🐍 Python Data Structures & Algorithms (DSA) Training

📅 Duration & Pricing

Duration	Original Price	Offer Price	Inclusions
1 Month	₹7,000	₹4,000	Python Recap + Arrays + Strings + Recursion + 3 Projects
2 Months	₹17,000	₹14,000	Linked Lists + Trees + Stacks/Queues + Sorting + 6 Projects
3 Months	₹24,000	₹21,000	Graphs + DP + Backtracking + Interview Prep + 10 Projects

🎯 Target Audience

- Python learners targeting placements & interviews
- Data Science/ML aspirants wanting DSA backing
- Students preparing for coding contests
- Beginners looking to master logic with Python

💡 Why Choose Us?

- Pythonic approach with deep TC/SC coverage
- Integration with platforms: LeetCode, HackerRank

- Visual recursion and dry-run sessions
- Strong GitHub portfolio with code documentation
- Certification + Resume/Interview support

🛠️ Project Categories

- Anagram Classifier
- Stack CLI Calculator
- Binary Tree Navigator
- Graph Search App
- Sudoku Grid Solver
- GitHub DSA Problem Archive

🧠 Week-wise Detailed Syllabus

✅ Month 1: Python Recap + Arrays + Strings + Recursion

Week 1: Python Programming Recap

- Input/Output, Loops, Data Types
- Functions, Recursion, Classes, Lists, Tuples
- **TC/SC**: Big-O for loops, recursion, slicing

Week 2: Arrays & Strings

- List operations, prefix sums
- String slicing, hashing
- Search & Sort in Python
- **TC/SC**: $O(n)$, $O(n^2)$, $O(\log n)$

Week 3: Recursion & Memoization

- Factorial, Fibonacci, Subsets
- Backtracking: Word Construction
- **TC/SC**: $O(2^n)$, Memoization: $O(n)$

Week 4: Practice Projects

- Recursion Tool
- String Analyzer
- Prefix-Based Search Engine

✅ Month 2: Linked Structures + Stacks + Trees

Week 5: Linked Lists

- Singly, Doubly, Merge
- Reversal, Palindrome Check
- **TC/SC**: $O(n)$, $O(1)$

Week 6: Stack & Queue

- Stack with List/Deque
- Queue & PriorityQueue

- Infix → Postfix converter
- **TC/SC**: O(n), O(1)

Week 7: Trees – Basics

- Tree creation, traversal (In/Pre/Post)
- Height, Leaf Nodes
- **TC/SC**: O(n), Recursive Stack = O(h)

Week 8: Sorting & Searching

- Merge, Quick, Bubble
- Binary Search in Python
- **TC/SC**: O(n log n), O(log n)

✅ Month 3: Graphs + DP + Interview Mastery

Week 9: Graphs Part 1

- BFS, DFS
- Matrix to Graph conversion
- **TC/SC**: O(V + E), O(V)

Week 10: Graphs Part 2

- Dijkstra, Topological Sort
- Union-Find Algorithms
- **TC/SC**: O(V log V), O(n)

Week 11: Dynamic Programming

- Tabulation/Memoization
- 0/1 Knapsack, Coin Change, LIS
- **TC/SC**: $O(n^2)$, $O(n)$

Week 12: Final Interview Prep

- Sudoku, Word Break, Regex
- GitHub Submission & Resume Polish
- Mock Interview Round

📈 Monthly Outcomes & Projects

🟠 Month 1: Core Logic + Pythonic Tools

You Will Be Able To:

- Use slicing, comprehensions, recursion with confidence
- Solve LeetCode-style string and recursion problems
- Build logical tools using arrays and strings

✅ Projects:

- Recursion Visualizer
- Anagram Classifier
- Substring Tokenizer

🟡 Month 2: Data Structures + Trees

You Will Be Able To:

- Implement Linked Lists, Stack, and Tree logic
- Build CLI tools using Stack/Queue logic
- Visualize and debug recursive tree logic

✅ **Projects:**

- Tree Navigator Tool
- Stack Expression Evaluator
- Linked List Visualizer

🟢 Month 3: Advanced Concepts + Capstone

You Will Be Able To:

- Build full Graph logic apps with Python
- Solve top 10 DP interview patterns
- Publish GitHub-level DSA repositories

✅ **Projects:**

- Sudoku Solver
- Graph Search Visual App
- GitHub LeetCode Archive
