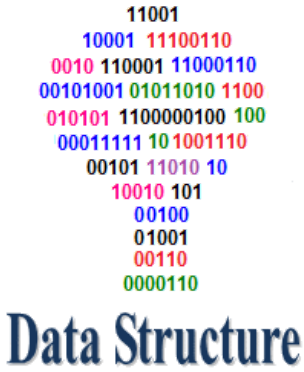
Data Structures Tutorial



Data Structures (DS) tutorial provides basic and advanced concepts of Data Structure. Our Data Structure tutorial is designed for beginners and professionals.

Data Structure is a way to store and organize data so that it can be used efficiently.

Our Data Structure tutorial includes all topics of Data Structure such as Array, Pointer, Structure, Linked List, Stack, Queue, Graph, Searching, Sorting, Programs, etc.

Data Structures Index

        - Deletion of node having given data
        - Traversing
        - Searching
    - Circular Linked List
        - Insertion at beginning
        - Insertion at end
        - Deletion at beginning
        - Deletion at the end
        - Traversing
        - Searching
    - Circular Doubly List
        - Insertion at beginning
        - Insertion at end
        - Deletion at beginning
        - Deletion at the end

DS Stack

- DS Stack
- Array Implementation
- Linked List Implementation

DS Queue

- DS Queue
- Array Implementation
- Linked List Implementation
- Circular Queue

DS Tree

- Tree
- Binary Tree
    - Pre-order Traversal
    - In-order Traversal
    - Post-order Traversal
- Binary Search Tree
    - Searching in BST
    - Insertion in BST
    - Deletion in BST
- AVL Tree
    - Insertion in AVL Tree
        - LL Rotation
        - LR Rotation
        - RL Rotation
        - RR Rotation
    - Deletion in AVL Tree
- B Tree
- B+ Tree
- Red Black Tree

DS Graph

- DS Graph
- Graph Implementation

- BFS Algorithm
- DFS Algorithm
- Spanning Tree
    - Prim's Algorithm
    - Kruskal's Algorithm

DS Searching

- Linear Search
- Binary Search

DS Sorting

- Bubble Sort
- Bucket Sort
- Comb Sort
- Counting Sort
- Heap Sort
- Insertion Sort
- Merge Sort
- Quick Sort
- Radix Sort
- Selection Sort
- Shell Sort
- Bitonic Sort
- Cocktail Sort
- Cycle Sort
- Tim Sort

Interview Questions

- DS Interview Questions

Singly Linked List Programs

- Program to create and display a singly linked list
- Program to create a singly linked list of n nodes and count the number of nodes
- Program to create a singly linked list of n nodes and display it in reverse order
- Program to delete a new node from the beginning of the singly linked list
- Program to delete a new node from the middle of the singly linked list
- Program to delete a node from the end of the singly linked list
- Program to determine whether a singly linked list is the palindrome
- Program to find the maximum and minimum value node from a singly linked list
- Program to insert a new node at the middle of the singly linked list
- Program to insert a new node at the beginning of the singly linked list

- Program to insert a new node at the end of the singly linked list
- Program to remove duplicate elements from a singly linked list
- Program to search an element in a singly linked list
- Program to sort the elements of the singly linked list
- Program to swap nodes in a singly linked list without swapping data
- Program to swap the last element of the singly linked list from the first one

Doubly Linked List Programs

- Program to Convert a Given Binary Tree to Doubly Linked List
- Program to Create a Doubly Linked List From a Ternary Tree
- Program to Create a Doubly Linked List of N Nodes and Count the Number of Nodes
- Program to Create a Doubly Linked List of N Nodes and Display it in Reverse Order
- Program to Create and Display a Doubly Linked List
- Program to Delete a New Node From the Beginning of the Doubly Linked List
- Program to Delete a New Node From the End of the Doubly Linked List
- Program to Delete a New Node From the Middle of the Doubly Linked List
- Program to Find the Maximum and Minimum Value Node From a Doubly Linked List
- Program to Insert a New Node at the Beginning of the Doubly Linked List
- Program to Insert a New Node at the End of Doubly Linked List
- Program to Insert a New Node at the Middle of Doubly Linked List
- Program to Remove Duplicate Elements From a Doubly Linked List
- Program to Rotate Doubly Linked List by N Nodes
- Program to Search an Element in a Doubly Linked List
- Program to Sort the Elements of the Doubly Linked List

Circular Linked List Programs

- Program to Create a Circular Linked List of N Nodes and Count the Number of Nodes
- Program to Create a Circular Linked List of N Nodes and Display it in

Reverse Order
- Program to Create and Display a Circular Linked List
- Program to Delete a New Node From the Beginning of the Circular Linked List
- Program to Delete a New Node From the End of the Circular Linked List
- Program to Delete a New Node From the Middle of the Circular Linked List
- Program to Find the Maximum and Minimum Value Node From a Circular Linked List
- Program to Insert a New Node at the Beginning of the Circular Linked List
- Program to Insert a New Node at the End of the Circular Linked List
- Program to Insert a New Node at the Middle of the Circular Linked List
- Program to Remove Duplicate Elements From a Circular Linked List
- Program to Search an Element in a Circular Linked List
- Program to Sort the Elements of the Circular Linked List

Tree Programs

- Program to Calculate the Difference Between the Sum of the Odd Level and Even Level Nodes of a Binary Tree
- Program to Construct a Binary Search Tree and Perform Deletion and Inorder Traversal
- Program to Convert Binary Tree to Binary Search Tree
- Program to Determine Whether all Leaves are at Same Level
- Program to Determine Whether two Trees are Identical
- Program to Find Maximum Width of a Binary Tree
- Program to Find the Largest Element in a Binary Tree
- Program to Find the Maximum Depth or Height of a Tree
- Program to Find the Nodes Which are at the Maximum Distance in a Binary Tree
- Program to Find the Smallest Element in a Binary Tree
- Program to Find the Sum of all the Nodes of a Binary Tree
- Program to Find the Total Number of Possible Binary Search Trees with N Keys

- Program to Implement Binary Tree using the Linked List
- Program to Search a Node in a Binary Tree

Prerequisite

Before learning Data Structure, you must have the basic knowledge of C.

Audience

Our Data Structure tutorial is designed to help beginners and professionals.

Problem

We assure that you will not find any problem in this Data Structure tutorial. But if there is any mistake, please post it in the contact form.

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