Most Asked DSA Topics in ANY COMPANY:-

Based on comprehensive research through multiple sources, here are the top 10 most frequently asked topics in technical rounds on Data Structures and Algorithms (DSA) for job interviews, especially at leading tech companies:

1. **Arrays and Strings**:

• Questions often involve manipulating arrays and strings, such as finding missing elements, rotating arrays, checking for anagrams, and reversing strings. These are fundamental and commonly asked questions in interviews (sources: Springboard, Edureka, Interview Kickstart).

2. **Linked Lists**:

• Common problems include reversing a linked list, detecting cycles, merging two sorted lists, and finding the intersection point of two lists. These questions test your understanding of pointers and dynamic memory (sources: Edureka, Simplilearn, WS Cube Tech).

3. **Trees and Graphs**:

• Typical questions involve tree traversals (in-order, pre-order, post-order), finding the lowest common ancestor, checking for balanced trees, and graph traversal algorithms like BFS and DFS. These are crucial for understanding hierarchical data structures and networks (sources: Interview Kickstart, Careers360, Geekster).

4. **Dynamic Programming**:

• Problems include classic challenges like the knapsack problem, longest increasing subsequence, and various string problems such as the longest common subsequence. These questions test your ability to break down problems into simpler subproblems and solve them efficiently (sources: Simplilearn, Geekster, Codecademy).

5. **Sorting and Searching Algorithms**:

• Questions often cover implementing and optimizing classic algorithms such as quicksort, mergesort, and binary search, and understanding their time and space complexities. These are fundamental for optimizing performance in many applications (sources: Springboard, Edureka, Interview Kickstart).

6. **Hash Tables and Hashing**:

• Typical problems include detecting duplicates, implementing LRU cache, and finding the first non-repeating character in a string. These questions test efficient data retrieval techniques using hashing (sources: Tech Interview Handbook, Simplilearn, MindMajix).

7. **Stacks and Queues**:

• Common interview problems involve implementing stacks and queues, using them to evaluate expressions (e.g., postfix, prefix), and solving problems related to balanced parentheses and valid expressions (sources: Edureka, Codecademy, Interview Prep).

8. **Recursion and Backtracking**:

• Problems include generating permutations and combinations, solving Sudoku, and the N-Queens problem. These questions evaluate your problem-solving skills using recursive thinking and backtracking techniques (sources: Interview Kickstart, Geekster, WS Cube Tech).

9. **Graphs (Advanced)**:

• Beyond basic traversals, interview questions often cover shortest path algorithms (Dijkstra’s, Floyd-Warshall), detecting cycles in a graph, and graph coloring problems. These problems are essential for network-related applications (sources: Careers360, MindMajix, Tech Interview Handbook).

10. **Bit Manipulation**:

• Questions in this area include counting the number of set bits, finding the single non-repeated element, and performing bitwise operations for optimization. These are often used in scenarios requiring low-level data manipulation (sources: Simplilearn, Geekster, Udemy).