

Day 1

Understand the concept of Algorithmic complexity. Skip the theory for now, but for every piece of code you write, you should be able to derive both time and space complexity.

Day 2 – 10

Let's start with some simple data structures:

1. Arrays
2. Linked Lists
3. Strings
4. Stacks
5. Queues

Understand their basic operations (insert, delete, search, traversal) and their complexity - Big-O Algorithm Complexity Cheat Sheet, and code them all.

Day 11 – 25

Let's now learn some simple algorithms,

1. Sorting
 - Insertion sort, Merge sort, Quick sort, Heap sort, Bucket sort, Counting sort, Radix sort, External sorting
2. Search
 - Linear search, Binary Search (along with its variants).
3. Prime Numbers
4. Sieve of Eratosthenes
5. Primality test
6. Strings
 - String searching, LCS, Palindrome detection
7. Miscellaneous
 - Euclidean algorithm, Matrix multiplication, Fibonacci Numbers, Pascal's Triangle, Max Subarray problem

Day 26 – 50

Once you are comfortable with everything above, start doing problems from,

1. Cracking the Coding Interview
2. Elements of Programming Interviews
3. Programming Interviews Exposed: Secrets to Landing Your Next Job
4. GeeksforGeeks
5. HackerRank
6. InterviewBit

Stick to chapters of arrays, linked lists, strings, stacks, queues and complexity.

Day 51 – 60

Let's learn some non-linear data structures,

1. Tree
2. Binary Tree, Binary Search Tree → Tree traversals, Lowest common ancestor, Depth, Height & Diameter, Finding k-th smallest element
3. Heaps
4. Hash table → 4 sum problem, Checking if sudoku solution is valid
5. Graph → Breadth-first search, Depth-first search, Topological sorting, Minimum spanning tree, Shortest path problem,

Day 61- 90

Refer to the previous resources and start doing problems from trees, hash tables, heaps and graphs.

Day 91 – 100

Understand Computational complexity theory and NP-completeness, Knapsack problem, Travelling salesman problem, SAT problem and so on.

Day 101 - ∞

You are now better than most of the CS undergrads. Keep revising the above topics and start competitive programming! Good luck!