90-Day Java + DSA + GSoC Roadmap

Phase 1 (Days 1-15): Core Java

Goal: Learn Java deeply enough to handle DSA and open-source code.

Topics:

- Syntax, loops, conditionals
- Arrays, Strings
- OOP (classes, objects, inheritance, etc.)
- Exception handling, file I/O

Videos:

- Java Full Course - Bro Code (4.5 hrs): https://youtu.be/xk4_1vDrzzo
- Java DSA by Kunal Kushwaha (initial videos): https://www.youtube.com/playlist?list=PL9gnSGHSqcnp39cTyB1dTZ2pJ04Xmdrod

Practice:

- Build simple Java programs
- Make a CLI To-Do List app

Phase 2 (Days 16-60): DSA + Problem Solving

Goal: Cover key DSA concepts and solve problems.

Week 3-4:

- Arrays, Strings, Recursion
- Two pointers, sliding window
- Striver's Playlist: https://www.youtube.com/playlist?list=PLgUwDviBIf0rW3g-lTZGJ2Dk3W0dU0kQk

Week 5-6:

- Linked List, Stack, Queue, Hashing

- CodeHelp Playlist: https://www.youtube.com/playlist?list=PLDzeHZWIZsTryvtXdMr6rPh4IDexB5NIA

Week 7-8:

- Trees, Graphs (BFS/DFS), Heaps

- CodeHelp Trees & Graphs

Daily Practice:

- 2-3 LeetCode problems/day

- Striver's A2Z Sheet: https://takeuforward.org/interviews/strivers-sde-sheet-top-coding-interview-problems/

Phase 3 (Days 61-90): GSoC Preparation + Advanced DSA

Goal: Start open-source contributions and learn advanced DSA.

Topics:

- Dynamic Programming (0/1 Knapsack, LIS, etc.)

- Bit Manipulation

- Trie (intro)

Open Source Prep:

- Explore GSoC orgs: https://summerofcode.withgoogle.com/programs/2024/organizations

- Pick 2-3 orgs, clone their code, understand structure

- Look for "good first issues" on GitHub

Resources:

- Git + GitHub Crash Course: https://youtu.be/apGV9Kg7ics

- freeCodeCamp Guide:

https://www.freecodecamp.org/news/how-to-contribute-to-open-source-projects-beginners-guide/

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