running Miles — Solution
    5. Baby Ehab Partitions Again — Solution
    6. Counting Tiles — Solution
    7. Projects — Solution
    8. Counting Numbers — Solution
    9. Search in Parallel — Solution
    10. LCS — Solution
    11. Minimizing the Sum — Solution
    12. Almost Increasing Subsequence — Solution
- (Optional) Complete the first 7 problems from this contest within a duration of 2.5 hrs. This will help you in increasing your speed for further contests.
- You are now eligible to complete the first three sections of CSES. You can do so as and when you get time.
- If you are finding Dynamic Programming too interesting, then you can try solving this problem. It was given as a programming assignment in one of our core courses (CS218).
  My Solution (Check 22B1003.cpp)

Week 2 (3 June - 9 June)

- Go through C++ sort function.
- Read Chapter 5 and Chapter 8 from this Competitive Programmer's Handbook.
- Go through Chapters 4-5 and 8 from this Guide to Competitive Programming.
- Please read this document for some common techniques.
- Questions to be submitted:
    1. Playlist (w2_q1.cpp) — Solution
    2. Sum of Two Values (w2_q2.cpp) — Solution (See both of them)
    3. Sum of Three Values (w2_q3.cpp) — Solution
    4. Sliding Window Maximum (w2_q4.cpp) — Solution (Check other leetcode solutions too)
    5. Stick Lengths (w2_q5.cpp) — Solution
- Questions for your practice
    1. Min Max Sort — Solution
    2. 2^Sort — Solution
    3. Longest K-good segment — Solution
    4. Nested Ranges Count — Solution
    5. Rooks Defenders — Solution
    6. Matryoshkas — Solution
    7. Playing in a casino — Solution
    8. Sum of four values — Solution
    9. Sliding Window Median — Solution
    10. Sliding Window Cost — Solution
    11. Fun Problem (You can maybe read its tutorial.) — Solution
- Optional: Read Chapter-5 of this Algorithm Design.

Week 1 (26 May - 2 June)

- Complete reading the first 4 chapters from Competitive Programmer's Handbook.
- Create your accounts on CSES, Codeforces, Codechef and Leetcode.
- If you wish to study any of the data structures in detail, then please use this link. But I believe you will be able to pick up all the data structures knowledge as you will move forward. So, no need to memorize stuff, you will be able to learn through practice.
- Go through your CS101 slides or the link for basic algorithms such as binary search, and sorting algorithms.
- Then read this document thoroughly. If you have any questions on this document, please feel free to ask in the group.
- You need to submit only the first set of the following questions in your corresponding folder. Also, your code should pass all the testcases present on either CSES or Codeforces. Check the nomenclature of the files too before uploading them to drive.
- Questions to be submitted:
    1. Missing Number (w1_q1.cpp) Solution
    2. Repetitions (w1_q2.cpp) Solution
    3. Coins (w1_q3.cpp) Solution
    4. Lucky Numbers (w1_q4.cpp) Solution
    5. Weird Algorithm (w1_q5.cpp) Solution
- Questions for your practice:
    1. Increasing Array Solution
    2. Towers of Hanoi Solution
    3. Coin Piles Solution
    4. Walking Master Solution
    5. Two Knights Solution
- All those who are new to CP, this week is going to be a bit heavy. Feel free to ask us for more time. But make sure that you complete all the questions honestly, else this project won't be able to help you much.