

DSA in Python_Syllabus

Data Structures & Algorithms (DSA)

I. DSA Introduction

- What are Data Structures
- What are Algorithms
- Environment setup

II. Linear Data structures

- Arrays
- Stacks
- Queues
- Linked Lists
 - Singly linked lists
 - Doubly linked lists
 - Circular linked lists

III. Non-linear Data structures

- Trees
 - Insert, Search
 - Preorder, Inorder, postorder traversal
 - General Tree
 - Binary Tree
 - Binary Search Tree
 - AVL Tree
 - Red Black Tree
 - Splay Tree
- Graphs
 - Directed and Undirected graphs
 - Weighted and Unweighted graphs
 - Special graphs

IV. Searching Algorithms

- Sequential / Linear search
- Binary search
- Interpolation search
- Hash table

V. Sorting Algorithms

- Insertion sort
- Merge sort
- Quick sort
- Heap sort
- Bubble sort
- Insertion sort
- Selection sort

VI. Recursion

- Base criteria
- Progressive approach
- Time complexity
- Space complexity

VII. Others

- Greedy algorithms
- Dynamic programming