

Infix and postfix operation: Infix notation is the traditional way of writing mathematical expressions, where the operators are placed between the operands (e.g., $2 + 3$). Postfix notation, also known as Reverse Polish Notation (RPN), is a way of writing mathematical expressions without using parentheses. Instead, the operators are placed after the operands (e.g., $2\ 3\ +$). Postfix notation can be helpful for computers, as it is easier to evaluate expressions without using parentheses. To convert an infix expression to postfix, we can use a stack data structure and the Shunting Yard algorithm.

Graph in DSA: A graph is a collection of nodes, also known as vertices, and the edges that connect them. Graphs can be used to represent complex systems, such as social networks, transportation networks, and computer networks. In data structure and algorithms, graphs are often used for searching and optimization problems. Graphs can be directed or undirected, weighted or unweighted, and can have cycles or be acyclic. Common algorithms used for graphs include Depth-First Search (DFS), Breadth-First Search (BFS), and Dijkstra's algorithm.

Linked list: A linked list is a linear data structure that consists of a sequence of nodes, each of which contains a value and a reference to the next node in the list. Linked lists are useful when the size of the data is not known in advance, or when frequent insertions and deletions are expected. Linked lists can be singly linked, where each node has only one reference to the next node, or doubly linked, where each node has a reference to both the next and previous nodes.

Stack and Queue: A stack is a data structure that stores a collection of elements and operates based on the Last-In-First-Out (LIFO) principle. A stack has two primary operations: push, which adds an element to the top of the stack, and pop, which removes the element from the top of the stack. A queue is a data structure that stores a collection of elements and operates based on the First-In-First-Out (FIFO) principle. A queue has two primary operations: enqueue, which adds an element to the back of the queue, and dequeue, which removes the element from the front of the queue.

Recursive algorithm: A recursive algorithm is an algorithm that calls itself one or more times in order to solve a problem. Recursive algorithms can be used to solve problems that have a recursive structure, such as tree traversals, searching algorithms, and sorting algorithms. Recursive algorithms typically have a base case, which is the condition under which the recursion stops, and a recursive case, which is the condition under which the recursion continues.

Search Algorithm: A search algorithm is an algorithm that searches through a collection of data to find a specific item or group of items. Common search algorithms include linear search, which searches through the data one item at a time until the target is found, and binary search, which searches through a sorted list by dividing the list in half at each step until the target is found.

Hashing: Hashing is a technique used to map data of arbitrary size to data of a fixed size. A hash function takes an input and returns a fixed-size output, known as a hash value or hash code. Hashing is often used in data structures, such as hash tables, to provide fast access to data.

Binary Tree: A binary tree is a tree data structure in which each node has at most two children, known as the left child and the right child. Binary trees are useful for representing hierarchical data, such as file systems and decision trees. Common operations on